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## Veterans Park - Village of Elm Grove Native Landscape Management Plan

### Introduction

The Village of Elm Grove Veterans Park is a 1.8-acre public park located at the intersection of Juneau Boulevard and Legion Drive in Waukesha County. It borders Underwood Creek to the west, which periodically floods in spring with stormwater and snow melt. This park was made part of the municipal flood management infrastructure approximately twenty years ago and initially seeded with native plants. Due to extensive flooding the first two seasons after sowing, native species establishment was poor and the site was instead colonized by many invasive weeds. An additional attempt to plant natives occurred more recently, approximately ten years ago, to some success. In the interim there has been inconsistent maintenance except for a yearly mowing in the fall by village staff and volunteer work days to target invasive weeds such as purple loosestrife (*Lythrum salicaria*).

During our visit in September, we (Danielle Bell and Marian French from Native Roots and Nicci Sternitzky from the Elm Grove Beautification Committee) conducted a vegetation survey to document the existing vegetation. Map 1 notates the extent of 3 various plant communities that were found on site. A mowed public access trail that runs around the perimeter and through the middle of the park, effectively dividing the site into five work areas (see Map 2).



Looking south from park entrance over the basin at Veterans Park

## Existing Natural Resources

### Area 1

Area 1 consists of wetland prairie. There is no standing water, but the soil is consistently moist and flooded seasonally. Dominant native wetland plants include cup plant (*Silphium perfoliatum*). However, there is quite a bit of infiltration by cool-season grasses (*Festuca sp.*) and other invasive weeds, including Canada thistle (*Cirsium arvense*), that have formed thick colonies and are preventing any further establishment of native species.



Area 1 Existing vegetation dominated by cool season grasses

### Area 2

Area 2 consists of upland short prairie and is part of the drier half of the site. This area drains well and is dominated by short grasses including little bluestem (*Schizachyrium scoparium*), sideoats grama (*Bouteloua curtipendula*) and several aster species. There are several large portions of this area that are taken up by cool season grasses (*Festuca sp.*) and other invasive weeds.



Area 2 Existing vegetation is mix of native and non-native species

### Area 3

Area 3 consists of a woodland edge community, and borders Underwood Creek. This is an area that has seen recent volunteer work to clear buckthorn (*Rhamnus cathartica*). Because of the proximity to water and the seasonal floods, riparian tree species dominate here, including willows (*Salix sp.*) and boxelder (*Acer negundo*). The understory does contain the invasive buckthorn (*Rhamnus cathartica*) and honeysuckle (*Lonicera tartarica*), but there are also healthy populations of native sumac (*Rhus typhina*).

### Area 4

Area 4 consists of short upland prairie and is a very well drained, elevated portion of the site between a mowed public path and the concrete sidewalk and street. Much of this section was planted with native species using plugs instead of seed, and there appears to have been some success with survival. Dominant species include switchgrass (*Panicum virgatum*), ox-eye sunflower (*Heliopsis helianthoides*), and bergamot (*Monarda fistulosa*). There are some walnut seedlings (*Juglans nigra*) present. As with the other areas of the park, cool-season grasses and common weeds have infiltrated, but the overall diversity of native species appears to be much higher in the perimeter areas than in the middle of the site.



Area 4 Existing Vegetation is composed of diverse native upland species

**Area 5**

Area 5 consists of wetland prairie dominated by the native cup plant (*Silphium perfoliatum*) and thick mats of invasive cool-season grasses (*Festuca* sp.) and reed canary grass (*Phalaris arundinacea*). This area borders Underwood Creek and is downhill from a small parking lot, and so it handles the most runoff and highest volume of water on the site.

Table 1 lists non-native species that were documented during our fall site visit. Invasive species that are of high concern include: reed canary grass, purple loosestrife, Canada thistle, bird’s foot trefoil, crown vetch, and quackgrass. These are highly aggressive species that quickly form dense mats of vegetation that outcompete our native species. Chemical control is the most effective way to eliminate these species from the site.

Biennial weeds, Queen Anne’s lace, sweet clover, etc, can be controlled by preventing seed production. Using a string trimmer is the easiest way to move through the site and selectively target these species while leaving the surrounding native plants intact to flower and grow.

