

Fox Valley Phragmites and Japanese Knotweed Management Plan

Prepared by:

Glacierland Resource Conservation & Development Council, Inc.
PO Box 11203
Green Bay, WI 54307



Stantec Consulting Services Inc.
1165 Scheuring Road
De Pere, Wisconsin 54115
Phone: (920) 592-8400



Fox-Wolf Watershed Alliance
PO Box 1861
Appleton, WI 54912



TABLE OF CONTENTS

INTRODUCTION	1
PROJECT AREA.....	2
HISTORICAL CONTROL ACTIONS.....	4
BROWN COUNTY	5
OUTAGAMIE COUNTY	5
WAUPACA COUNTY	6
WINNEBAGO COUNTY.....	6
PRIORITY TREATMENT AREAS.....	6
LONG-TERM CONTROL STRATEGY	7
COLLABORATIVE STAKEHOLDER ENGAGEMENT	8
PUBLIC COMMENT	9
THREATS TO AQUATIC ECOSYSTEMS	10
BIOLOGICAL AND ECOLOGICAL THREAT	10
SOCIAL, RECREATIONAL AND ECONOMIC IMPACTS.....	11
HISTORICAL AND CURRENT CONDITION	11
BROWN COUNTY	11
OUTAGAMIE COUNTY	12
WAUPACA COUNTY	12
WINNEBAGO COUNTY.....	13
FISHERY, WILDLIFE, AND AQUATIC PLANT COMMUNITY	14
BROWN COUNTY	14
OUTAGAMIE COUNTY	14
WAUPACA COUNTY	15
WINNEBAGO COUNTY.....	15
PROJECT PURPOSE AND NEED	16
MANAGEMENT OBJECTIVES	17
MANAGEMENT APPROACH.....	18
ALTERNATIVE AND PROPOSED MANAGEMENT ACTIONS.....	18
Phragmites Control	18
Japanese knotweed Control.....	19

July 31, 2025

NO MANAGEMENT.....	20
MINIMIZATION OF ADVERSE IMPACTS	20
RESTORATION AND RECOVERY	21
MONITORING AND PREVENTION STRATEGY	22
CONTINGENCY STRATEGY	25
PROJECT FEASIBILITY	26
REFERENCES	27

Tables: Table 1. Web-map Data Collection Schema

Attachment A: Figure 1 - Brown County Invasive Species Areas
Figure 2 - Outagamie County Invasive Species Areas
Figure 3 - Waupaca County Invasive Species Areas
Figure 4 - Winnebago County Invasive Species Area

INTRODUCTION

On behalf of multiple partners and stakeholders, Stantec Consulting Services Inc. (Stantec), Glacierland Resource Conservation & Development Council, Inc. (Glacierland RC&D), and Fox Wolf Watershed Alliance (FWWA) drafted this Management Plan detailing proposed treatment strategies to control target non-native invasive species using a county-wide eradication of localized populations within the four-county region within the Fox Valley. Many Wisconsin Department of Natural Resource (DNR)-owned and protected state parks, state natural areas, wildlife areas and easements fall under this plan. Project partners will work closely with all DNR land managers to assist with identification, mapping, and treatment but will rely on DNR or partner organizations to complete reconnaissance on DNR-owned properties.

This Management Plan encompasses a four-county region including Brown, Outagamie, Waupaca, and Winnebago counties and the Oneida Nation in northeast Wisconsin (the “Project Area”). Stantec, Glacierland RC&D and FWWA provide the opportunity for partners to share and leverage limited resources, raise awareness about invasive species problems, and collaboratively reduce the impact of invasive species on both public and private lands. The mission of our collective organizations is to coordinate management of invasive species through community-wide collaboration, education, mapping, and control.

Project stakeholders and other project partners have identified goals for the project area, which include: raising public awareness about invasive species in the Project Area; preventing their introduction and spread through early detection and rapid response; addressing known populations of invasive species utilizing Integrated Invasive Species Management methods where appropriate; considering invasive species during restoration projects; and continually working to enhance collaboration among all stakeholders. The strategy is to build strong local partnerships and implement effective and long-term control strategies for the target invasive species across a regional landscape. Possible partners and affiliates that will advance the proposed activities set forth in this Management Plan, include, but are not limited to:

- Brown County
- Outagamie County
- Waupaca County
- Winnebago County
- Oneida Nation of Wisconsin
- Stantec Consulting Services, Inc.
- Wisconsin DNR
- University/Research Partners
- U.S. Department of Agriculture - Natural Resources Conservation Service (NRCS)
- U.S. Fish and Wildlife Service
- Partner non-profits

This Management Plan targets the invasive common reed grass (*Phragmites australis* subsp. *australis*), commonly referred to as *Phragmites*, and Japanese knotweed (*Fallopia japonica*; synonyms: *Reynoutria japonica*, *Polygonum cuspidatum*).

Although there is a native subspecies of *Phragmites* that occurs naturally within Wisconsin wetlands, that is abundant within the Project Area, this management plan focuses on the extremely aggressive, non-native subspecies that has invaded roadsides, wetlands, and shorelines across the Great Lakes region. The spread and colonization of this species has severe consequences to native ecosystems, reduces access to recreational opportunities, degrades viewsheds and aesthetic appeal of beaches and shorelines, and has negative economic impacts including reduced property values, with an associated reduction in property tax revenues. Japanese knotweed is also a highly aggressive, invasive species that typically colonizes roadsides, railroad and other embankments, riverbanks, woodland edges, and wetlands throughout the region. Japanese knotweed forms extensive colonies of shrub-like stems up to 10 ft. tall and can aggressively outcompete native vegetation.

The objectives of this Management Plan are to: 1) update and improve the monitoring and mapping of established *Phragmites* and Japanese knotweed populations within the Fox Valley region; 2) establish a rapid response reporting and treatment protocol to address emergent infestations; 3) reduce percent cover of established populations of *Phragmites* and Japanese knotweed where treatment practices are not currently in place; 4) perform retreatments until the population is eradicated; 5) minimize the spread to un-infested areas; 6) educate and provide private landowners with the ability to control the target invasive species on their respective properties; 7) collaborate with local nonprofits, municipalities, federal and state agencies, research institutions and private individuals actively controlling *Phragmites* and/or Japanese knotweed populations to maximize efficiency; and 8) develop and expand the highly successful, sustainable, long-term control strategy initiated in the eastern counties, and replicate across the Project Area.

PROJECT AREA

The Project Area is located in the Central Lake Michigan Coastal, Central Sand Hills, Forest Transition, and Southeast Glacial Plains Ecological Landscapes of Wisconsin. The four counties cover a combined area of 2,347 square miles (1,502,080 acres). At the time of the first European settlement, the area was predominately a mesic forested landscape dominated by sugar maple (*Acer saccharum*), American basswood (*Tilia americana*) and American Beech (*Fagus grandifolia*). Southern portions of the Project Area are located in the Southeast Glacial Plains and were characterized by a rolling landscape with a mix of oak savanna, oak forest, prairie, and wetland. Euro-American settlers cut down forests for lumber, cleared uplands and drained wetlands to create farmland. The Central Lake Michigan Coast has suffered an overwhelming loss of mesic forest cover with only a small percentage (14% versus 96% historically) remaining.

Almost all the savanna and prairie in the Southeast Glacial Plains have been converted to agricultural use, and with scattered woodlots and wetland areas separated by cropland and pasture. Western portion of the Project Area are located in the Forest Transition and Central Sand Hills. The Forest Transition were characterized primarily as northern hardwood and hemlock-hardwood forests dominated by sugar maple, eastern hemlock (*Tsuga canadensis*), yellow birch (*Betula alleghaniensis*), red pine (*Pinus resinosa*), and eastern white pine (*Pinus strobus*). Currently, approximately 44% of the Forest Transition ecological landscape is forested, compared to 86% per Euro-American settlement. The Central Sand Hills was characterized as oak forest, oak savanna, and tallgrass prairie. Currently, the Central Sand Hills is composed of one-third agricultural and one-quarter non-native grasslands.

Along with loss of native forest cover, other significant vegetation changes have occurred because of hydrological disruption, fragmentation and isolation of remnant forests and open wetlands, grazing, and an increase in invasive plants and plant pathogens affecting remaining native vegetation communities. Anthropogenic activities associated with agriculture, transportation, industrial activity and commercial and residential development are the primary disturbances in the Project Area. Changes in land use have indirectly and negatively affected water quality, disturbed or eliminated habitats, altered natural disturbance regimes, and increased flood frequency due to loss of wetlands.

Agriculture is the dominant land use by area with several small and medium-sized cities and some large, forested wetlands. Current forest vegetation includes a mix of species including sugar maple, American basswood, white ash (*Fraxinus americana*), red maple (*Acer rubrum*), northern white-cedar (*Thuja occidentalis*), eastern white pine, red pine, eastern hemlock, lowland hardwood species including green ash (*Fraxinus pennsylvanica*), black ash (*Fraxinus nigra*), swamp white oak (*Quercus bicolor*), and eastern cottonwood (*Populus deltoides*). Significant wetland ecosystems, such as marshes, wet meadows, sedge meadows, hardwood swamps, and conifer swamps, contain plants of both northern and southern distribution.

The four-county Project Area is primarily located within the Lake Michigan basin. It includes six DNR Water Management Units (WMUs): Manitowoc-Sheboygan, reaching up into southern Brown County; Upper Fox in southern Winnebago County; Lower Fox in central Brown County, and Twin-Door-Kewaunee in eastern Brown County; Wolf River in Waupaca County and western Outagamie County; and Green Bay in northern Brown County. Runoff from point and non-point sources, sedimentation and nutrient-enriched runoff from agricultural and stormwater sources, contaminated lake and river sediments from industry, habitat degradation (e.g., channelization, dams, ditching, tiling and draining of wetlands for cultivation) have degraded water quality throughout much of these watersheds.

The eastern portion of Brown County lies along the Niagara Escarpment stretching from eastern Wisconsin through Michigan's Upper Peninsula, across Ontario, Canada, and on through the Niagara Falls in New York. The escarpment was originally deposited as lime mud on an ancient

sea floor about 430 million years ago and has since undergone uplift, weathering, and erosion. It is home to over 240 different rare, threatened, or endangered plant and animal species, including northern white-cedar trees that are more than 1,000 years old, and is an important source for groundwater recharge.

Lower Wolf River Bottomlands Natural Resources Area, Mukwa Bottomland Forest, Rat River, Wolf River, Deer Creek, and Holland Wildlife Areas are all significant conservation areas in the inland portion of the Project Area. Lower Wolf River Bottomlands, Mukwa Bottomland Forest, and Holland Wildlife Area contain bottomland hardwoods, cedar forest, swamp hardwoods, along with multiple impoundments and grassland habitats. Rat River Wildlife Area contains emergent marsh and wet meadow wetland communities that support many migratory birds and wildlife habitats. Deer Creek Wildlife Area contains a central peat bog surrounded by rolling uplands, along with open fields, swamp conifer, lowland shrubs, bog and pine plantation. Other notable, significant areas include in Suamico River, Green Bay West Shores, Red Banks Alvar, Barkhausen Waterfowl Preserve, and Bay Beach Wildlife Sanctuary in Brown County; Mack, Hortonville Bog, Rem-Wolf River-Hortonville flats, Gordon Bubolz Nature Preserve, Mosquito Hill Nature Center, and Guckenberg-Sturm Preserve in Outagamie County; Jackson Creek Woods, Mud Lake Bogs, Emmons Creek Barrens, and Little Wolf River in Waupaca County; Deppe, Poygan Marsh, Oshkosh-Larsen Trail Prairies, and Rush Lake in Winnebago County. These communities are increasingly susceptible to *Phragmites* invasion.

HISTORICAL CONTROL ACTIONS

The Project has achieved many milestones and measurable results in invasive species reduction, which vary by county and level of partner involvement. The Project is supported by stakeholders including private landowners; local, county, state, and federal agencies and highway departments; and non-profit organizations, but the level of support and coordination varies by county and funding level. Counties where funding has been secured generally have a more robust team that coordinates regularly. Throughout the Project Area, stakeholders and partners have accomplished the following:

- Created a GIS-based mapping platform to document *Phragmites* and Japanese knotweed populations, treatment results, landowner parcels and access permission, aerial photography, roads, waterways, and WDNR-mapped wetlands.
- Established the first accurate data set of the extent and distribution of *Phragmites* and Japanese knotweed across the Project, shared data with partner organizations, agencies, and basin wide invasive species control consortiums.
- Secured multiple grants from federal, state and local sources to map target invasive species.
- Enhanced public awareness of the impact of invasive species on Great Lakes ecosystems.

- Increased capacity of concerned citizens to conduct invasive species management.

Phragmites and Japanese knotweed distribution within the four-county area are depicted on Figures 1—4 and can be viewed in more detail on the projects public web map: <http://bit.ly/InvasiveWebMap>. The purpose of this public web map is to allow landowners and the public to verify target species location, track treatment progress, verify their enrollment in the program and report new populations. Limited information is available on the public web map. The project team and partners maintain an internal web map accessible only by authorized users to record a variety of field data. A summary of historic control actions is presented below by county.

Brown County

The following summarizes historical and on-going control projects in Brown County, which are also displayed on Figure (1)

- WDNR have treated *Phragmites* at Red Banks Alvar State Natural Area each September between 2020 and 2023. Acres treated each year are shown below.
 - o 09/2020- 0.25 acres
 - o 09/2021- 9.94 acres
 - o 09/2022- 0.69 acres
 - o 09/2023- 0.51 acres
- WDNR and Ducks Unlimited treated 149.4 acres of *Phragmites* populations at Green Bay West Shores in 2020.
- WDNR treated 6.74 acres of *Phragmites* at Holland Wildlife Area in May 2020.
- From March 2023 – December 2024, Glacierland RC&D received WDNR funding to target and map invasive species including *Phragmites* and Japanese Knotweed throughout the county.

Outagamie County

The following summarizes historical and on-going control projects in Outagamie, which are also displayed on Figure (2)

- Glacierland RC&D is aware of control efforts that have taken place in Outagamie County Wildlife Areas, however, no reports were provided to us within the reporting timeframe.
- From March 2021 – August 2022, Fox Wolf Watershed Alliance received WDNR funding to target and map invasive species including *Phragmites* and Japanese Knotweed throughout the county.

Waupaca County

The following summarizes historical and on-going control projects in Waupaca County, which are also displayed on Figure (3)

- According to WDNR staff, there have been no control initiatives within the past 10 years.
- From March 2021 – August 2022, Fox Wolf Watershed Alliance received WDNR funding to target and map invasive species including *Phragmites* and Japanese Knotweed throughout the eastern portion of the county.

Winnebago County

The following summarizes historical and on-going control projects in Winnebago County, which are also displayed on Figure (4)

- According to WDNR staff, there has been little control efforts focused on *Phragmites* on state land in Winnebago County.
- From March 2022 – January 2023, Fox Wolf Watershed Alliance received WDNR funding to target and map invasive species including *Phragmites* and Japanese Knotweed throughout the county.

PRIORITY TREATMENT AREAS

This Management Plan will be implemented in phases pending funding availability. Priority will be given to counties where limited control actions have been initiated and where local groups have organized to support control efforts. Populations that most strongly meet the criteria listed below are prioritized accordingly by county, and treatment efforts are implemented in order of priority rank to ensure resources are directed where they will have the greatest impact. However, supplemental funding may be needed in counties with on-going control as multiple years of repeated treatments are needed to eradicate populations. When funding is secured for a given area, treatment sites will be prioritized based on a set of criteria and protocols, which include, but are not limited to:

1. Position within a watershed - Infestations residing in and/or near headwater areas of a watershed and/or within water bodies such as lakes or streams are important to identify as high priorities for treatment. These locations facilitate the propagation and spread of *Phragmites* and Japanese knotweed along waterways to downstream wetlands, water bodies, and riparian areas, further impacting both natural and developed landscapes.
2. Feasibility of Control - Feasibility is assessed based on the practicality and cost-effectiveness of treating a given infestation. While total area is a key factor, larger infestations generally require more time, resources, and funding. Other considerations

include accessibility, density, and likelihood of successful long-term control. Infestations that are classified as monotypic (dominated entirely by the target species) and do not meet ecological or strategic treatment criteria are typically considered low priority due to the high cost and reduced likelihood of successful restoration outcomes.

3. Assurance of Long-Term Management - Project partners with organizations, agencies and local units of government that will commit to long-term abatement practices. Project partners will work with the townships in the counties to encourage similar participation for long-term and comprehensive control of *Phragmites*.
4. Proximity to Natural and Native Communities - The presence and diversity of intact native plant communities are indicators of overall environmental quality, resiliency and function. They harbor some of our most valued and sensitive plant and wildlife species, and the highest quality examples may be designated as State Natural Areas by the WDNR Bureau of Natural Heritage Conservation. Infestations within or near native communities of high quality pose a direct threat to their continued existence and are therefore considered high priority areas for treatment.
5. Connectivity - Those areas in which invasive species are more likely to be introduced and spread are a high priority for this Project. These areas include riparian corridors, waterways, roadside and/or drainage ditches, road crossings over riparian corridors, culverts, public access points (e.g., boat launches, public fishing access, parking areas, beaches), recreational areas, shorelines and floodplain systems.

LONG-TERM CONTROL STRATEGY

Project partner's community engagement focus includes multiple partnerships working toward *Phragmites* and Japanese knotweed control. Partners will continue to engage the local community through educational trainings, workshops, meetings and conferences. Where feasible, partner organizations/entities will be encouraged to assist with long-term management and control commitments. "Long-term" in this context refers to a strategic plan that extends 10 or more years, with the understanding that effective control of these species requires consistent, adaptive management over time. The plan is designed to remain flexible as conditions evolve, whether due to shifts in infestation patterns, funding availability, or stakeholder priorities. As *Phragmites* and Japanese knotweed populations change, partner engagement and community involvement will be adjusted accordingly to ensure effective management.

Partners will use the following educational opportunities to highlight the need for invasive species control and prevention and advance best available adaptive management practices for long-term control of *Phragmites* and Japanese knotweed:

- Host invasive control and restoration field days
- Work with partners to develop stewardship and educational materials

- Collaborate with research institutions on mapping, adaptive management and building a treatment model
- Engage youth through a variety of educational programs
- Facilitate workshops and trainings focused on invasive species control and BMPs
- Work with local watershed partners on training through the Riverine Early Detectors volunteer program (Project RED)
- Share the GIS mapping data on a web-enabled platform providing treatment information, restoration success and other Project information with partners and others to inform invasive species management across the region

This Project partners with organizations, agencies, local units of government and private landowners that will commit to long-term monitoring and management of their sites to maintain habitat value and continued control of *Phragmites* and Japanese knotweed. The partners will work with the townships and county governments to train highway department staff on implementing effective invasive control BMP's and to encourage cooperation between local and county units of government for long-term sustained control. Landowners will be offered training on identification and management of invasive species on their lands and funds will be available to support revegetation where needed. Data collected on species populations throughout the Project will be available to support and prioritize ongoing treatment and restoration efforts and to inform long-term adaptive management. Project partners are in the process of establishing a management fund with support from town governments, county, businesses and private citizens to provide long-term financial support for re-treatments when all grant funding has been used, until populations have been eradicated.

Landowners with documented *Phragmites* and/or Japanese knotweed populations will be provided with educational materials and will receive a Landowner Participation form which will authorize the contractor to provide treatment on their property. Project partners will continue to identify additional *Phragmites* and Japanese knotweed treatment sites throughout the Project Area in part relying on citizen science volunteers documenting infestations on their own land or in their neighborhoods. Once verified, and pending receipt of a signed Landowner Participation form, verified infestations will be prioritized for control. These populations will be evaluated to determine where they fit within the overall prioritization scheme. Verified populations will be added to the Project GIS dataset and shared with regional invasive species management partners.

The term "eradication" in this plan refers to local or site-specific extermination of *Phragmites* or knotweed where feasible, rather than region-wide elimination, particularly in dense areas such as Brown County.

COLLABORATIVE STAKEHOLDER INVOLVEMENT

Partner involvement started with meetings including Collaborative Invasive Species Management Areas (CISMA) within the Fox Valley. Partners agreed that expansion of *Phragmites* and

Japanese knotweed species control into the Fox Valley was necessary to eradicate additional populations in Northeast Wisconsin. The objectives were drawn from the Lakeshore Invasive Species Management Area (LISMA) Phragmites and Japanese knotweed Management Plan where successful eradication efforts are seen.

DNR Wildlife Management and Property Managers throughout the four counties provided input on historical control actions to help identify areas lacking treatment to support the need for restoration.

There was an initial meeting between Glacierland RC&D, Stantec, Fox Wolf Watershed Alliance, and Golden Sands RC&D to discuss the project scope, priorities for the management plan and roles of each partner in detail. This meeting took place virtually on:

- Brown County Treatment Project Discussion – September 8, 2023 (11:30am-12:30pm)

There were several meetings with the NEWIP discussing the project and goals in further detail. The meetings were planned to gauge what level of involvement they wanted or could provide to the mapping efforts, outreach and education and the regional plan draft. The meetings were held either virtually or in-person on these dates:

- NEWIP steering committee meeting – April 9, 2024 (1pm-2pm)
- 2024 Spring Cisma Meeting – May 1, 2024 (10-3:30pm)
- Regional Phragmites Program – June 11, 2024 (1pm-2pm)
- NEWIP/CWIP Fall Steering Committee Meeting – October 8, 2024 (8:30am-4pm)
- Multiple meetings were held between Glacierland RC&D Executive Director and Golden Sands RC&D Executive Director between November 2024 – April 2025

NEWIP decided that they did not want to be involved in the project which led to other partnerships renaming the regional plan draft from NEWIP to Fox Valley. Their decision did not change the implementation of the plan. Outreach responsibility stayed with Glacierland RC&D; therefore, the Fox Valley Regional Plan was posted on their website for public comment instead of NEWIP. Glacierland RC&D sent the drafted plan to media contacts in Brown, Outagamie and Winnebago County as well as the LISMA subscribers database to be shared and receive input.

PUBLIC COMMENT

The Fox Valley Plan was posted on Glacierland RC&D's website on May 19, 2025, with a deadline of June 19, 2025, to submit comments. An official press release was also posted on Glacierland RC&D's Facebook page on June 2, 2025, and sent to media contacts and LISMA subscribers on June 11, 2025. No public comments were received.

THREATS TO AQUATIC ECOSYSTEMS

Biological and Ecological Threat

Invasive *Phragmites* is a perennial wetland grass introduced from Europe that grows 12—15 feet, occasionally to 20 feet tall. It is distinct from the American subspecies, and can be identified by its dulled, slightly ridged, stiff, and hollow stems and distinct purple-brown seed head with feathery plumes. *Phragmites* colonies expand via underground rhizomes and above ground runners or stolons, and can spread quickly to new areas by plant fragments that disperse by natural and human transport: in contaminated soil on construction and agricultural equipment; stem fragments (from mowing, often along highway ditches); seeds, transported by wind or in contaminated soil, that germinate readily in disturbed ground or exposed lakebeds; and via stolon or rhizome fragments, transported on water by wave action, currents, or boats. *Phragmites* has spread rapidly through coastal and interior wetlands, riparian corridors, roadside ditches and other disturbed areas within the Great Lakes basin.

Japanese knotweed has hollow, smooth, purple to green colored stems up to 1 inch in diameter. The hollow jointed stems have reddish-brown solid nodes surrounded by a papery sheath (stipule). The herbaceous stems die back to the ground each fall and the dead stalks remain standing over the winter. Numerous new stems emerge in the spring from the over-wintering root system. Japanese knotweed grows rapidly; stems can grow up to 3 inches per day. The plant can grow more than 3 ft. in height in three weeks, with the mature plant reaching full height by the end of July. Japanese Knotweed quickly spreads and forms dense colonies by extensive underground stem (rhizome) systems which account for two thirds of its total mass. The rhizomes can extend more than 6 ft. deep and 60 ft. in length and can spread outwards at a rate of about 20 inches a year in optimal conditions. Due to this extensive underground biomass, Japanese knotweed is a very persistent plant. Stem/rhizome fragments can produce new plants within six days if they are submerged in water.

Japanese knotweed forms dense thickets of bamboo-like vegetation that aggressively outcompete native plants, and negatively impacts wetland and riparian areas. It grows in a wide range of habitats including riparian areas, wetlands, roadsides, ditches, utility right of ways and fence lines. This invasive species is often found around old homesteads where it may have been originally planted as an ornamental. It spreads along riparian areas or ditches where plant and rhizome fragments can be dispersed in moving water (i.e. along ditches, beaches, streams and rivers). Japanese knotweed can also be spread along roadsides by moving machinery or equipment with soil containing plant parts. Seeds (if produced) are spread mainly by wind.

Phragmites and Japanese knotweed form tall, dense stands that choke out native vegetation, forming monocultures that result in reduced plant species diversity and wildlife habitat quality. Dense stands are inhospitable to native birds, have lowered invertebrate densities and reduce the ecological value of shorelines. Dense stands can also impact the hydrologic regime of wetlands by increasing evaporation and trapping sediment

Social, Recreational and Economic Impacts

The spread of *Phragmites* and Japanese knotweed in the Project Area, and throughout the region, has reduced access to beaches and riverfronts for recreational activities such as swimming and fishing, restricted lakefront views, and caused damage to walkways and structures along the beach front. The density of the infestations, which extend to the waterline, have made public beaches inaccessible. Likewise, riparian access along streams and tributaries is precluded by infestations, rendering these public waters unusable for recreational fishing and use by the general public.

Lake access is a prime contributor to the value of shoreline properties, and when blocked by invasive species, reduces property values substantially (Isely et al., 2017). While such losses are obviously difficult for the individual homeowner, they impact the public through loss of tax revenue, because lakefront property contributes an outsize share to local taxes.

Currently, scattered to large populations of *Phragmites* and Japanese knotweed occur on roadsides, shorelines and wetlands across the four-county region. If left untreated, scattered small populations can develop into dense stands that are considerably more difficult to control. Control actions are needed to address large stands where native habitats have been significantly impacted by invasion. Early detection and control of small populations is critical to preventing further spread and avoid significantly greater treatment expense once large populations become established. While historic control efforts have proven successful, new colonies are likely to propagate at increasing distances from existing infestations, and over time, untreated populations may expand and increase in density if left unchecked. Continued and diligent control efforts are needed to ensure long-term control.

HISTORICAL AND CURRENT CONDITION

Brown County

Brown County is located on the western shore of the Bay of Green Bay and is bisected by the Fox River. The County contains 616 square miles. Original vegetation maps prepared from US land survey notes indicate that Brown County was primarily forested with beech, sugar maple, hemlock, oaks, and basswood.

Today's landscape, by contrast, is largely agricultural. Currently, eleven percent of the county encompasses woodlands versus 86% pre-settlement. The remaining relatively large areas of mature second growth woods and scattered woodlots can be found in the northern portion of the of the county. Because *Phragmites* prefers open wetlands without canopy cover, the existing modified landscape offers ample opportunities for *Phragmites* to invade agricultural ditches, waterways and connected wetlands.

There are approximately 30 miles of Lake Michigan (Bay of Green Bay) shoreline in the county

with the eastern and southern shores largely developed. The Fox River bisects the county extending 19 miles from the Village of Wrightstown to its downstream end at the Bay of Green Bay and drains about 311 square miles of Brown County. The most dominant topographical feature in Brown County is the Niagara Escarpment. This escarpment is the exposed edge of a ridge with a steep face on one side and a gentle slope on the other. Most portions of the Niagara Escarpment in Brown County face northwest and vary in height from 5 feet to 125 feet.

Currently, there is over 2,507 acres of the target invasive species mapped in Brown County primarily occurring as dense colonies along the shoreline and adjacent tributaries, along inland waterways and/or wetlands and local, county or Interstate roadways. Based on experience within the LISMA, success in areas with widespread *Phragmites* populations are possible if control begins immediately. Japanese knotweed populations in Brown County are scattered in areas that are closely associated with residential and commercial land use. Combined, the invasive species populations are large, which suggests immediate containment and sustained control actions are crucial to combat further spread within the county.

Outagamie County

Outagamie County is located in east central Wisconsin, north of Lake Winnebago and southwest of Green Bay. The County contains 646 square miles. Pre-settlement, Outagamie County was primarily forested, containing mixed conifer-northern hardwood forests in the northern part and central hardwood forests located in the central and southern parts. Scattered low areas were dominated by sedges, grasses, willows and tag alder.

Currently, approximately 26 percent of the total land acres are forested, consisting of primarily swamp hardwoods. Because of the frequent wetlands lacking canopy cover in the county, the existing modified landscape offers ample opportunities for *Phragmites* to invade agricultural ditches, waterways and connected wetlands.

The target invasive species occur as scattered to dense colonies along local, county or Interstate roadways including WI-41. *Phragmites* are more abundant in the southwestern portion of the county near the Fox River Mall and the Fox Valley Technical College in Appleton. Japanese Knotweed is scattered and minimal which suggests containment is possible with immediate and sustained control actions.

Waupaca County

Waupaca County is located in east central Wisconsin containing 765 square miles. The County lies within Wolf River Basin Water Management Units (WMU), and within the Southeast Glacial Plains, Central Lake Michigan Coastal, Northern Lake Michigan Coastal, Forest Transition, and Central Sand Hills Ecological Landscape. The Forest Transition and Central Sand Hills Ecological Landscape cover the west portion of the County, while the Central Lake Michigan Coastal, Northern Lake Michigan Coastal, and Southeast Glacial Plains cover the east portion. It is also home to the Waupaca Chain of Lakes offering 22 connected spring fed lakes.

Historically, Waupaca County was almost completely forested with a mix of deciduous forest, upland mixed conifer-deciduous forest, oak savannah, forested wetland, and upland prairie. Wetlands, including sedge meadows, wet prairies, shrub swamps, and conifer swamps were also common. Expansion of agriculture and urban environments drastically changed the ecology of the landscape. Current vegetation consists of agricultural cropland and forested lands with many woodlots located within private ownership. Approximately 23% of landscape in Waupaca County is considered wetland by the WDNR inventory mapping. The county's wetland includes significant wetlands including alkaline bogs, forested floodplains in association with the Wolf River, spring-fed riparian swamps in the western portion of the county and fertile rice beds in isolated locations.

Phragmites populations in Waupaca County are located along road corridors and large wetland complexes. When compared to the other counties within the Project Area, Waupaca has relatively few populations, with the greatest occurrences in the southeast corner. This suggests the westward expansion of *Phragmites* is relatively recent, and control within this County should be priority.

Japanese knotweed populations in Waupaca County are more abundant in the southern portion of the county and are closely associated with residential and commercial land use. The populations are generally small, which suggests containment is possible with immediate and sustained control actions.

Winnebago County

Winnebago County is located on the western shore of Lake Winnebago and has a total area of 579 square miles. Prior to settlement, Winnebago County was primarily forest and oak savannas. Sedge meadows and prairie grass covered the balance in the northern and western parts. Most of the forests were cleared for agricultural crops, which now is about 5 percent of the land cover. Upland mesic forests including sugar maple, basswood, and white ash dominated the vegetation. Uplands included oaks, hickory, ash, elm, and other hardwoods. Nearly all the remaining woodland areas within the county are located on privately owned lands and are widely dispersed across the county. Due to draining or filling, the total area of wetlands in the county is less than half of what it was in the mid-1800's. The historical loss of wetlands has resulted in negative impacts to other natural resources such as loss of habitat, flooding, stream bank erosion, and degraded surface water and groundwater quality.

Current vegetation in Winnebago County is predominantly agricultural with about 50% and 30% of the land in woodland and other open land with most of the prominent features being the broad expanses of lakes and adjacent marshes.

Phragmites populations are most dense along the I-41, US-45, and US-10 corridors, especially near the cities of Oshkosh, Neenah and Menasha (Figure 4). Large wetland complexes connected to the Wolf River and Rat River contain large patches of *Phragmites*. The eastern portion of the

County, especially closer to Neenah and Menasha, contains higher concentrations of *Phragmites*.

Currently, few Japanese knotweed populations have been identified in Winnebago County, with the exception of the cities of Menasha, Neenah and Appleton. Japanese knotweed is widely scattered outside the major cities.

FISHERY, WILDLIFE, AND AQUATIC PLANT COMMUNITY

Brown County

The Lower Fox watershed covers the majority of Brown County, with a portion of the Green Bay watershed located in northern Brown County and the Manitowoc and Twin-Door-Kewaunee watersheds located in the eastern portion. The Lower Fox Watershed is a 638 square mile drainage basin that includes the Fox River and the sub-watersheds; Apple and Ashwaubenon Creeks, Duck Creek, East River Little Lake Butte des Morts, and Plum and Kankapot Creeks. The Fox River continues to be exposed to many adverse environmental impacts, including sedimentation, nutrient enrichment, and turbidity due to nonpoint source pollution, urban stormwater runoff, storm sewer discharges, and impoundment of the river. The 2018 Wisconsin DNR list of impaired waters under 303(d) of the Clean Water Act in Brown County include Apple Creek, Ashwaubenon Creek, Baird Creek, Bower Creek, Duck Creek, Dutchman Creek, East River, Fox River, Bay of Green Bay, and Plum Creek.

Existing wildlife habitats are generally found along the County's rivers and stream corridors due to land development and active agricultural lands. The National Heritage Inventory has documented 62 species recorded as endangered, threatened, or special concern. Twenty-one species are considered as endangered or threatened and forty are considered species of special concern. The dwarf lake iris, piping plover, and rusty patch bumble bee are federally listed species to occur within Brown County. Migratory birds utilize Brown County's large wetland areas that provide habitat for numerous amphibians, reptiles, and fish.

The Nature Conservancy has identified critical habitats of Moist Cliff, Alvar, Shrub-carr, Emergent Marsh, Northern Wet Forest, Southern Sedge Meadow, Northern Wet-mesic Forest, Great Lakes Ridge and Swale, and Great Lakes Beach.