Table 2 is composed of native species that were found on site during our visit. There is a good diversity of species in the northern portion of the site where flood waters do not gather.

**Wildlife Species Found**

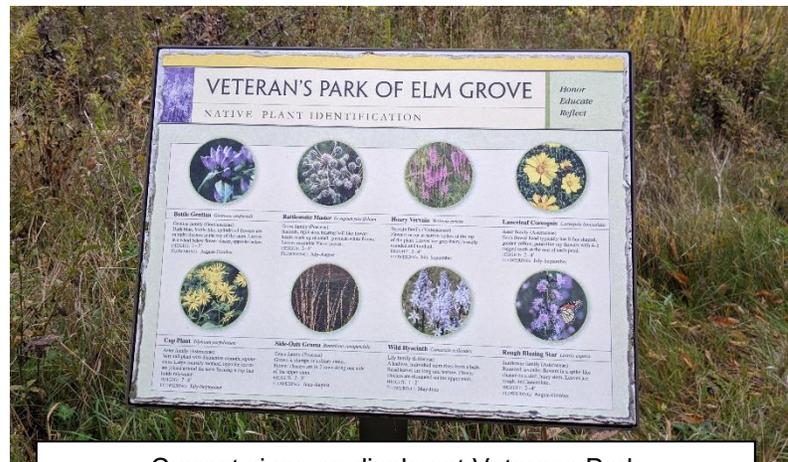
Several wildlife species were sighted during the walk-through of the property. Undoubtedly, many more species of wildlife utilize the park and will benefit from maintaining the diversity of herbaceous species they depend on. The wildlife species identified were red squirrel, bald eagle, red-bellied woodpecker, common eastern bumble bee, and ambush bugs. Bird and insect surveys are a useful tool to document wildlife using restored landscapes as critical habitat in urban areas. It is also a great way to connect the community to the space.

## Ecological Restoration Plan

In order to increase the diversity of native species in Veterans Park and therefore increase its natural beauty, habitat value and floodplain services, the invasive plants that have colonized large portions of the site must be removed and controlled. We recommend herbiciding the existing invasive vegetation in areas 1 & 2 and overseeding with a native seed mix.

A seasonally timed spray regime, spaced out by a few months, will be able to cover both warm and cool-season weeds. Areas 1 and 2 in particular can be completely sprayed with herbicide, but other areas may be selectively spot sprayed in order to preserve healthy sections of plants. Once more space has been opened up and weed competition is reduced, native species can be reintroduced. We recommend two distinct seed mixes for late fall/winter sowing once spraying has been completed - one mix for the wetter half of the site (Area 1, Area 5) and one mix for the drier half (Area 2, Area 4). Area 3 is very well established with woody plants and native sunflowers. This area doesn't need to be overseeded at this time.

There were several plant species listed on educational signage along the perimeter of the prairie that were not found on site at the time of our visit. It would be worthwhile to install live plants of these species, especially within sight of the signs where they are listed to add to the educational value of the park. There species include: Hoary Vervain (*Verbena stricta*), Dotted Mint (*Monarda punctata*), Downy Wood Mint (*Blephilia ciliata*), Cream False Indigo (*Baptisia bracteata*), , Rough Blazingstar (*Liatris aspera*), Bottle Gentian (*Gentiana andrewsii*). Wild Hyacinth (*Camassia scilloides*) and Great Blue Lobelia (*Lobelia siphilitica*) are also on the signage but both require more moisture than what is found in the upland areas. They could still be planted but in a more moist location.



Current signs on display at Veterans Park

### Year 1

#### Herbicide Spot Spraying - May through September.....

Once spring flooding has ended and there is no longer standing water on site, it is safe to use herbicide to spot-treat specific clumps of invasive plants. This method will be especially helpful in Area 4 and 5 where there are large areas of invasive grass and thistle but also many native species worth keeping. Target species include: purple loosestrife, Canada thistle, curly dock, and crown vetch. A non-selective herbicide, like glyphosate, can be mixed with a broadleaf herbicide to control the target weeds. Aquatic safe formulations should be used due to the close proximity of the treatment area to the Underwood Creek.