Outagamie County

Outagamie County is home to the Wolf River and Lower Fox watersheds. The Wolf River Basin is located in the western half of the County and the Lower Fox Basin is located in the eastern half of the County. Like several counties in the area, urban and agriculture expansion in the past several decades has degraded water quality in many of the County's waterbodies. The 2018 Wisconsin DNR list of impaired waters of Outagamie County includes: Bear Creek, Black Otter Creek, Duck Creek, Dutchman Creek, Kankapot Creek, and Mud Creek.

Although many types of native wildlife populations suffered during European settling, extensive farming and logging activities provide productive habitat for wildlife populations. Outagamie County is also home to the federally-endangered Snuffbox mussel. Thirty-seven rare animal species are known from Outagamie County including five State Endangered (one Federally Endangered), eleven State Threatened, and 21 Special Concern species. Twelve rare plant species are known including one State Endangered, five State Threatened, and six Special Concern species.

Waupaca County

Like surrounding counties, water qualities are influenced by both natural and developed conditions. Factors that influence water quality in Waupaca County include point and non-point sources, impervious surfaces, soil types, geology, topography, climate, vegetation types and water cycle. The 2018 Wisconsin DNR list of impaired Waters Waupaca County includes: Cary Millpond, Crystal River, Griffin Creek, Hartman Creek, Little Creek, North Branch Pigeon River, Old Taylor Lake, Peterson Creek, Pigeon River, Thiel Creek and Waupaca River.

Waupaca County is home to 10 State Natural Areas (SNAs) that provide biological diversity for wildlife habitat, research, and education including Poppy's Rock, Tellcock's Hill Woods, Mud Lake Bog, Keller Whitcomb Creek Woods, Mukwa Bottomland Forest, Myklebust Lake, Pope Lake, Mud Lake – Radly Creek Savanna, Skunk-Foster Lakes, and Little Wolf River.

Waupaca County is home to the federally endangered Snuffbox mussel and Karner Blue Butterfly. Many rare animal and plant species are known from the county.

Winnebago County

Winnebago County falls entirely within the Fox-Wolf River Basin, and two ecological landscapes (Southeast Glacial Plains and a small area of Central Sand Hill located in the southwest portion of the county). Pollutants like fertilizer, animal waste, and other runoff from both agricultural and urban sources have degraded water quality over time. According to the 2018 Wisconsin DNR list of impaired waterbodies, impaired waters in Winnebago County include: the Fox River, Lake Butte Des Morts, Winneconne Lake, Neenah Channel, Neenah Slough, Pages Slough, Rat River, Spring Brook, Paukotuk-Candlish Creek, Waukau Creek and Wolf River.

The lakes, marshes, rivers and adjacent upland communities in Winnebago County provide prime waterfowl habitat. White-tail deer and wild turkey are common in the areas of cropland. Migratory birds utilize Winnebago County's large wetland areas that are habitats for numerous amphibians, reptiles, and fish. Additionally, Lake Winnebago and connected lakes support the largest self-sustaining population of lake sturgeon in the world. Winnebago County is home to the federally endangered Eastern Prairie White Fringed Orchid. Many rare animal and plant species are known from the county.

PROJECT PURPOSE AND NEED

The purpose of treating invasive *Phragmites* and Japanese knotweed in the Fox Valley region is to work toward the long-term reduction and, where feasible, eradication of target populations. While complete eradication may not be realistic across all counties within the project area, the project aims to make measurable progress by prioritizing the protection of high quality sites, reducing the total infested acreage, and preventing further spread. These efforts will contribute to conserving healthy shorelines and surface waters public recreation, supporting a thriving regional economy, and sustaining a high quality of life through a clean and healthy environment. In doing so, the project also protects and enhances waterways, shorelines, and wetland habitats vital to vibrant plant and animal communities.

The non-native subspecies of *Phragmites* and Japanese knotweed are established species within the past few decades. Efforts to prevent their establishment and spread within the Lake Michigan basin will help prevent many of our inland lakes and wetlands from encountering the problems related to serious infestations of Great Lakes shorelines, such as those occurring along the shore of the Bay of Green Bay in Brown, Oconto and Marinette counties.

The most cost-effective way to address invasive species treatment is to prevent the spread and establishment of large and dense infestations. Controlling as many populations as possible prevents spreading these species because it prohibits the opportunity for continued spread through common vectors such as road ROW's and waterways. Partners will work closely with ROW managers and other organizations to treat common vectors and continue education and outreach efforts on how *Phragmites* and Japanese knotweed are spread. WDNR has an active AIS program and protocols that work to prevent the spread of invasive species with data collected in the SWIMS database. Partners and DNR staff have agreed that the vast amount of data and method for collection and management cannot easily transfer into the SWIMS database. Instead, this project uses a robust monitoring and reporting system provided by a project-specific web map to communicate findings and results with project partners. Project partners actively coordinate with WDNR and provide data collected as requested.

Because invasive species are already established within these counties, management programs to monitor and minimize their spread are necessary. Monitoring and mapping efforts to date by several project partners (Figures 1-4) have increased awareness of the problem and demonstrated the need for coordinated, large-scale treatment initiatives.

The proposed control efforts are consistent with other management plans adopted for the region. The following are management plans and/or reports applicable to the project area which address the need for removal of exotic/problem species:

- Wisconsin's Wildlife Action Plan recommends management of Great Lakes beach and dune habitat as part of a vegetation mosaic that includes forested ridge and swale, interdunal wetland, shrub-carr, and swamp conifer forest with older age classes. Promote concentrated public access points, limited recreational activities

in areas where Species of Greatest Conservation Need (SGCN) are present (particularly during breeding seasons), protecting site hydrology, and management of invasive exotic species.

- WI DNR “State of the Lakeshore Basin” (2001)
- EPA - Great Lakes Restoration Initiative Action Plan III (2020-2024) WI DNR – “Wisconsin’s Nonpoint Source Program Management Plan” (FFY 2016- 2020)
- WI DNR – Wisconsin Aquatic Invasive Species (AIS) Management Plan (2018)
- Fox-Wolf Watershed Alliance - Lake Management Planning Project – August 2018 update
- Brown County Comprehensive Plan (2004-2024)
- Outagamie County Comprehensive Plan 2040
- Waupaca County Year 2030 Comprehensive Plan
- A Multi-Jurisdictional Comprehensive Plan for Winnebago County (2016-2035)
- WI DNR “*Phragmites australis* A Statewide Management Strategy” (2023)

MANAGEMENT OBJECTIVES

The objective of *Phragmites* and Japanese knotweed management is to reduce populations to manageable levels and minimize spread to previously un-infested areas. The ideal goal is the eradication of discrete, high-priority populations where feasible (defined as three consecutive years with no observed regrowth at a treated site, based on field monitoring), particularly in counties with emerging infestations. In areas like Brown County with widespread infestations, the objective is to achieve substantial population reduction using measurable performance indicators, such as changes in percent cover class, visual assessment results, and georeferenced photographs documented in the GIS-based web map, or reduction in infested acreage..

Realistically, the goal is to suppress populations to the greatest extent possible based on landowner participation, species dispersal patterns, and available grant funding. Partners will continue to work with local communities to manage and seek additional grant funding for this project.

Landowners or property managers (e.g., private owners, local municipalities, land trusts, and WDNR) will be encouraged to fully participate in the treatment on their respective properties so that finite resources can be allocated elsewhere. Landowner education and outreach activities encouraging participation include presentations at town hall meetings, landowner workshops and training, educational materials and distribution of the public web map. To achieve this goal, all *Phragmites* and Japanese knotweed identified within areas prioritized for management (i.e., lakeshore and select inland waterways and adjacent wetlands) shall be targeted for consecutive years of treatment, pending landowner approval.

MANAGEMENT APPROACH

Treatments to invasive *Phragmites* and Japanese knotweed will utilize an adaptive management approach, incorporating targeted herbicide and mechanical methods, a range of specialized tools and equipment, appropriate seasonal timing, and experienced ecological staff. Successfully managing aggressive invasive plant species requires a combination of management approaches, often referred to as Integrated Management. Management options for this Project may include mechanical approaches (mowing and/or cutting) and chemical approaches (targeted application of herbicides). Project partners will reference integrated and adaptive management recommendations discussed throughout the Great Lakes *Phragmites* Collaborative network and will rely on the guidance of qualified contractors. Based on past experience with treating *Phragmites* and Japanese knotweed in the Project Area, Project partners expect control methods selected for a given site will vary depending upon the location, size/stage of the infestation, site dynamics, landowner concerns, presence of rare, threatened, or endangered plant or animal species, and resources available.

Alternative and Proposed Management Actions

Phragmites Control

Chemical Control

Based on past experience, chemical control is the most effective and efficient approach to control *Phragmites*. There are several methods of chemical (herbicide) control that are label-approved for use in aquatic habitats including glyphosate-based herbicides AquaNeat® and Roundup Custom mixed at 5%. Methodologies differ in the mode of application of the chemical agent to the plant and may require mechanical removal of plant material in preparation for application.

Ultra-low volume cut stump application is an effective method that may be appropriate for small, low density stands. Individual stems are cut, and a small amount of herbicide is applied to the cut stems. This chemical method poses one of the lowest levels of risk to non-target plants but has the highest labor costs per unit area. It is appropriate for use in the most sensitive areas where chemical volume must be minimized, such as near known populations of rare or protected plants or animals.

Foliar application is a highly effective method for controlling invasive *Phragmites* and is used in several different treatment methodologies. Recommended foliar application techniques include low volume spraying using backpack sprayers, UTV (Utility Task Vehicle) mounted boom sprayers, or a UTV- or boat-mounted spray gun; and ultra-low volume wick application using backpacks.

Low volume spray application via backpack, boom or spray gun poses an increased risk of non-target plant damage and somewhat higher materials costs relative to other methods; however, it allows for treatment of large and dense infestations with greatest efficiency and lowest cost per

unit area. This method is most appropriate for areas with dense infestations that typically have low plant diversity due to competitive exclusion of native vegetation.

Ultra-low volume wick application via backpack or UTV-mounted wick combines a reduced risk of non-target plant damage with a highly targeted and effective delivery of chemical. Wicking applies chemical directly to the leaves of invasive *Phragmites* through direct contact with the wick, using a higher concentration of chemical than used in spray application. Wicking reduces impacts to non-target native plants that may be damaged by foliar spray application. Wicking can be used effectively in stands of low- to moderate-density *Phragmites*, as is the case in many shoreline populations, and is especially well-suited to use in sensitive areas where off-target damage can be minimized, such as near known populations of rare or protected plants or animals.

Mechanical Control

Mechanical control techniques include mowing and burning. Mowing and/or burning alone will not control invasive *Phragmites* which re-sprouts vigorously after mowing; rather, mechanical control can be an effective preparation for chemical application. Mowing is most effective on large, dense stands in areas that permit access for a UTV- or tractor-mounted deck mower; small areas may be mowed with a handheld brush cutter. Burning may be used to prepare areas of *Phragmites* for chemical application; as well as promote regeneration of native herbaceous vegetation, suppress woody vegetation, and remove thatch and woody debris. Prescribed burning must be carefully planned and conducted by trained professionals. Burning may be advised in certain situations where mowing is impractical and typically requires higher unit costs. Mechanical control methodologies are an option that may be implemented on a limited basis. Landowners will be encouraged to mow or burn their *Phragmites* stands after the initial treatment.

Biological Control

There is currently no biological control available for use on *Phragmites*, which appears to be resistant to damage from native fungal pathogens and insects.

Japanese knotweed Control

Control of Japanese knotweed is difficult and typically requires a combination of mechanical and chemical methods over a period of two or more growing seasons of treatment.

Mechanical Control

To effectively control established populations, mechanical control should be conducted twice during the growing season: in late spring, when the shoots reach 3 feet in height; and again, in late summer, when the plants flower. Mowing large populations on areas permitting equipment access can be accomplished with a UTV- or tractor-mounted deck mower; small, steep or inaccessible areas may be mowed with a handheld brush cutter. Cut material can be scattered and laid flat onsite. Burning may be utilized in Japanese knotweed control as part of an overall

land management approach but typically requires higher unit costs than mowing.

Chemical Control

Chemical control is applied in the fall, following the second (late summer) mowing. Several methods of chemical application and several herbicide products may be used effectively. Products effective on Japanese knotweed, available in formulations that are approved for wetland use, include aminopyralid and glyphosate.

Ultra-low volume cut stump application is an effective method of control that may be appropriate for small, low density stands. A small volume of herbicide with a high concentration of active ingredient is applied to the individual cut stems, directly following mechanical treatment. This chemical method poses one of the lowest levels of risk to non-target plants but has the highest labor costs per unit area. It is appropriate for use in the most sensitive areas where chemical volume must be minimized, such as near known populations of rare or protected plants or animals.

Foliar application is a highly effective method for controlling Japanese knotweed and is applied when the re-sprouts reach 3 feet in height following late summer mechanical treatment. Herbicide is applied to the leaf surfaces until fully wetted. Recommended foliar application techniques include low volume spraying using backpack sprayers, UTV mounted boom sprayers, or a UTV-mounted spray gun.

Low volume spray application via backpack, boom or spray gun poses an increased risk of non-target plant damage and somewhat higher materials costs relative to other methods; however, it allows for treatment of large and dense infestations with greatest efficiency and lowest cost per unit area. This method is most appropriate for areas with dense infestations that typically have low plant diversity due to competitive exclusion of native vegetation. Foliar treatment is likely to be the most efficient treatment for most well-established populations of Japanese knotweed.

Biological Control

There is no available biological control for Japanese knotweed.

No Management

Failing to manage invasive *Phragmites* and Japanese knotweed populations would lead to increased degradation and loss of wetland and shoreline habitat within Brown, Outagamie, Waupaca, and Winnebago counties, and would allow continued expansion and spread from existing populations to new areas. Failure to manage invasive species would be inconsistent with the shared interests and values of project partners and the community, to preserve and enhance the aesthetic and functional values of coastal resources, waterways and wetlands of this region.

MINIMIZATION OF ADVERSE IMPACTS

Potential adverse impacts resulting from chemical treatments include herbicide impacts to non-target plant species and creating temporarily unvegetated areas that could provide a niche for

invasion by other invasive species. Herbicide drift will be minimized by utilizing best management practices and following the label instructions for the herbicide. Herbicide applications shall be timed to maximize favorable weather conditions. To mitigate drift and potential non-target impacts, herbicide shall not be applied during high winds, or as deemed unsuitable by a qualified, certified applicator. Other weather conditions that influence herbicide effectiveness include temperature, moisture, and humidity. Warm conditions are usually favorable for chemical application, although hot, dry conditions can slow plant metabolism and can make plants less susceptible to herbicide. The length of time required between herbicide application and rainfall, referred to as the rainfast period, varies for different herbicides; the qualified applicator will also refer to the product-specific label for guidelines.

Seeding native plants subsequent to treatment will be conducted on an as-needed basis. Sites eligible for seeding must have 90% or greater control of the target species, have substrates suitable for seeding (i.e., no standing water) and contain sites conditions that warrant seeding. Small treatment sites typically do not require seeding.

These invasive species are highly aggressive, clonal species with no natural predators in North America. Removing large monocultures of *Phragmites* and Japanese knotweed in accordance with the proposed control actions listed above could create areas of bare ground that may be prone to erosion. For this reason, the need for native species plantings will be evaluated for larger treatment areas and may depend on factors such as topography, slope, hydrology, susceptibility to erosion, water levels, accessibility, existing plant community, and potential for success. Post treatment management will follow BMPs and adaptive management strategies. Monitoring of the treatment/seeded sites will occur each year to determine progress and make adjustments as needed. Monitoring and seeding will take place in late spring or fall.

RESTORATION AND RECOVERY

The proposed treatment strategies will result in new areas of exposed substrate that may be recolonized by native vegetation or return to a more dynamic state of exposure to the physical forces of wind and water. The root structure characteristic of long-established *Phragmites* and Japanese knotweed typically will decay three years after treatment.

Project-wide numeric goals include:

- Reduce total untreated non-native *Phragmites* cover by 30% of four counties combined within five years.
- Achieve 90% site-specific reduction in treated populations within three years of initial treatment.
- Maintain $\leq 10\%$ regrowth on previously treated sites through scheduled monitoring and retreatment.

These goals are designed to remain flexible and achievable within the context of fluctuating

funding and partner capacity.

General treatment and monitoring timeline:

- Year 1 - Mapping and baseline monitoring to assess infestation characteristics, followed by initial treatment.
- Year 2 – Continued monitoring, site preparation (i.e., mowing, burning), and secondary treatment.
- Year 3 – Final treatment and restoration, as needed, based on post-treatment site condition.

It is anticipated that many areas will have minor regrowth (+/- 10%) following the first treatment period. Therefore, treatments during Years 2 and 3 will include control of modest regrowth, and the level of effort is expected to be less than during the first year.