**Herbicide Broadcast Spraying Round One - August/September.....**

While the season is still warm, it’s time to uniformly spray in Area 1 and Area 2 to kill as much of the warm-season weeds as possible. Target areas are those dominated by cool season grasses like quackgrass and reed canary grass which would be treated with a non-selective herbicide such as glyphosate. A broadleaf herbicide can also be added to control broadleaf weeds like Canada thistle. Aquatic safe formulations should be used due to the close proximity of the treatment area to the Underwood Creek. See Map 3 for treatment areas.

**Herbicide Broadcast Spraying Round Two – September/October.....**

As fall temperatures and colder nights arrive, the timing is right to once again spray Area 1 and Area 2 in order to kill as much of the cool-season weeds as possible. This will also give another dose of herbicide (such as aquatic safe glyphosate) to any plants that may not have completely died from the previous application. Target areas are those dominated by cool season grasses like quackgrass and reed canary grass. See Map 3.

**Fall Mowing - mid-November.....**

It’s best to wait at least two weeks after the final herbicide application to ensure maximum absorption of the herbicide before mowing. Areas 1 & 2 can be mowed as close to the ground as possible to prepare the areas for fall seeding. The remainder of the site can be mowed according to normal maintenance procedures.

If there is thick thatch layer, it would be helpful to rake away as much of the plant debris as possible. This can be done mechanically or by volunteers and rakes (depending on the size of the space to clear). The thatch can also be burned off if the city allows. Any material raked off should be disposed of offsite. Native seeds require good soil contact and sunlight to germinate and if there is too much debris, they may fail to germinate in spring.

**Fall/Winter Seeding - Late November/December.....**

Dormant seeding allows the native seed to go through the natural stratification process of freeze/thaw cycles of winter. We recommend seeding the following native seed mixes once the ground has slightly frozen. Ideally seed sowing is done before a snow event. This covers and protects the seed from predation by mammals and birds. It also begins the process of moving the seeds into contact with the soil for good germination in the spring. The native seed can be broadcast by hand or by machine. If done by hand, it is best to use a carrier such as sawdust or peat moss. We also recommend dividing the seed mixture in half, sowing the first half walking in a north-south orientation over the entire space, then with the second half in a east-west orientation. Annual rye grass should be used as a cover crop for the larger areas that were treated with herbicide. Cover crop is sown at a rate of 15 pounds per acre in the fall. Volunteers could be utilized for the fall seeding to include the community.

For open areas in Area 5 and all of Area 1 we recommend using the Detention Basin - Bioswale seed mix from Prairie Nursery, applied at the seeding rate of 10 lbs/acre. Approximately 0.2 acres (9,000 sf)

<https://www.prairienursery.com/detention-basin-bioswale.html>

For open areas in Area 4 and all of Area 2 we recommend using the Tall Prairie for Medium to Clay Soils seed mix from Prairie Nursery, applied at the seeding rate of 10 lbs/acre. Approximately 0.2 acres (9,000 sf)

<https://www.prairienursery.com/tall-prairie-for-medium-to-clay-soils.html>

## **Year 2**

Continually monitoring for the return of any invasive weeds that may not have been completely killed off from the previous rounds of spraying is necessary to the success of the seeding.

For Areas 1 & 2

A new mowing regime should be implemented to cut the site down to a height of 4-6 inches at least three times during the season, as the weeds reach about a foot high. If need be, this can also be done using a string trimmer to knock down flowering weeds before they go to seed. In fall, let vegetation stand at least a foot tall in order to help insulate all the native seedlings.