Restoration needs will be assessed based on site characteristics, treatment method, and treatment effectiveness. Treatment methods utilizing the wicking method are expected to have minimal impact on short-stature vegetation and other non-target plants, so the need for restoration may be minimal. Foliar application of small invasive species stands using back-pack sprayers or a UTV-mounted spray gun may also not require restoration given the small treatment zone.

Treatment of medium-large invasive species stands with non-target plant damage, where steep or unstable slopes occur, or where large areas of bare soil result, may benefit from restoration and reseeding. Restoration needs will depend upon site characteristics such as hydrology, community types, other invasive species pressure, seedbank response and adjacent vegetation and landowner preferences. An appropriate seed mix designed by plant community will be developed and installed according to site conditions. Native seed mixes generally contain a diverse mixture of sedges, grasses and forbs. Native seed installation shall occur during the fall dormant season or during the spring native seeding window. Seed mixes shall be installed using a no-till native seed drill or by broadcast methods with an appropriate cover crop to reduce erosion and suppress undesirable seed germination. Pending nursery availability and budget, live plugs may be used to supplement the native seed mixes.

If the restoration and recovery phase of the treatment protocol falls beyond the three-year treatment period, these efforts will be assigned to individual landowners and to partner organizations on their respective properties. Landowner education is critical to long-term invasive species control. In each county, Project partners will establish a local fund to help landowners continue to manage *Phragmites* and Japanese knotweed populations while being provided continued guidance and assistance in identifying populations and working with them to control more. This method has been proposed and agreed to by several county townships and will be proposed in other counties as well.

MONITORING AND PREVENTION STRATEGY

Control of existing populations of invasive *Phragmites* and Japanese knotweed, and preventing

spread to new areas, will depend on coordination, collaboration and communication among project partners, landowners, land managers, and the public. As mentioned previously, landowners will be encouraged to fully participate in the treatment of invasive species on their respective properties so that finite resources can be allocated elsewhere. It is expected that landowners will have varying abilities and interest in participating in this project, but through education, the project partners will work to increase public awareness of the problem and provide the necessary resources for landowners to take responsibility for treating on their property.

A GIS based web-map has been developed specifically for this project. The web-map is used for streamlining data management, communication, progress tracking, and planning. Data layers are project-specific and include mapped locations of existing *Phragmites* and Japanese knotweed populations, treatment areas, and landowner parcels. The web-map is a useful tool that enables tracking and administering a complex project and maintaining a dynamic database that is accessible to project partners and will be continuously updated in real time by project staff across mobile and desktop interfaces. The web-map will be used to track on-the-ground efforts, manage progress of field crews, perform quality control of recorded data, update parcel access status when new permissions are received from landowners, assign treatment areas to field crews, record field data and treatment status, and manage herbicide treatment records. This web-map has proven effective in managing the control efforts to date and will facilitate implementation across the larger Fox Valley Project Area.

Applying a strategic and adaptive mapping and monitoring standard operation procedure will be imperative to monitoring the success and extent of the countywide treatment efforts. *Phragmites* mapping efforts have been underway in the eastern counties for over a decade, starting with citizen-led efforts. This comprehensive mapping data collected by Project partners will provide the necessary baseline documentation to measure treatment effectiveness. Post-treatment monitoring and mapping will be conducted annually to evaluate the effectiveness of both initial and follow-up treatment efforts. Monitoring results will be documented using the project-specific web map and used to assess yearly changes in population size, density, and regrowth. This data will guide future treatment decisions and support an adaptive management approach. If populations don't respond as expected, they will be further assessed to determine possible causes, such as timing of application, herbicide effectiveness, environmental factors, or reinfestation from nearby untreated areas. Based on these assessments, treatment methods may be modified (e.g., different timing, techniques, or herbicide formulations) and integrated with additional management strategies. The following information (Table 1) will be collected and maintained in the web map for each *Phragmites* and Japanese knotweed population to support evaluation and inform future treatment efforts.

Table 1. Web-map Data Collection Schema

Polygon Information	
Field Name	Dropdown Options/Description
Feature ID	Varies - Unique Feature ID determined by GIS
Species	Varies by target species
Initial Percent Cover	0%
	<1%
	1-5%
	5-10%
	10-25%
	25-50%
	50-75%
	75-95%
	>95%
Initial Acreage	Varies - calculated by GIS
Location	Coastal
	Riparian
	Inland Wetland
	Adjacent to Agricultural
	ROW
Treatment Information (per Phragmites Polygon)	
Treatment Method	No Treatment
	Hand Wick
	UTV
	Backpack
	Truxor
	Mechanical
	Revegetation
	Other
Current Percent Cover	0%
	<1%
	1-5%
	5-10%
	10-25%
	25-50%
	50-75%
	75-95%
	>95%

Field staff will conduct onsite post-treatment monitoring assessments by accessing the web map from the field.

A consistent aerial coverage estimate method will be used to evaluate treatment effectiveness across all sites, using defined cover class categories (e.g., 0–5%, 6–25%, 26–50%, etc.) Visual assessments and georeferenced photographs will document vegetation changes. This data will inform adaptive management, allowing project partners to compare annual treatment outcomes and refine strategies accordingly. Each site will be revisited during the following growing season to measure treatment efficacy. A change in cover class, along with regrowth metrics, will inform retreatment prioritization and be compared across years to assess long-term effectiveness. These metrics will inform adaptive management strategies and be incorporated into annual partner review meetings to adjust treatment techniques.

Monitoring objectives include the following:

- 1) Verify pre-existing data on invasive species locations within the Project Area. Update location information of previously treated sites and/or collect new location data as needed.
- 2) Verify any data collected from volunteers and other Project partners, for location accuracy, and accuracy of species identification.
- 3) Survey for, and document invasive plants within inaccessible areas (e.g., shoreline and larger waterways).
- 4) At least 90% of treatment sites treated each year will receive post-treatment monitoring during the subsequent growing season.

CONTINGENCY STRATEGY

Monitoring of the treatment areas will be an important component of the long-term management strategy. Monitoring pre- and post-treatment will be coordinated and completed by non-profit partners and contracted staff. Monitoring protocols will be established, and efforts reported to the appropriate partner organizations to facilitate treatments. Monitoring and mapping may consist of driving, walking, and/or boating along the treatment areas and visually assessing the location, size, and density of invasive *Phragmites* and/or Japanese knotweed stands. Mapping efforts already underway will be supplemented by mapping additional areas, utilizing GPS and GIS to identify the extent of infestation within priority areas.

New infestations that are encountered through monitoring efforts will be controlled as soon as possible after discovery. If new infestations are discovered in between treatment periods, treatment will occur during the next treatment window. Existing infestations will be revisited after treatment and a visual inspection will be performed to search for surviving stems. If a population does not decrease in size after three years of treatment, the site will be reassessed to determine potential contributing factors, such as environmental conditions, incomplete coverage, reinfestation from nearby untreated areas, or gaps in treatment due to funding or logistical constraints.

Based on this reassessment, the treatment approach may be modified to improve effectiveness. Adjustments may include changes in treatment timing or frequency, the use of alternative herbicides or mechanical methods, or more intensive monitoring. In some cases, temporary delay of treatment may be necessary due to multiple reasons such as site access, landowner permissions, or funding availability. The strategy remains adaptive to ensure the best possible outcomes under continually changing conditions.

PROJECT FEASIBILITY

Over the past ten years, project partners have demonstrated that large-scale, region-wide control is feasible, but requires collaboration between local nonprofits, municipalities, federal and state agencies, research institutions and private individuals to leverage shared resources for a common goal of sustainable, regional-scale control. Multiple funding sources are required to provide the financial capacity to manage invasive species on a regional scale. Continual monitoring by project partners, landowners, and citizen scientists is required to sustain project benefits long-term. Lead project partners, including Lakeshore Natural Resource Partnership (LNRP) and Glacierland RC&D have dedicated significant resources to date. Notably, Glacierland RC&D developed an Invasive Species Internship Program to create a cost-effective program for local municipalities to pay a “maintenance fee” that allows Glacierland RC&D Interns to administer retreatments within their municipality at a significantly lower rate than industry professionals. Additional Project Partners will encourage landowners and organizations to refer to the Phragmites and Japanese Knotweed Management Plan, encouraging landowners and organizations across the Fox Valley region to maintain and expand treatment efforts.

Long-term success will be evaluated using both treatment capacity and ecological impact benchmarks. While the goal is to maintain annual retreatment on at least 500 acres, adjusting as needed based on available funding, partner capacity, and site conditions, this metric reflects implementation capacity rather than ecological outcomes. To better assess the effectiveness of treatments, partners will also track reduction in total infested acreage over time, using mapping data. A realistic target may include 10-20% reduction in infestation project-wide over the next five years, though specific goals will be refined based on site conditions, treatment history, and feasibility. These combined metrics will guide annual work planning, funding priorities, and long-term strategic adjustments.

REFERENCES

Isely, P., Nordman, E. E., Howard, S., & Bowman, R. (2017). Phragmites Removal Increases Property Values in Michigan's Lower Grand River Watershed. *Journal of Ocean and Coastal Economics*, 4(1). doi: 10.15351/2373-8456.1076

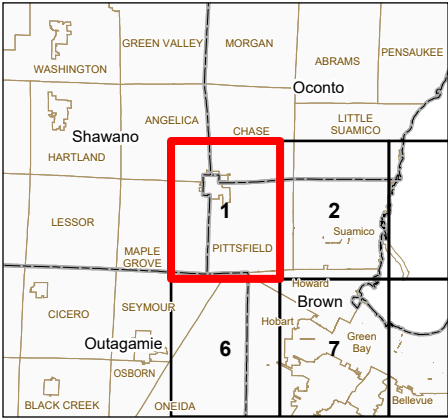
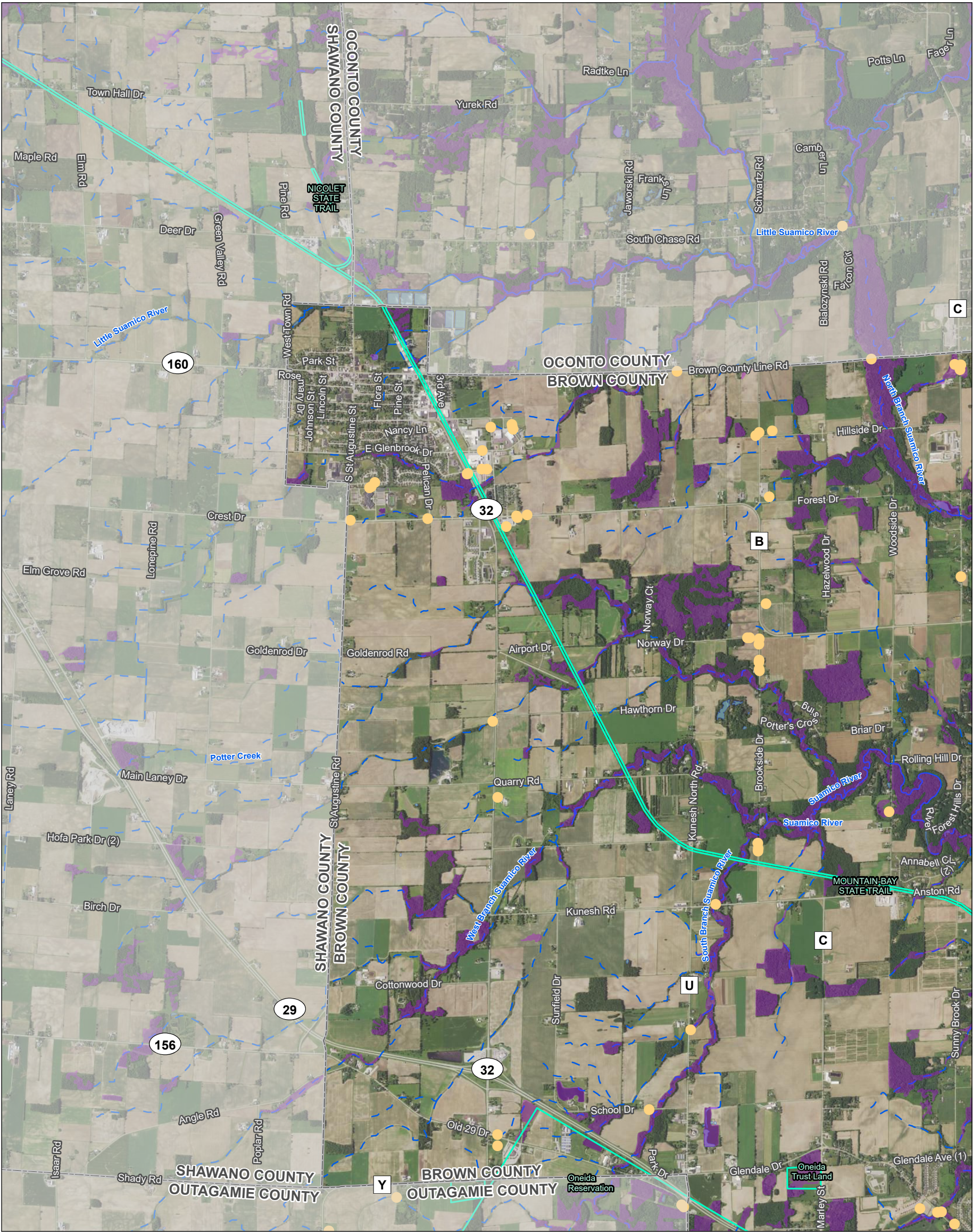
ATTACHMENT A

Figure 1 - Brown County Invasive Species Areas

Figure 2 - Outagamie County Invasive Species Areas

Figure 3 - Waupaca County Invasive Species Areas

Figure 4 – Winnebago County Invasive Species Areas



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 1.81 acres
 - Non-Native Phragmites, Treated: 17.80 acres
 - Non-Native Phragmites, Untreated: 2,425.32 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Brown County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Brown County Fox Valley Phragmites and
Japanese Knotweed Management Plan

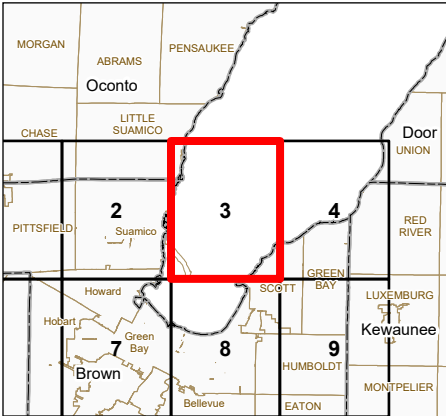
Figure No.

1

Title

**Invasive Species Areas
Brown County**

V:\1937\Active\W\Invasive_Work\03_data\gis_cad\gis\mxds\FWWA_Proposal\FWWA_Proposal.aprx Revised: 2025-05-12 By: jdelprete



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 1.81 acres
 - Non-Native Phragmites, Treated: 17.80 acres
 - Non-Native Phragmites, Untreated: 2,425.32 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Brown County
Wisconsin

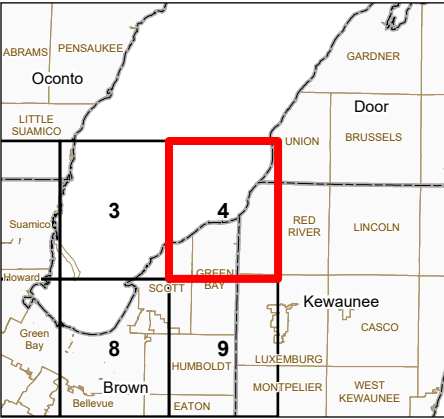
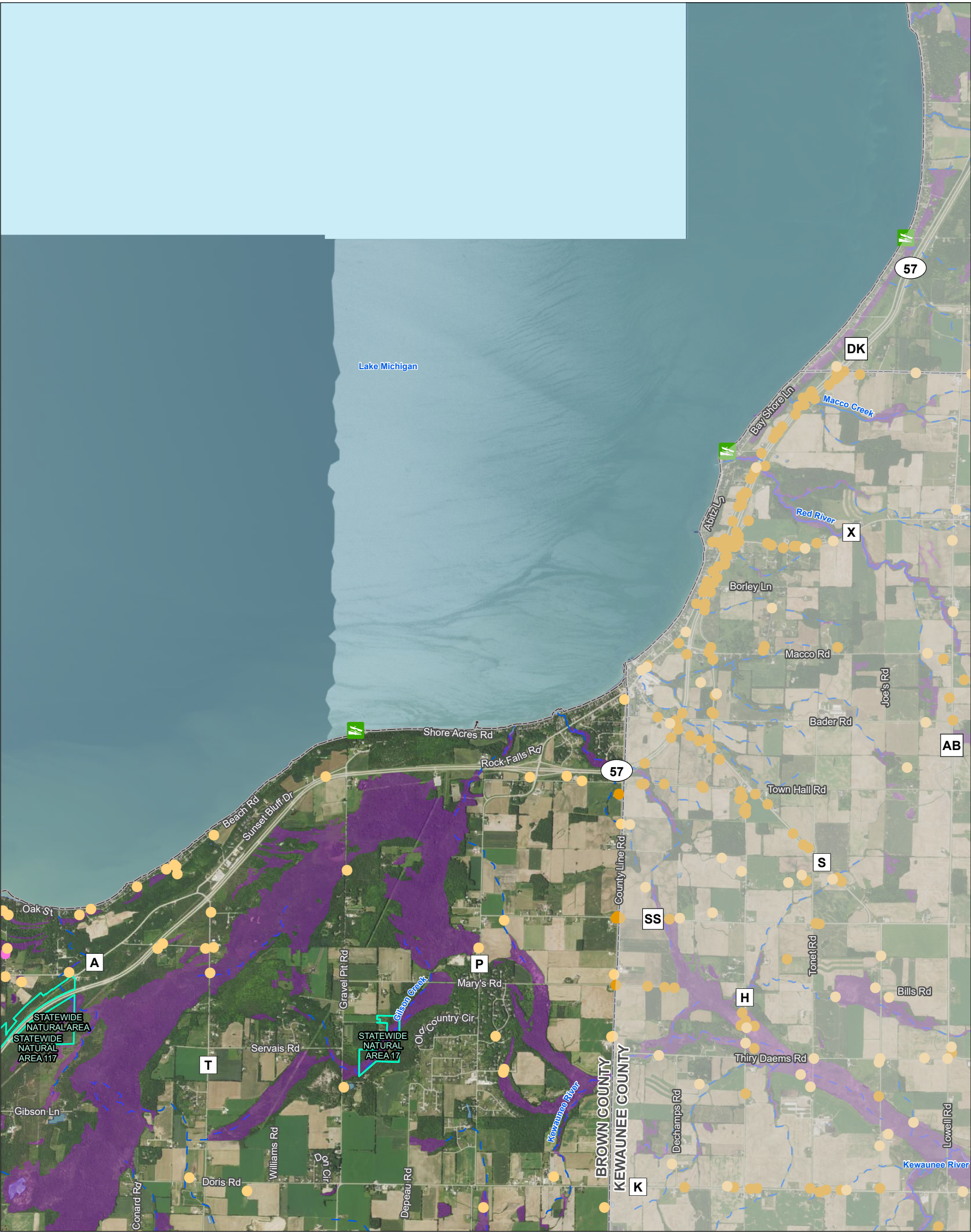
Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Brown County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

1

**Invasive Species Areas
Brown County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 1.81 acres
 - Non-Native Phragmites, Treated: 17.80 acres
 - Non-Native Phragmites, Untreated: 2,425.32 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites**
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography**
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Brown County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

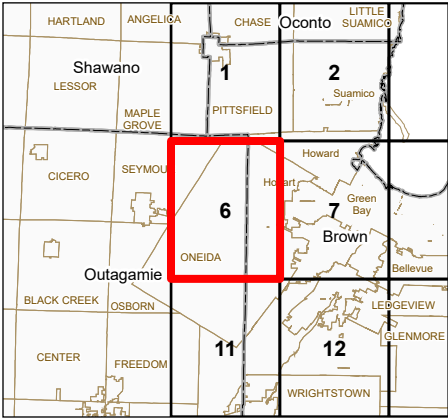
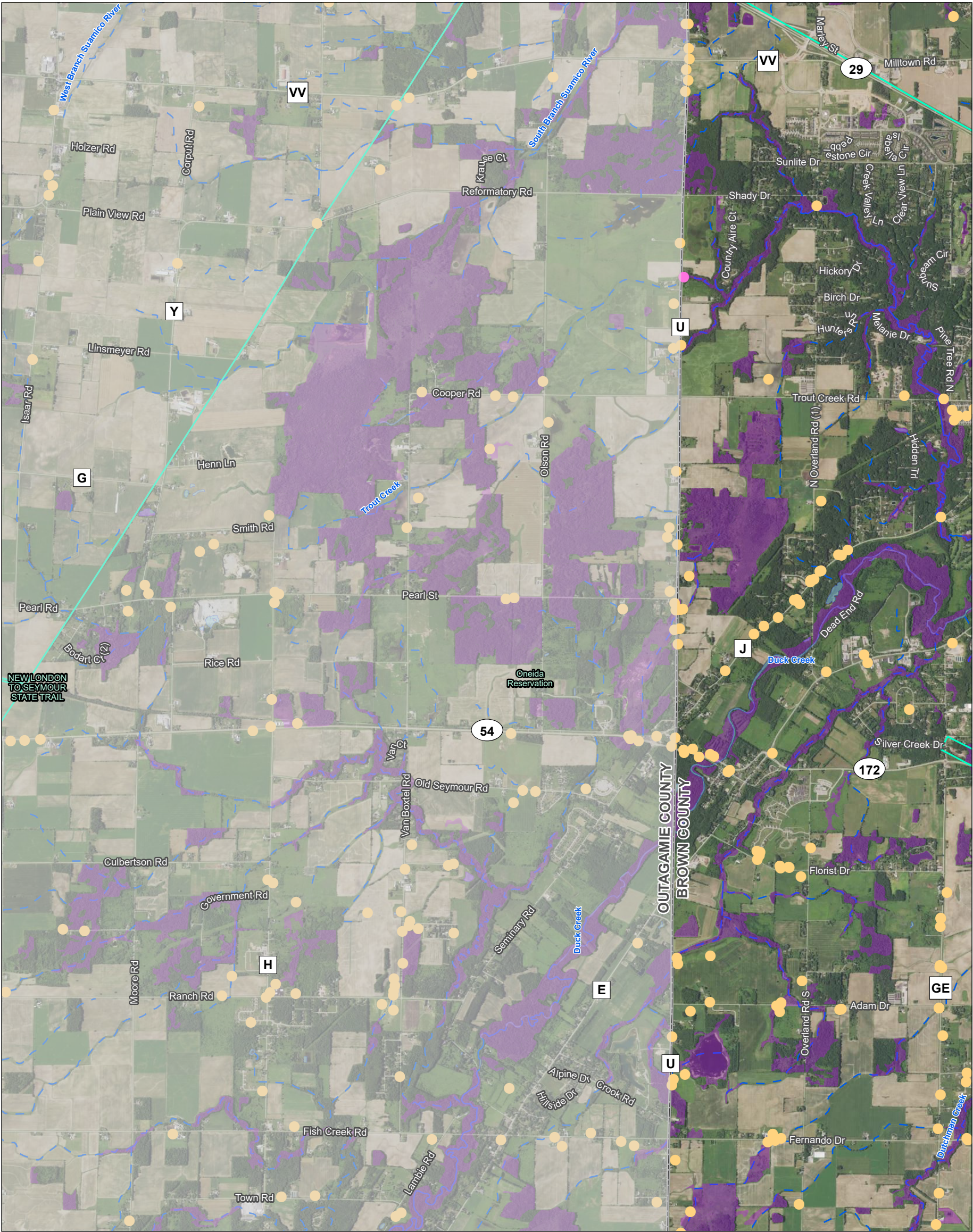
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Brown County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

1

Title

**Invasive Species Areas
Brown County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 1.81 acres
- Non-Native Phragmites, Treated: 17.80 acres
- Non-Native Phragmites, Untreated: 2,425.32 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Brown County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

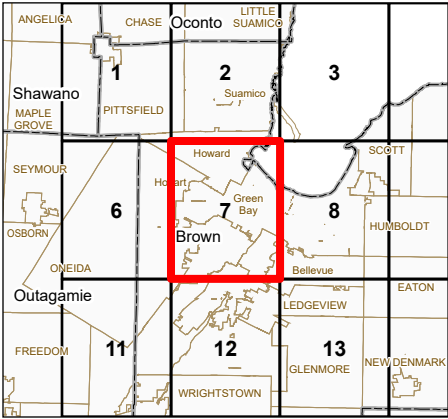
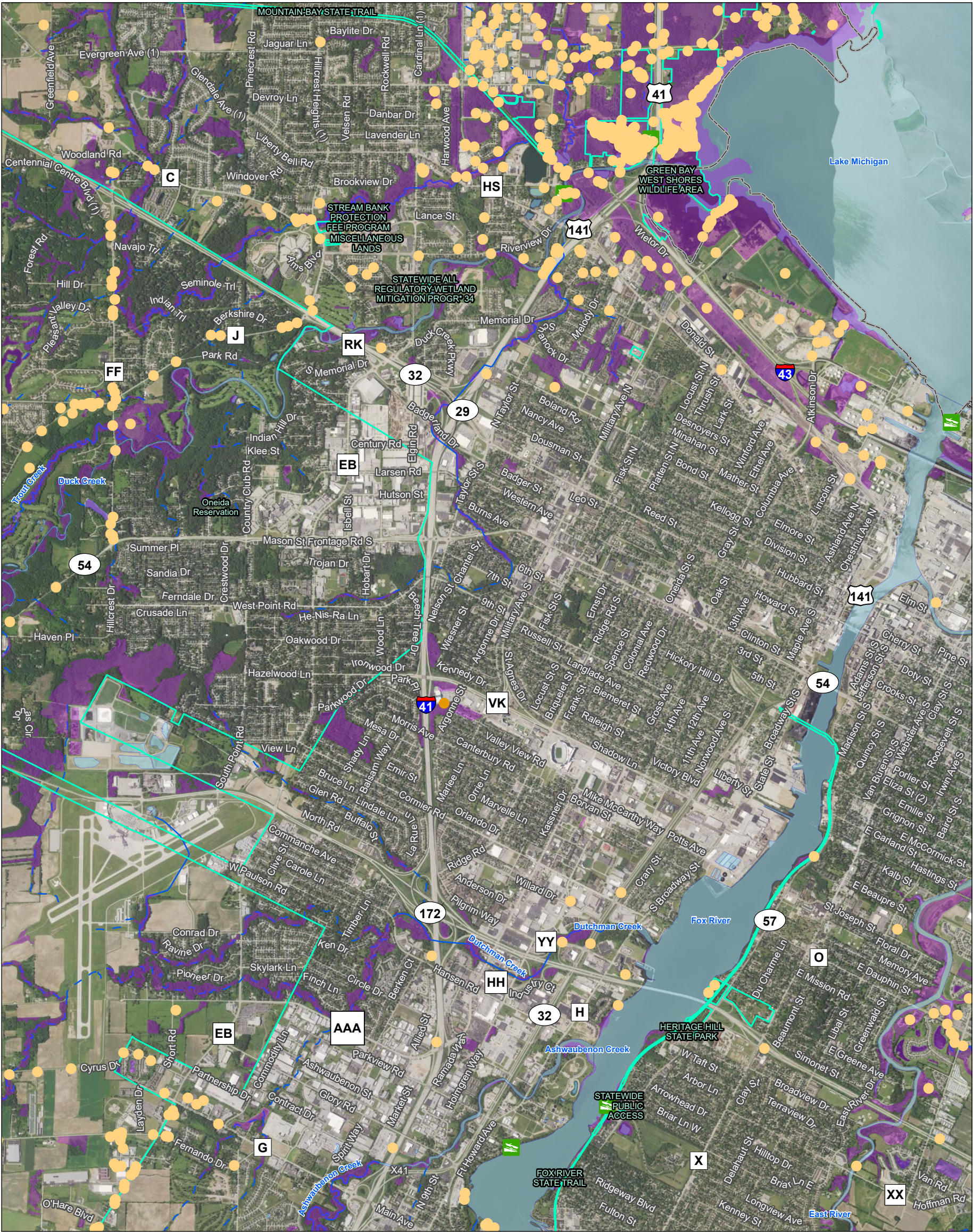
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Brown County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

1

Title

**Invasive Species Areas
Brown County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 1.81 acres
 - Non-Native Phragmites, Treated: 17.80 acres
 - Non-Native Phragmites, Untreated: 2,425.32 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Brown County
Wisconsin

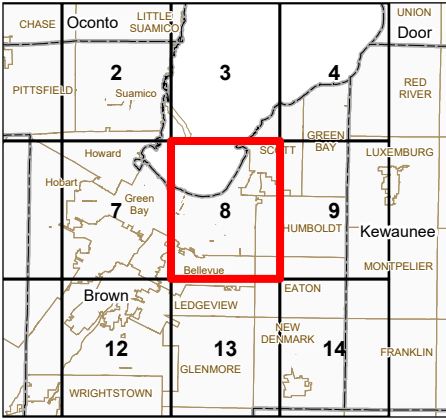
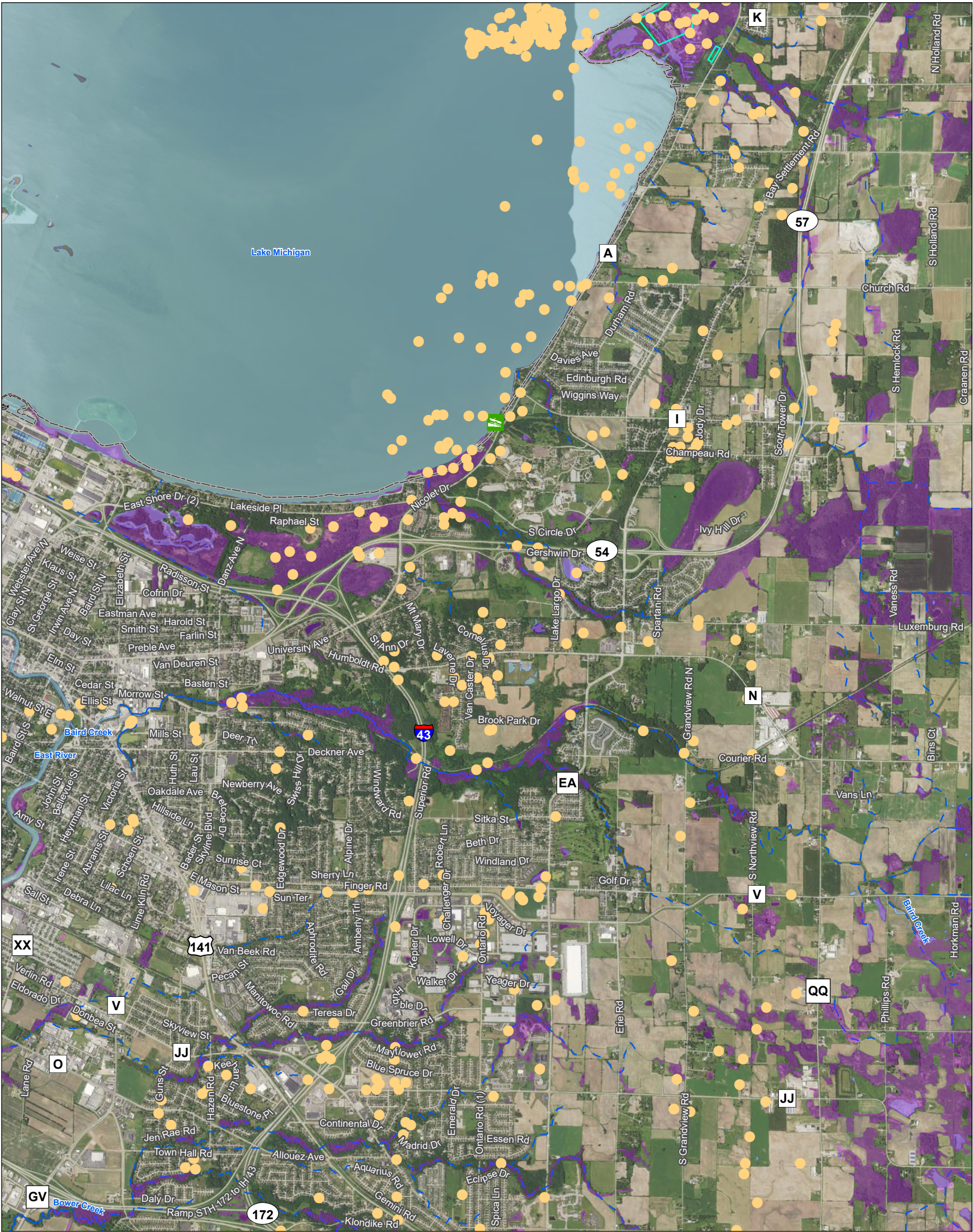
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Brown County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

1

Title

**Invasive Species Areas
Brown County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 1.81 acres
- Non-Native Phragmites, Treated: 17.80 acres
- Non-Native Phragmites, Untreated: 2,425.32 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Brown County
Wisconsin