For Areas 3, 4, 5

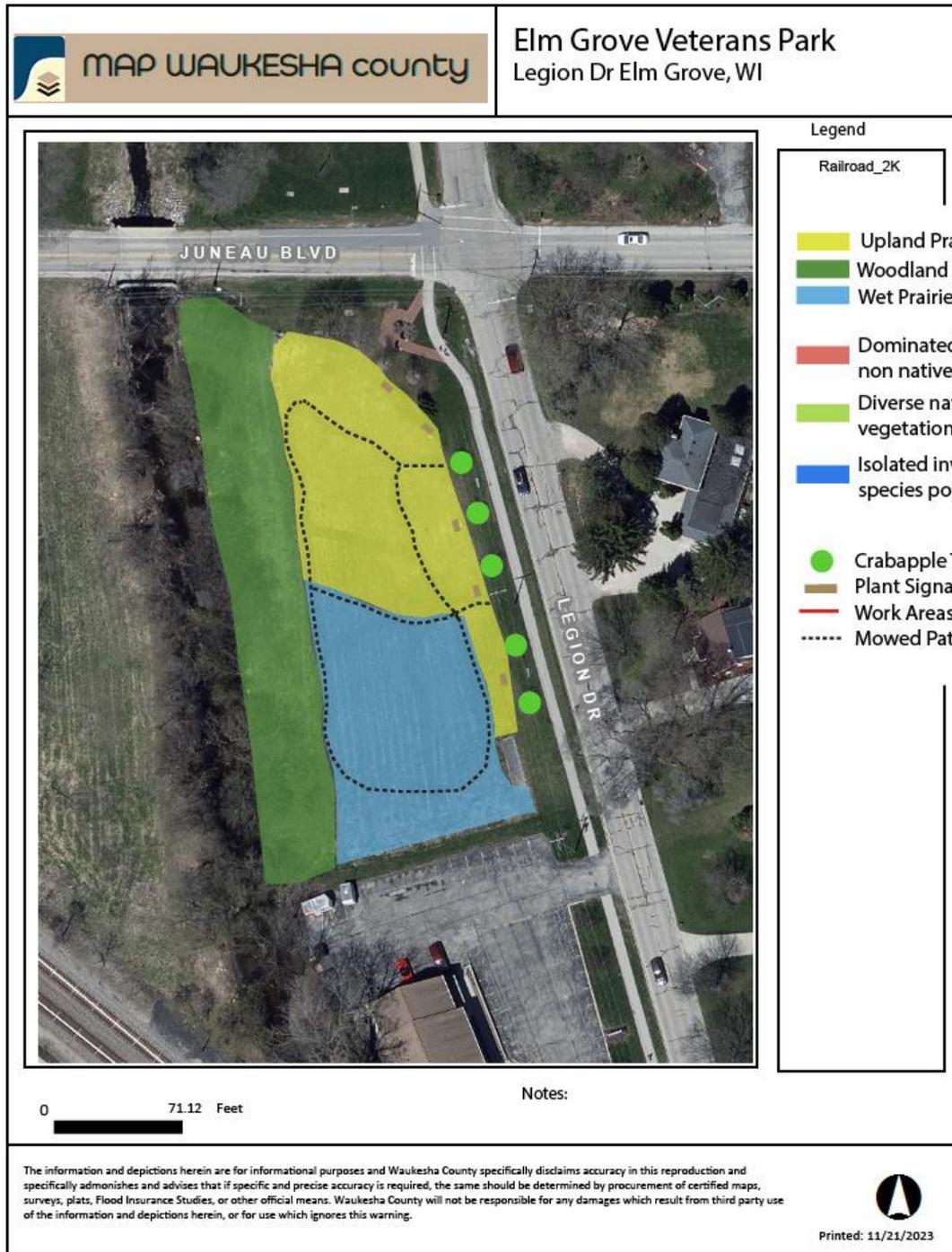
Selective herbicide applications of invasives (reed canary grass, purple loosestrife, etc)

## **Year 3 (and beyond)**

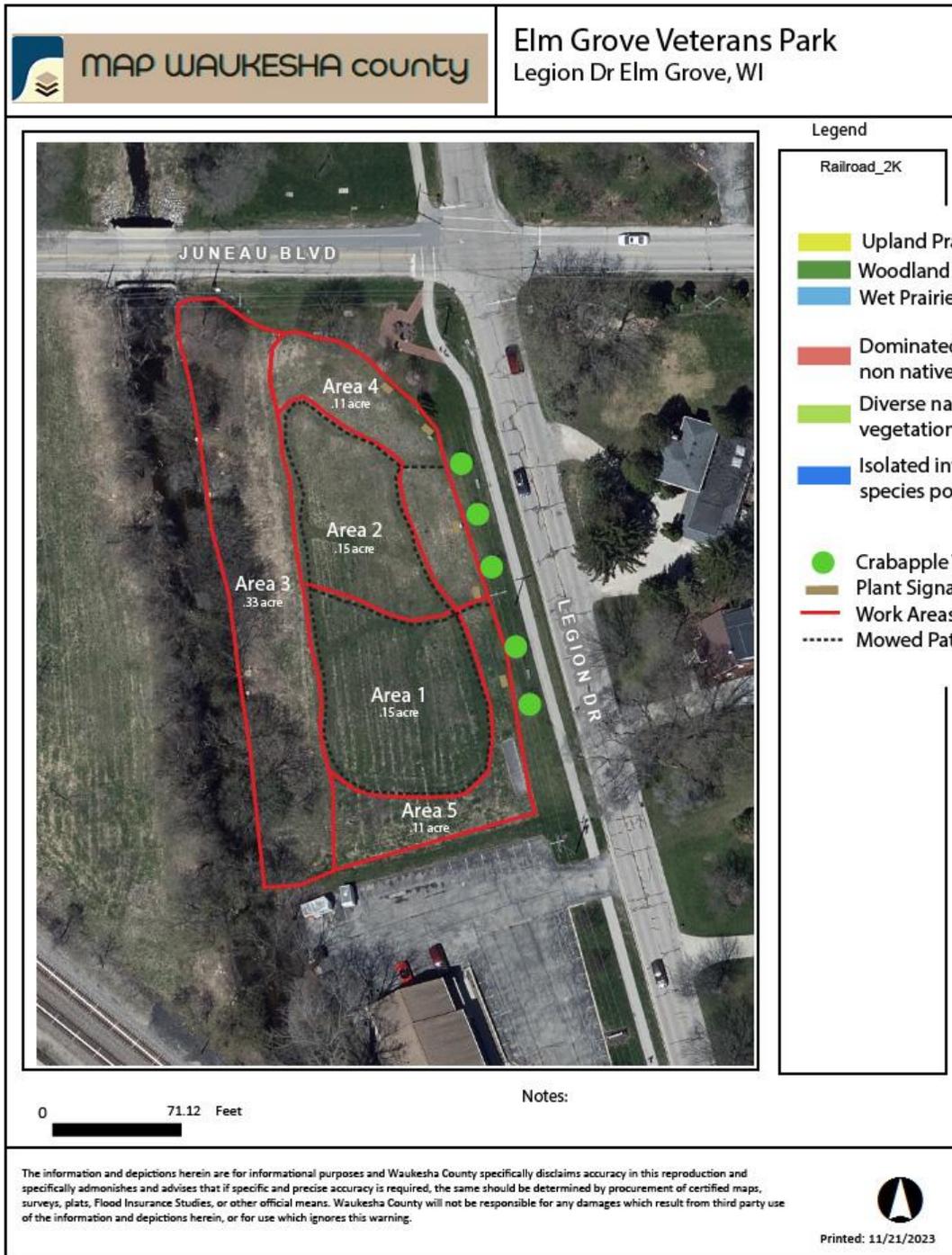
Mow the site as early in the spring as possible, selective mowing may still be required for the season to prevent biennial and perennial weeds from flowering and producing seeds.

Continually monitor for invasive weeds or grasses, as these may require spraying to limit their spread over the site.