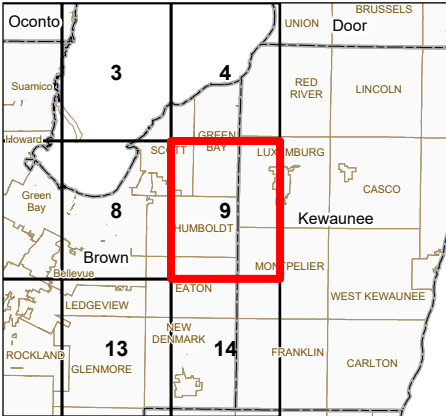
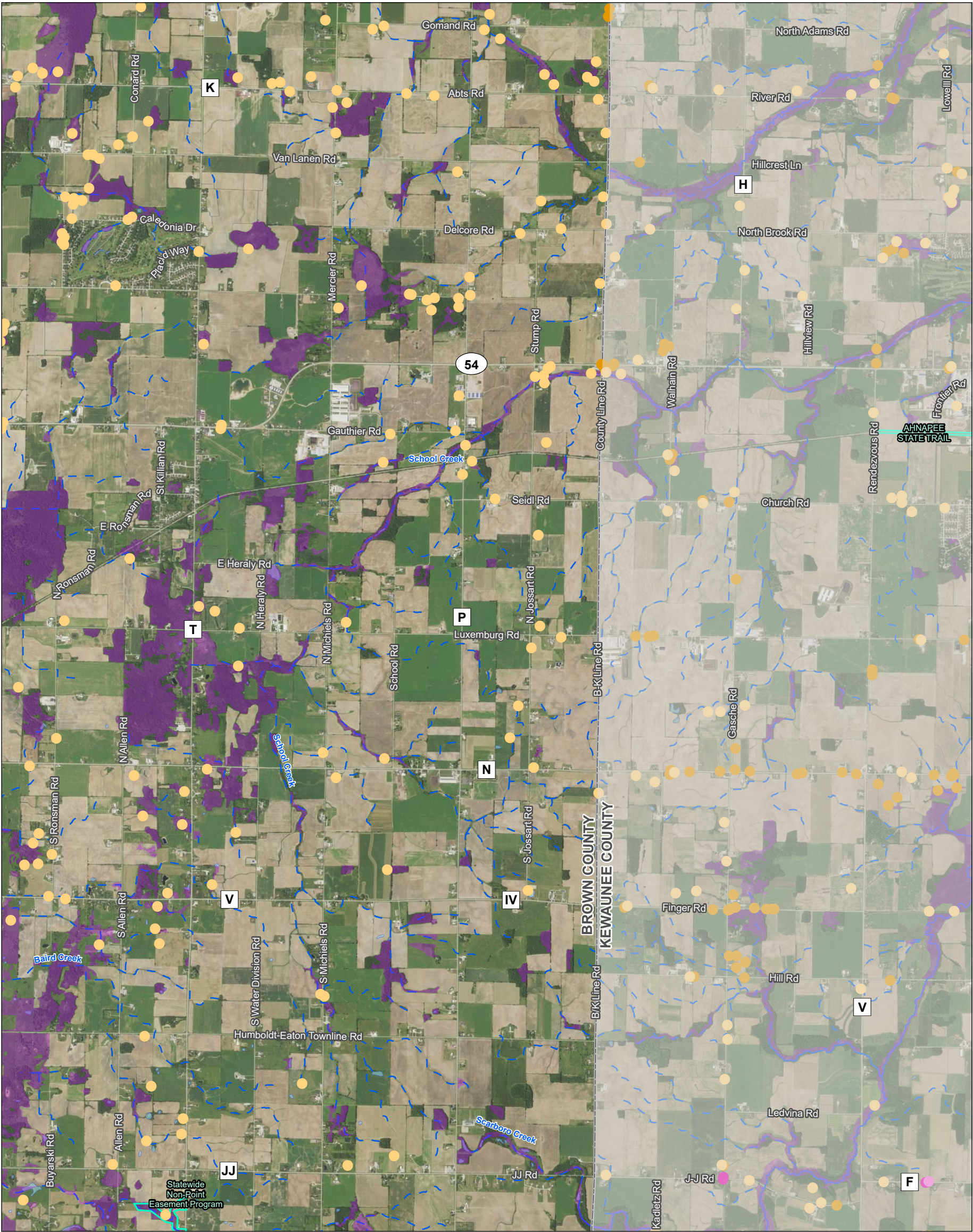
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Brown County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

1

Title

**Invasive Species Areas
Brown County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 1.81 acres
 - Non-Native Phragmites, Treated: 17.80 acres
 - Non-Native Phragmites, Untreated: 2,425.32 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Brown County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

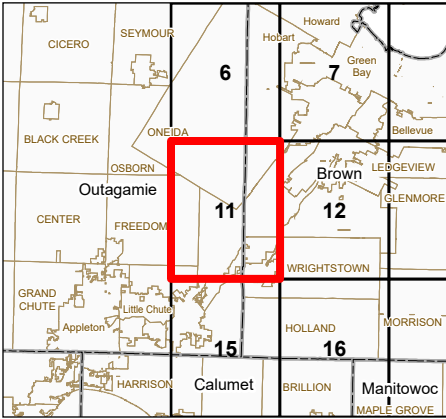
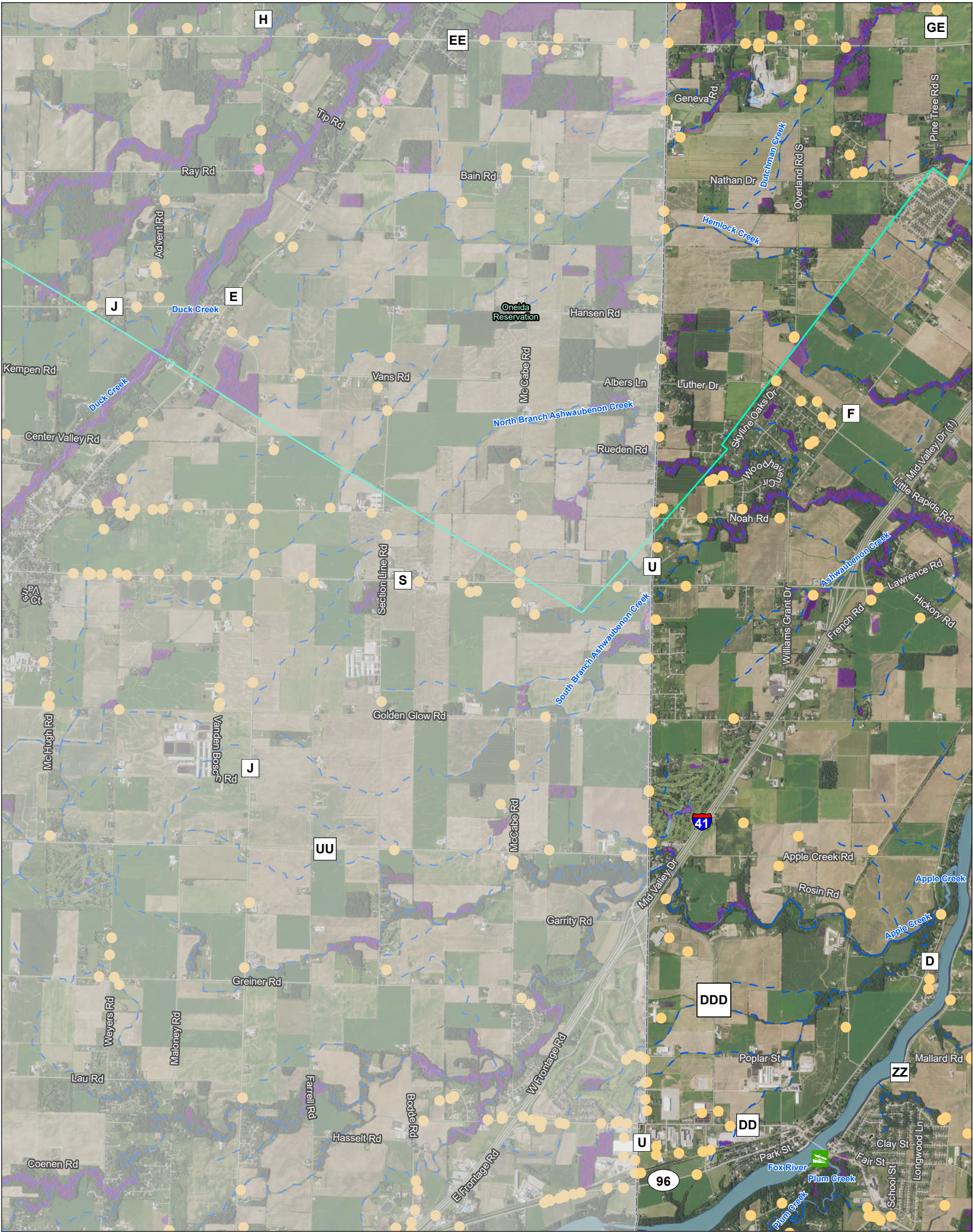
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Brown County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

1

Title

**Invasive Species Areas
Brown County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 1.81 acres
 - Non-Native Phragmites, Treated: 17.80 acres
 - Non-Native Phragmites, Untreated: 2,425.32 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Brown County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

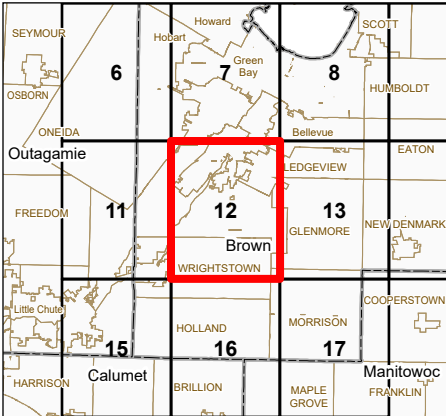
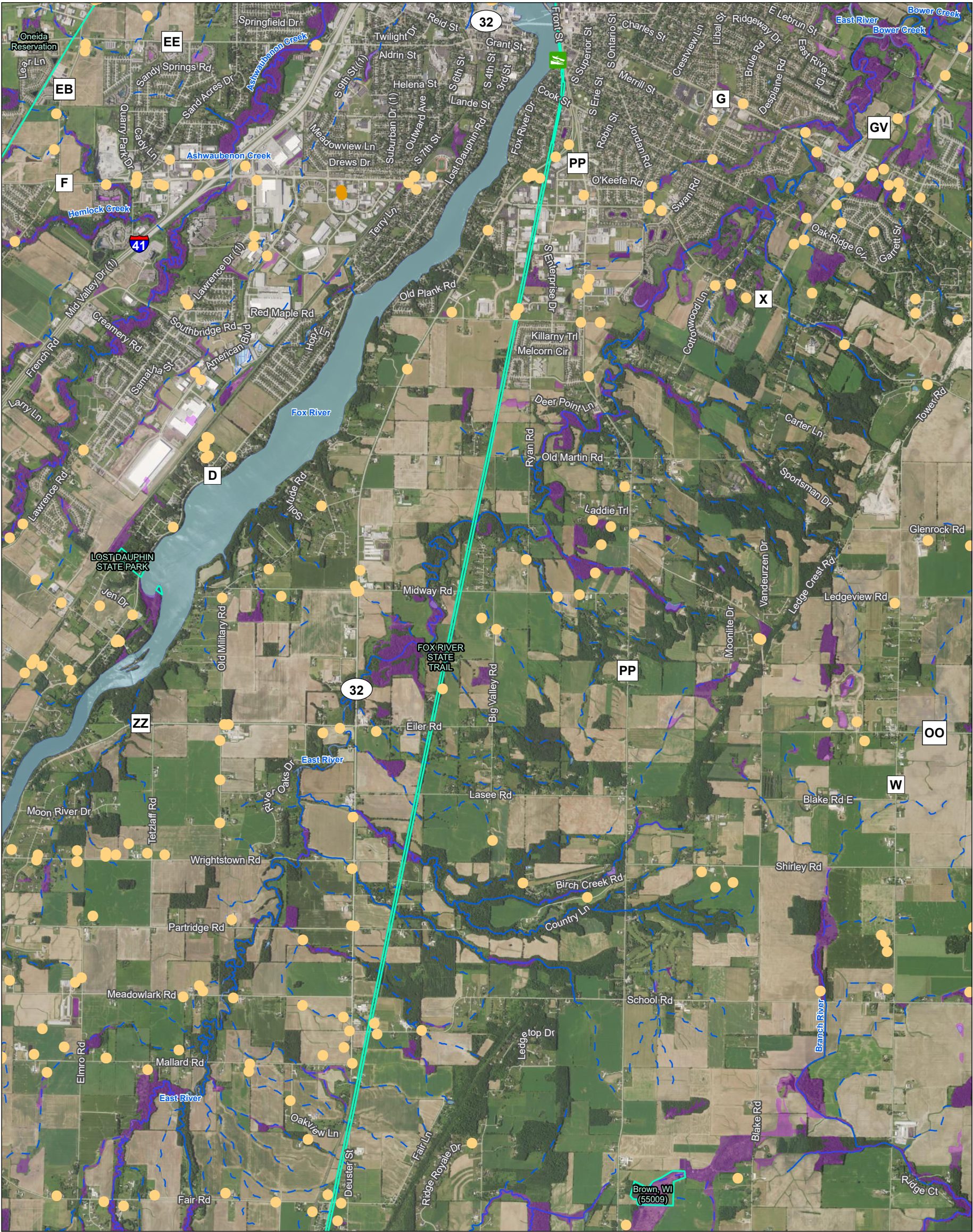
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Brown County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

1

Title

**Invasive Species Areas
Brown County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 1.81 acres
 - Non-Native Phragmites, Treated: 17.80 acres
 - Non-Native Phragmites, Untreated: 2,425.32 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Brown County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

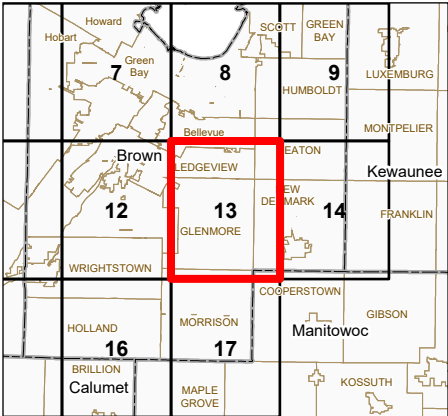
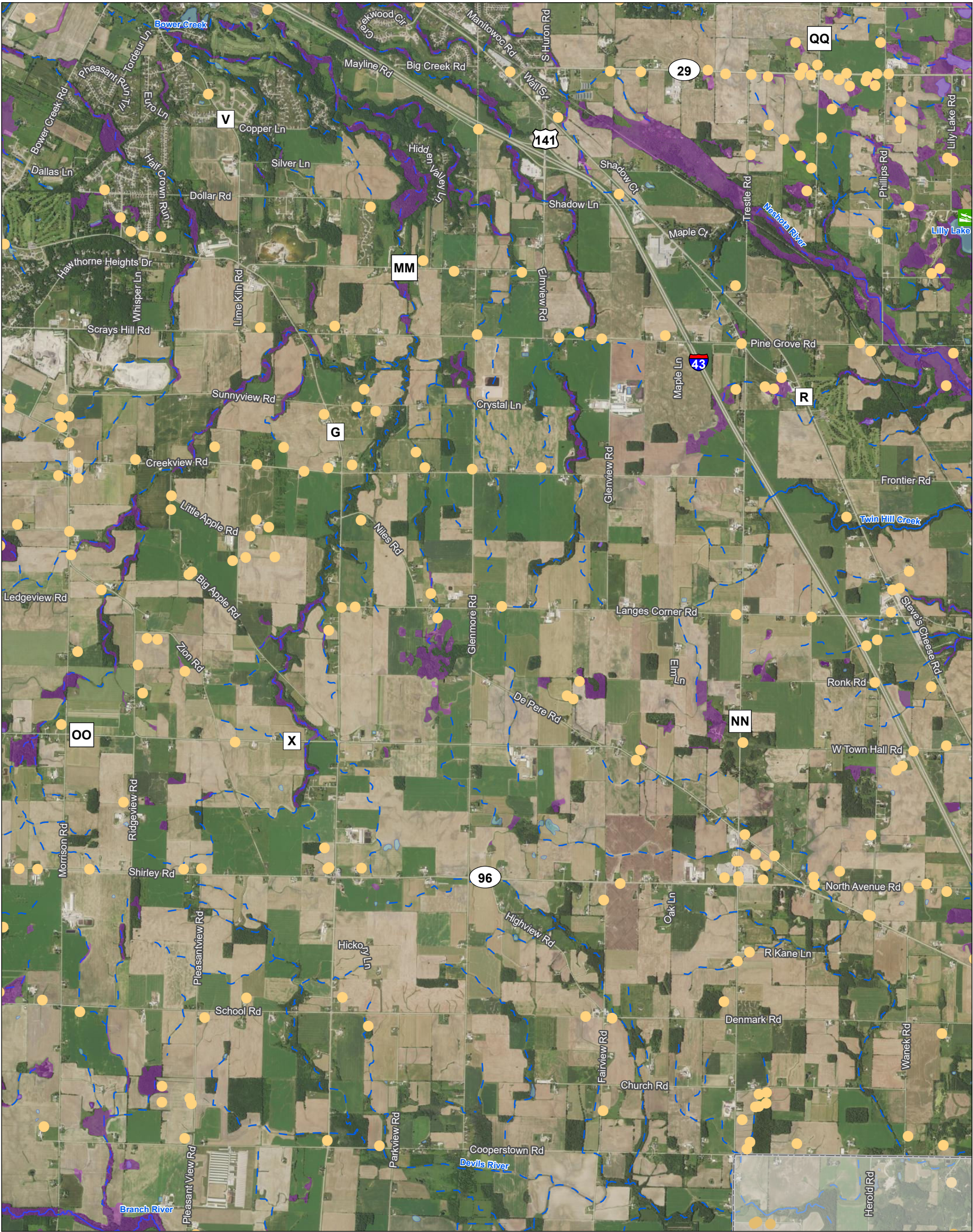
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Brown County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