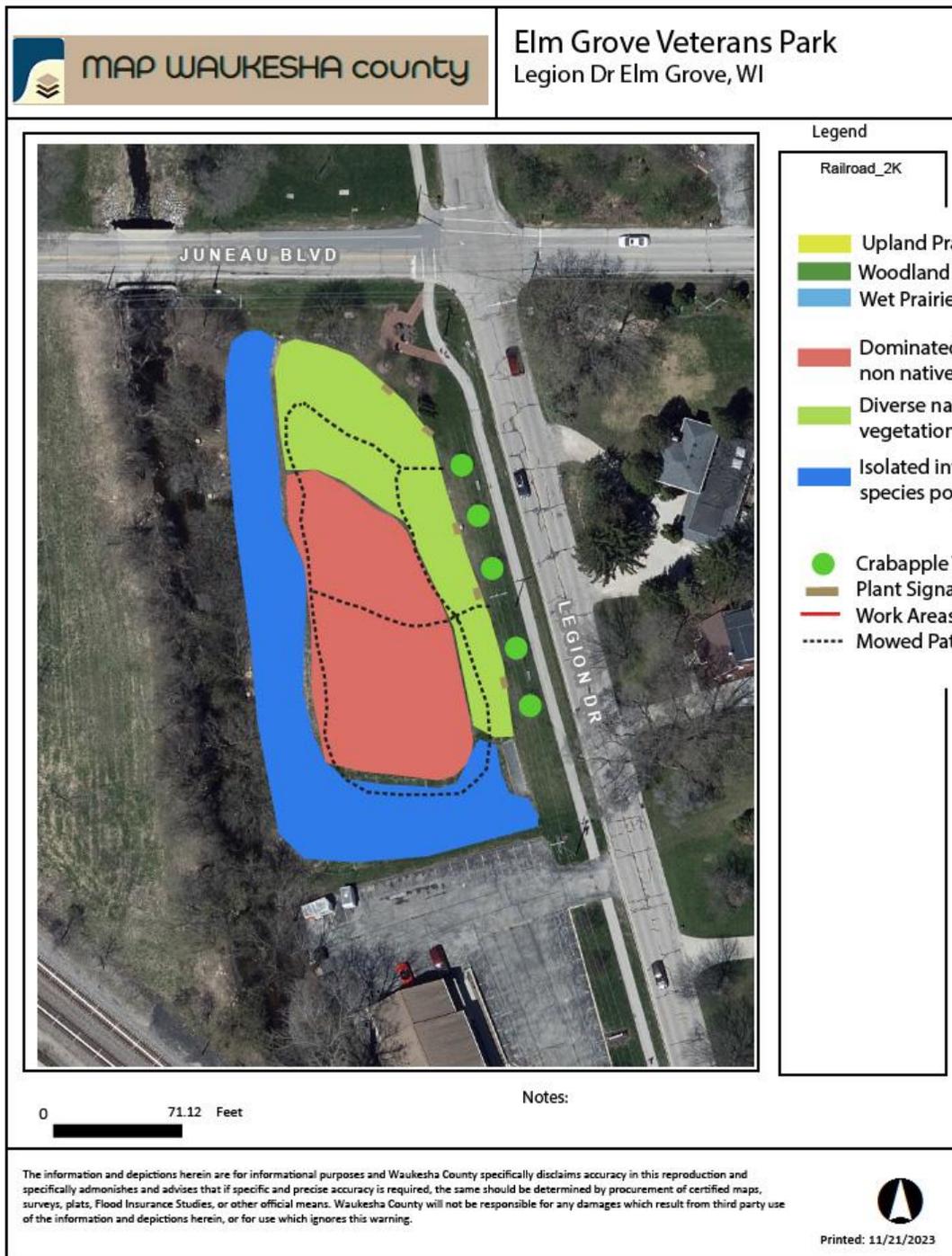
Map 1: Existing Vegetation



Map 2: Work Areas



Map 3: Broadcast Herbicide Treatment Areas



Elm Grove Veterans Park Species Inventory

Table 1: Invasive and Weedy Species:

<b>Common Name</b>	<b>Latin Name</b>
Ragweed	<i>Ambrosia trifida</i>
Chicory	<i>Cichorium intybus</i>
Canada thistle*	<i>Cirsium arvense</i>
Bindweed	<i>Convolvulus arvensis</i>
Queen Anne's lace	<i>Daucus carota</i>
Quackgrass	<i>Elymus repens</i>
Creeping Charlie	<i>Glechoma hederacea</i>
Butter and eggs	<i>Linaria vulgaris</i>
Bird's-foot trefoil*	<i>Lotus corniculatus</i>
Purple loosestrife*	<i>Lythrum salicaria</i>
Sweet clover	<i>Melilotus officinalis</i>
Reed canary grass*	<i>Phalaris arundinacea</i>
Narrow-leaf plantain	<i>Plantago lanceolata</i>
Curly dock	<i>Rumex crispus</i>
Crown vetch*	<i>Securigera varia</i>
Red clover	<i>Trifolium pratense</i>
Cocklebur	<i>Xanthium strumarium</i>

\*Invasive species

Table 2: Native Species

<b>Common Name</b>	<b>Latin Name</b>
Nodding onion	<i>Allium cernuum</i>
Leadplant	<i>Amorpha canescens</i>
Big Bluestem	<i>Andropogon gerardi</i>
Swamp milkweed	<i>Asclepias incarnata</i>
Common milkweed	<i>Asclepias syriaca</i>
Butterfly milkweed	<i>Asclepias tuberosa</i>
Cream false indigo	<i>Baptisia bracteata</i>
Downy-wood mint*	<i>Blephilia ciliata</i>
Sideoats Grama	<i>Bouteloua curtipendula</i>
Wild hyacinth	<i>Camassia scilloides</i>
New Jersey tea	<i>Ceanothus americanus</i>
Lanceleaf coreopsis	<i>Coreopsis lanceolata</i>
Purple prairie clover	<i>Dalea purpurea</i>
Showy tick trefoil	<i>Desmodium canadense</i>
Purple coneflower	<i>Echinacea purpurea</i>
Canada rye	<i>Elymus canadensis</i>
Bottlebrush grass	<i>Elymus hystrix</i>
Virginia rye	<i>Elymus virginicus</i>
Rattlesnake master	<i>Eryngium yuccifolium</i>
Sweet Joe-pye-weed	<i>Eupatorium purpureum</i>
Grass-leaved goldenrod	<i>Euthamia graminifolia</i>
Bottle gentian	<i>Gentiana andrewsii</i>
Sneezeweed	<i>Helenium autumnale</i>
Ox-eye sunflower	<i>Heliopsis helianthoides</i>
Cow parsnip	<i>Heracleum maximum</i>
Blue flag iris	<i>Iris versicolor</i>

Table 2: Native Species continued

<b>Common Name</b>	<b>Latin Name</b>
Rough blazingstar	<i>Liatrix aspera</i>
Blue lobelia	<i>Lobelia siphilitica</i>
Bergamot	<i>Monarda fistulosa</i>
Dotted mint	<i>Monarda punctata</i>
Evening primrose	<i>Oenothera biennis</i>
Switchgrass	<i>Panicum virgatum</i>
Wild quinine	<i>Parthenium integrifolium</i>
Smooth penstemon	<i>Penstemon digitalis</i>
Groundcherry	<i>Physalis</i>
Heal-all	<i>Prunella vulgaris</i>
Mountain mint	<i>Pycnanthemum virginianum</i>
Gray headed coneflower	<i>Ratibida pinnata</i>
Black-eyed Susan	<i>Rudbeckia hirta</i>
Green headed/Cutleaf coneflower	<i>Rudbeckia laciniata</i>
Brown-eyed Susan	<i>Rudbeckia triloba</i>
Wild petunia	<i>Ruellia humilis</i>
Little Bluestem	<i>Schizachyrium scoparium</i>
Rosin weed	<i>Silphium integrifolium</i>
Compass plant	<i>Silphium laciniatum</i>
Cup plant	<i>Silphium perfoliatum</i>
Prairie dock	<i>Silphium terebinthinaceum</i>
Canada goldenrod	<i>Solidago canadensis</i>
Stiff goldenrod	<i>Solidago rigida</i>
Wood blue aster	<i>Symphotrichum cordifolium</i>
Heath aster	<i>Symphotrichum ericoides</i>
New England aster	<i>Symphotrichum Novae-angliae</i>

Table 2: Native Species continued

<b>Common Name</b>	<b>Latin Name</b>
Hairy aster	<i>Symphotrichum pilosum</i>
Arrowleaf aster	<i>Symphotrichum urophyllum</i>
Spiderwort*	<i>Tradescantia virginiana</i>
Blue vervain	<i>Verbena hastata</i>
Hoary vervain	<i>Verbena stricta</i>
White vervain	<i>Verbena urticifolia</i>
Ironweed	<i>Vernonia fasciculata</i>
Golden Alexander	<i>Zizia aurea</i>

Table 3: Woody Species

<b>Common Name</b>	<b>Latin Name</b>
Boxelder	<i>Acer negundo</i>
Black Walnut	<i>Juglans nigra</i>
Honeysuckle*	<i>Lonicera tartarica</i>
White Mulberry*	<i>Morus alba</i>
Callery Pear*	<i>Pyrus calleryana</i>
Common Buckthorn*	<i>Rhamnus cathartica</i>
Staghorn Sumac	<i>Rhus typhina</i>
Willow	<i>Salix sp.</i>
Siberian elm*	<i>Ulmus pumila</i>
Grapevine	<i>Vitis riparia</i>

\*Invasive species