1

Title

**Invasive Species Areas
Brown County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 1.81 acres
- Non-Native Phragmites, Treated: 17.80 acres
- Non-Native Phragmites, Untreated: 2,425.32 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Brown County
Wisconsin

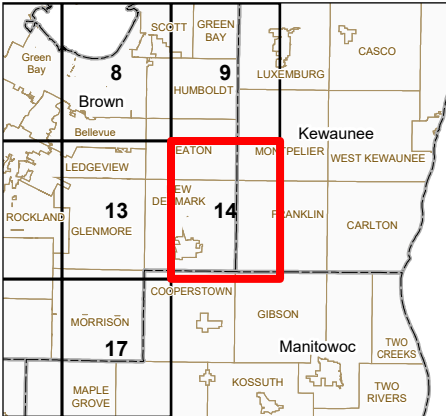
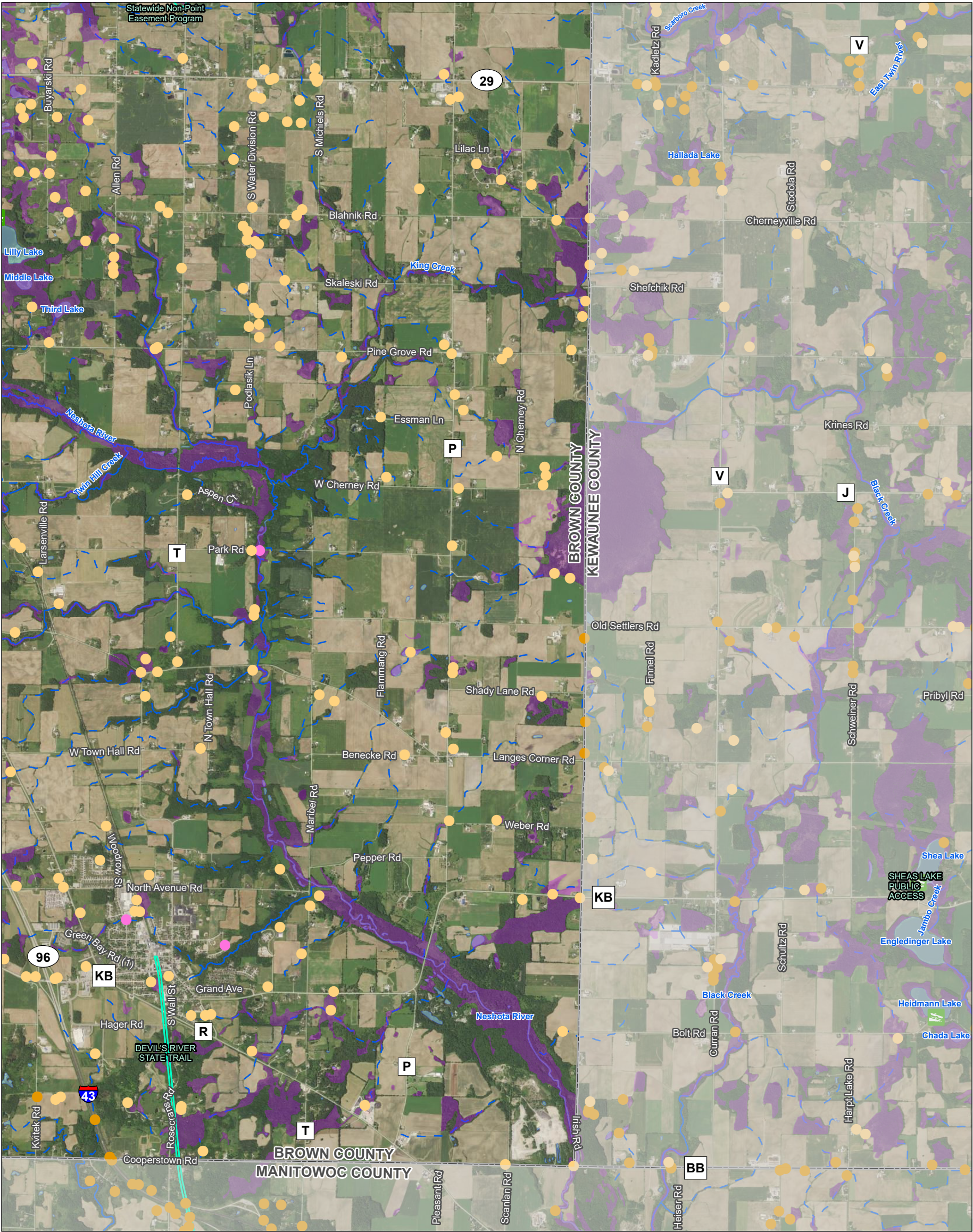
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Brown County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

1

Title

**Invasive Species Areas
Brown County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 1.81 acres
 - Non-Native Phragmites, Treated: 17.80 acres
 - Non-Native Phragmites, Untreated: 2,425.32 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



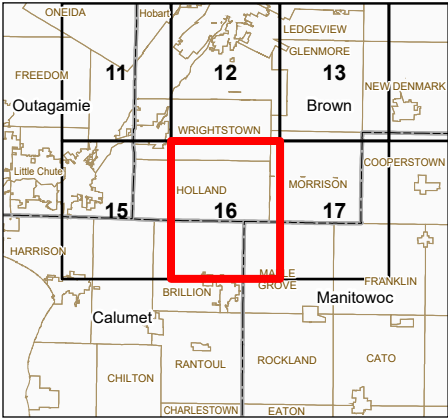
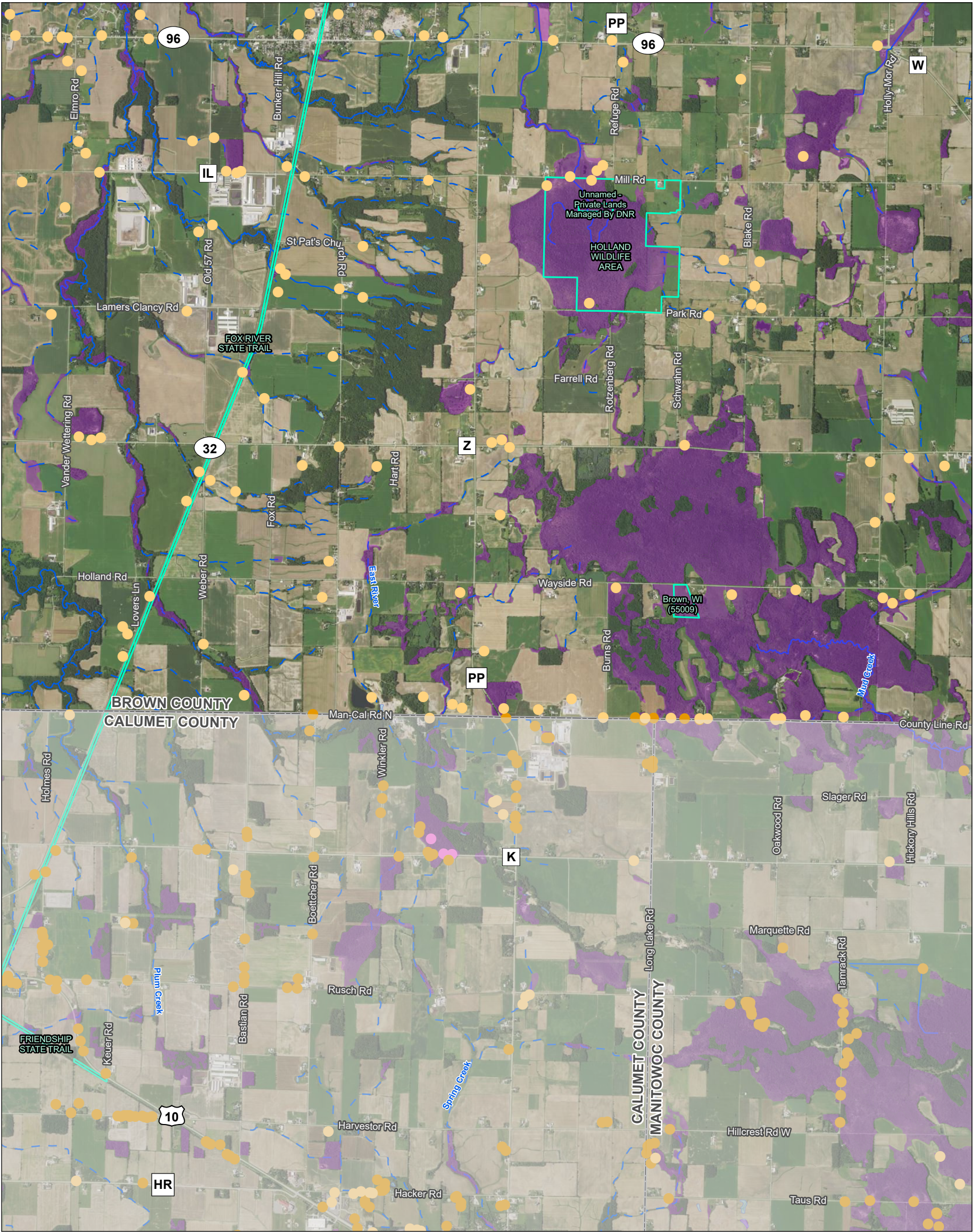
Project Location
Brown County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Brown County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.
1

Title
**Invasive Species Areas
Brown County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 1.81 acres
- Non-Native Phragmites, Treated: 17.80 acres
- Non-Native Phragmites, Untreated: 2,425.32 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Brown County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

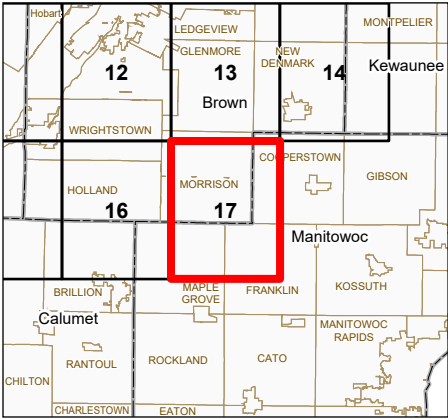
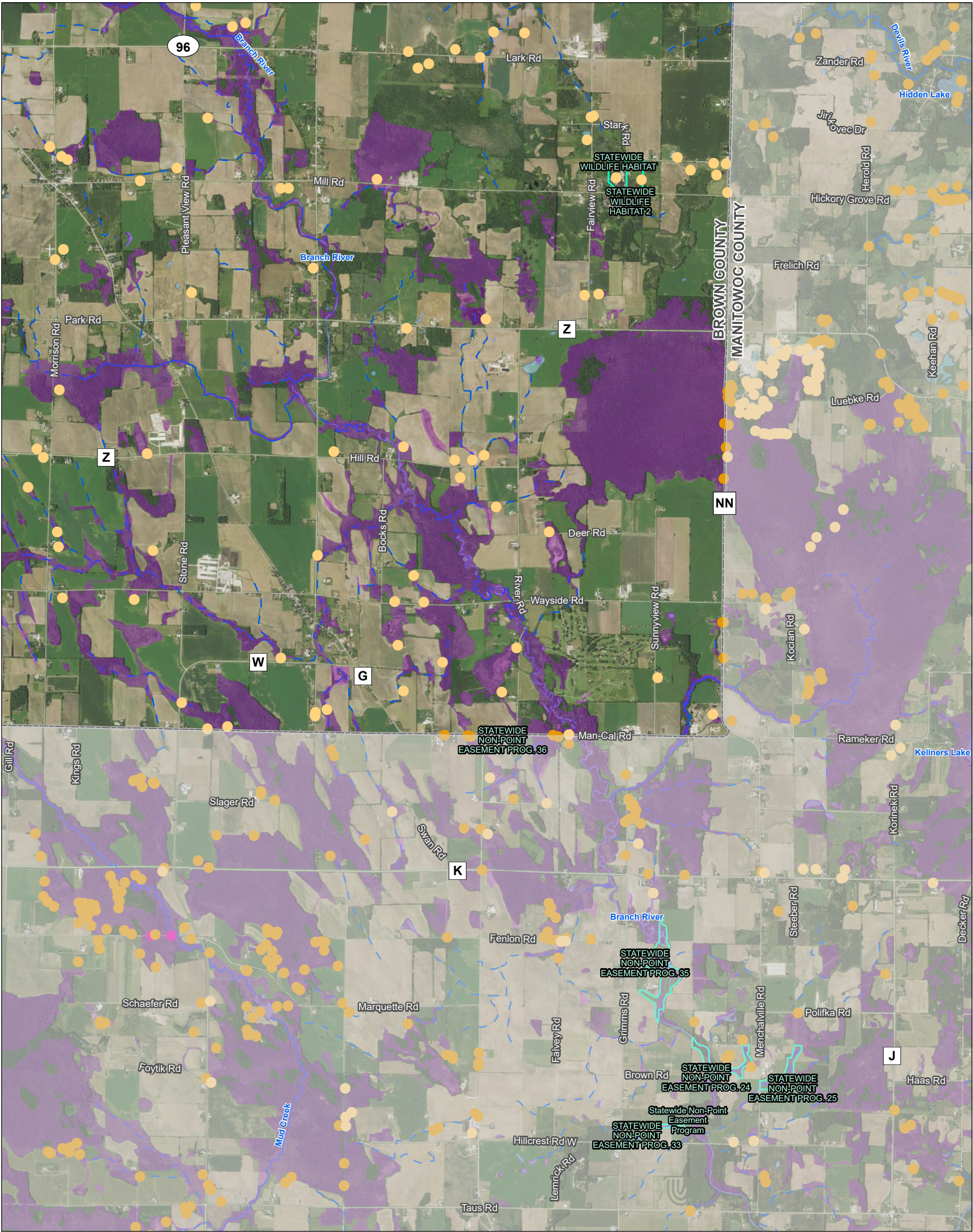
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Brown County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

1

Title

**Invasive Species Areas
Brown County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 1.81 acres
 - Non-Native Phragmites, Treated: 17.80 acres
 - Non-Native Phragmites, Untreated: 2,425.32 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Brown County
Wisconsin

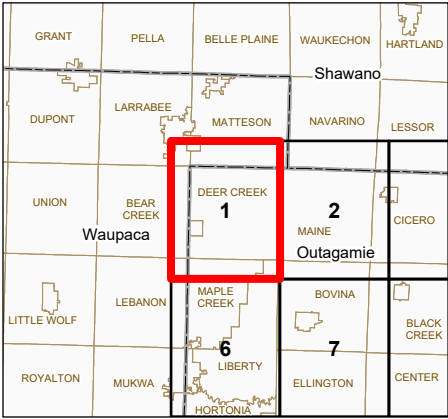
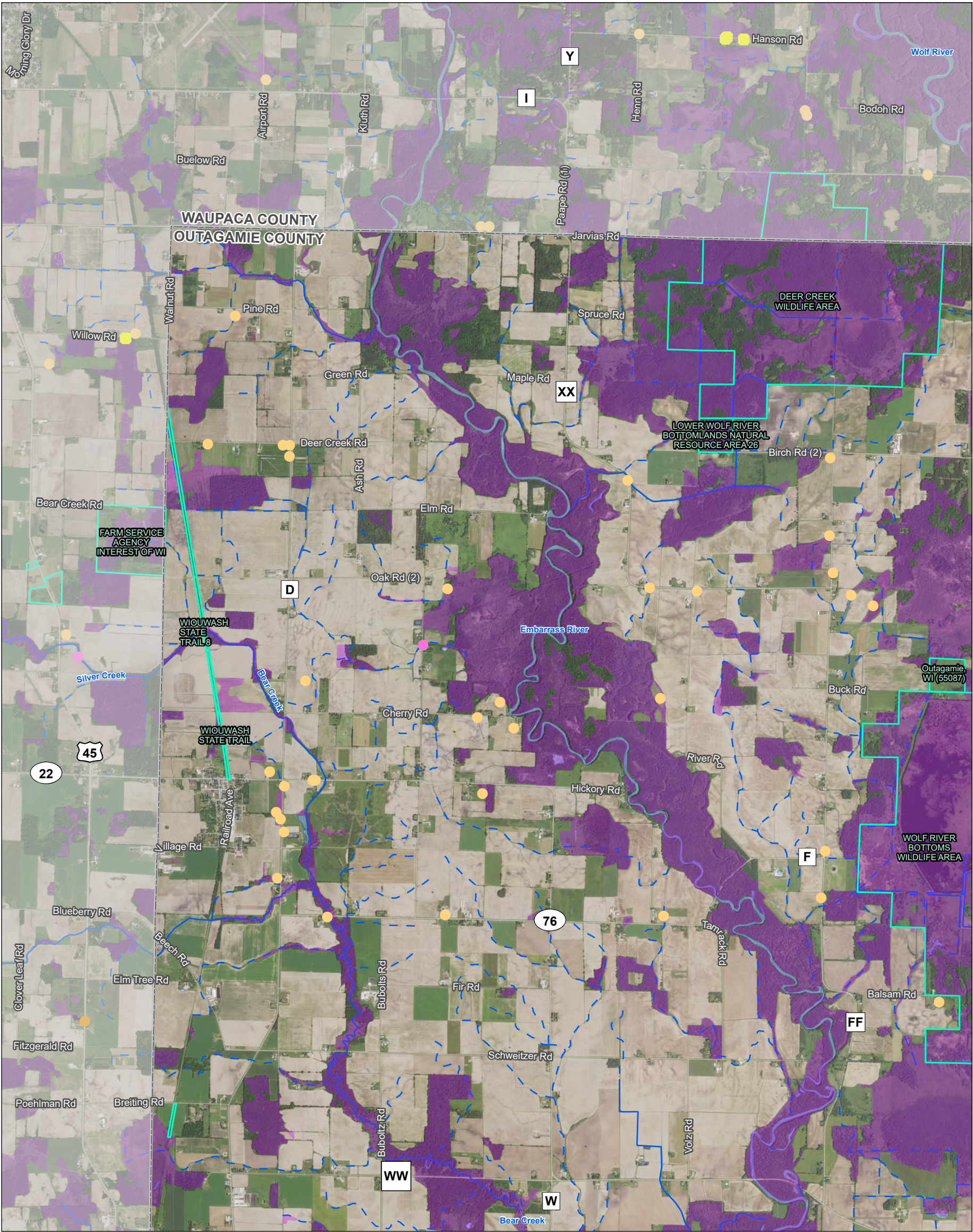
Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Brown County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

1

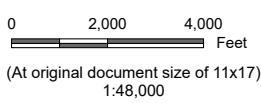
**Invasive Species Areas
Brown County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 2.32 acres
- Non-Native Phragmites, Treated: 0.01 acres
- Non-Native Phragmites, Untreated: 288.67 acres
- Native Phragmites: 35.98 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody



Project Location
Outagamie County
Wisconsin

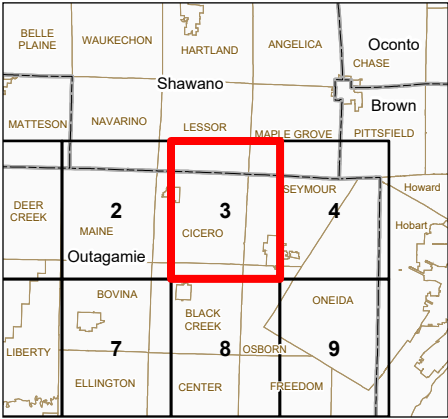
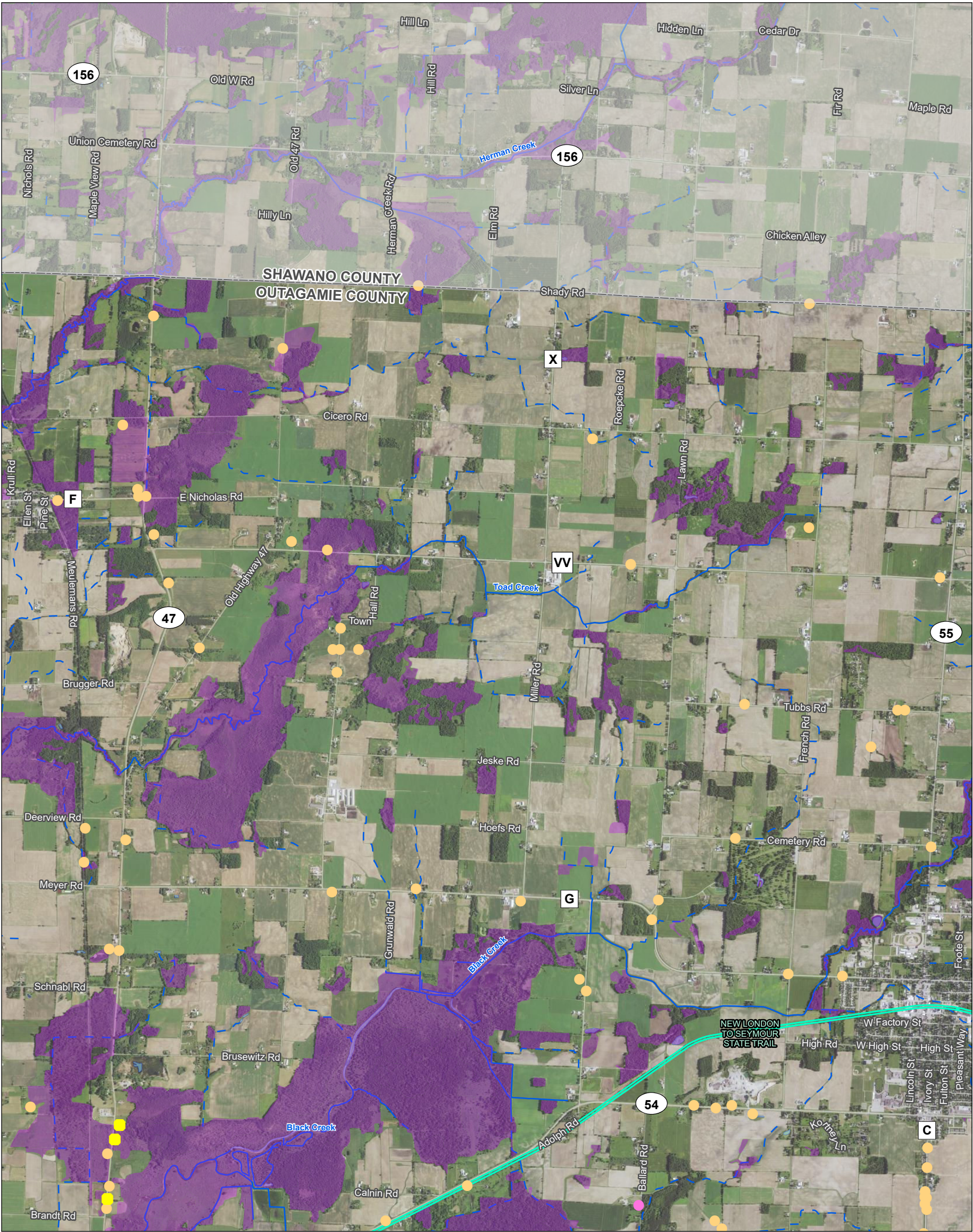
Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Outagamie County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.
2

Title
**Invasive Species Areas
Outagamie County**

V:\1937\Active\W\Invasive_Work\03_data\gis\mxd\FWMA_Proposal\FWMA_Proposal.aprx Revised: 2025-05-12 By: jdelpre



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 2.32 acres
- Non-Native Phragmites, Treated: 0.01 acres
- Non-Native Phragmites, Untreated: 288.67 acres
- Native Phragmites: 35.98 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Outagamie County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Outagamie County Fox Valley Phragmites and
Japanese Knotweed Management Plan

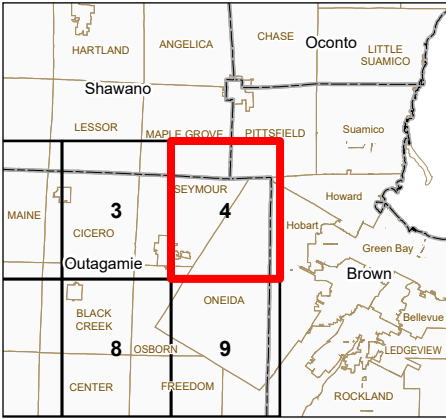
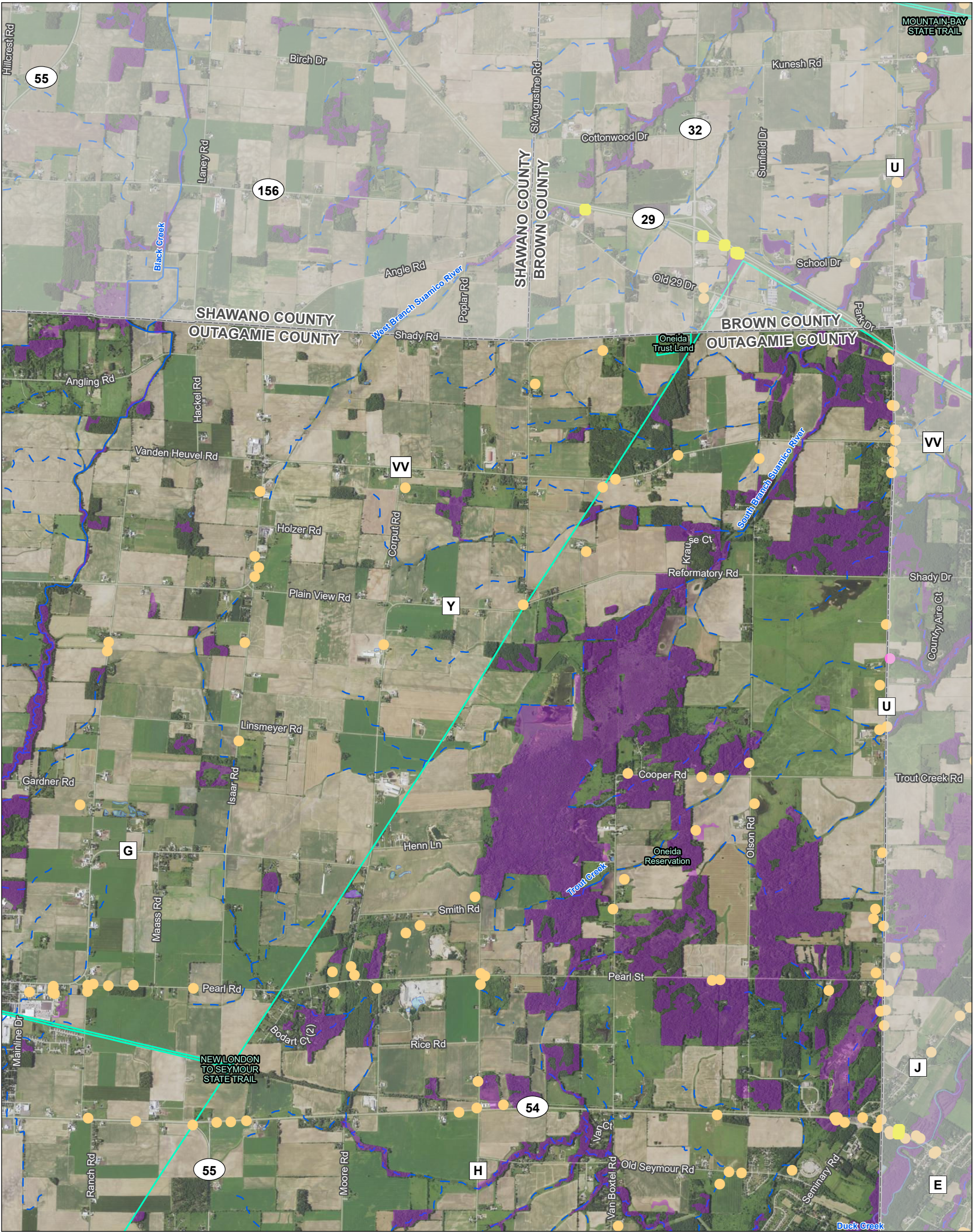
Figure No.

2

Title

**Invasive Species Areas
Outagamie County**

V:\1937\Active\W\Invasive_Work\03_data\gis\FWWA_Proposal\FWWA_Proposal.aprx Revised: 2025-05-12 By: jdelprete



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 2.32 acres
- Non-Native Phragmites, Treated: 0.01 acres
- Non-Native Phragmites, Untreated: 288.67 acres
- Native Phragmites: 35.98 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



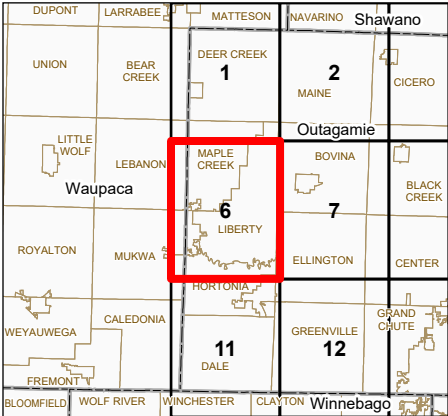
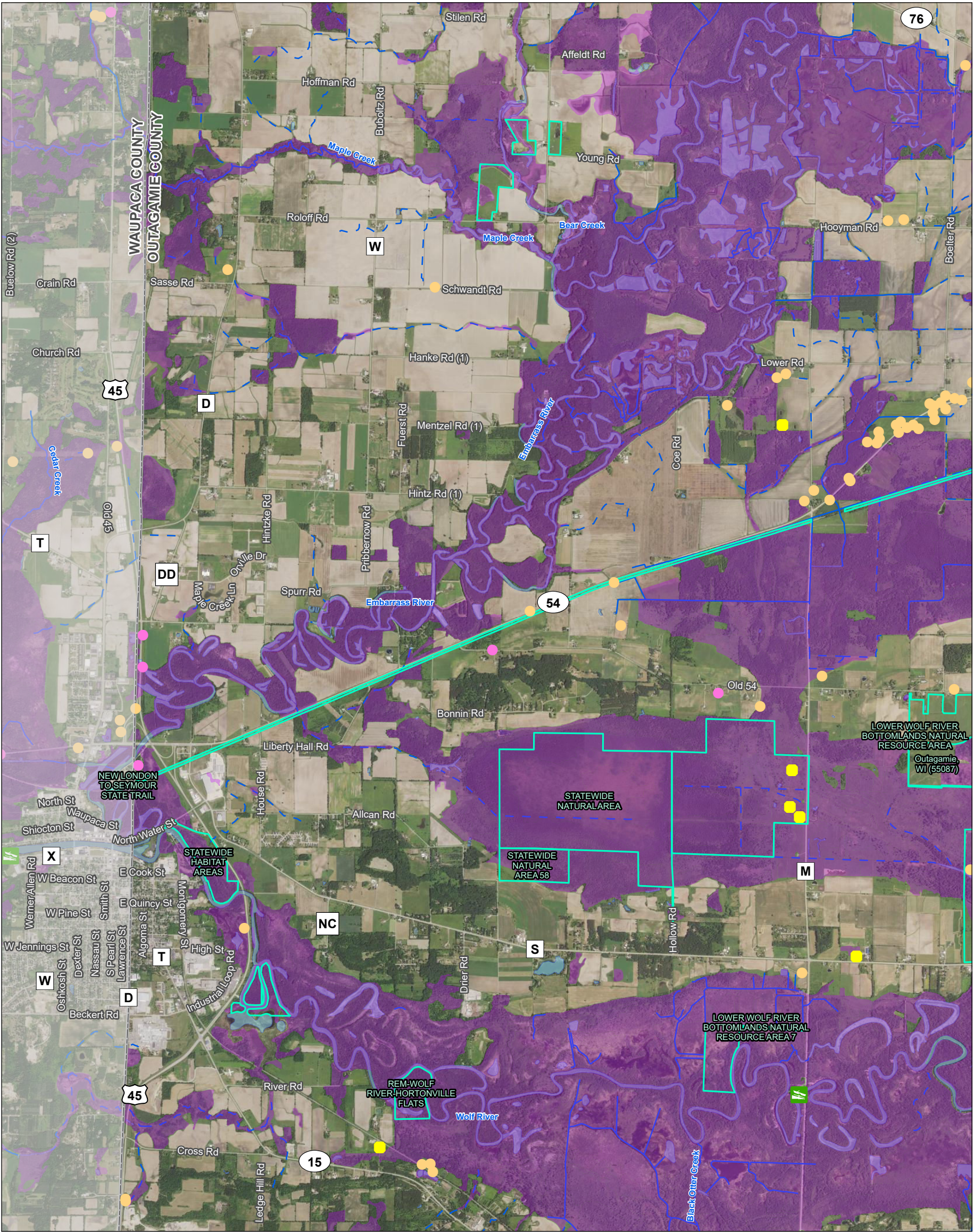
Project Location
Outagamie County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Outagamie County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.
2

Title
**Invasive Species Areas
Outagamie County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 2.32 acres
- Non-Native Phragmites, Treated: 0.01 acres
- Non-Native Phragmites, Untreated: 288.67 acres
- Native Phragmites: 35.98 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Outagamie County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

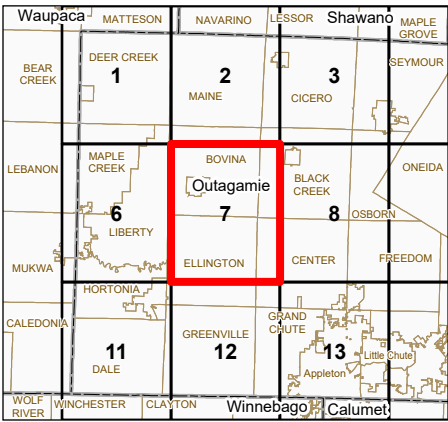
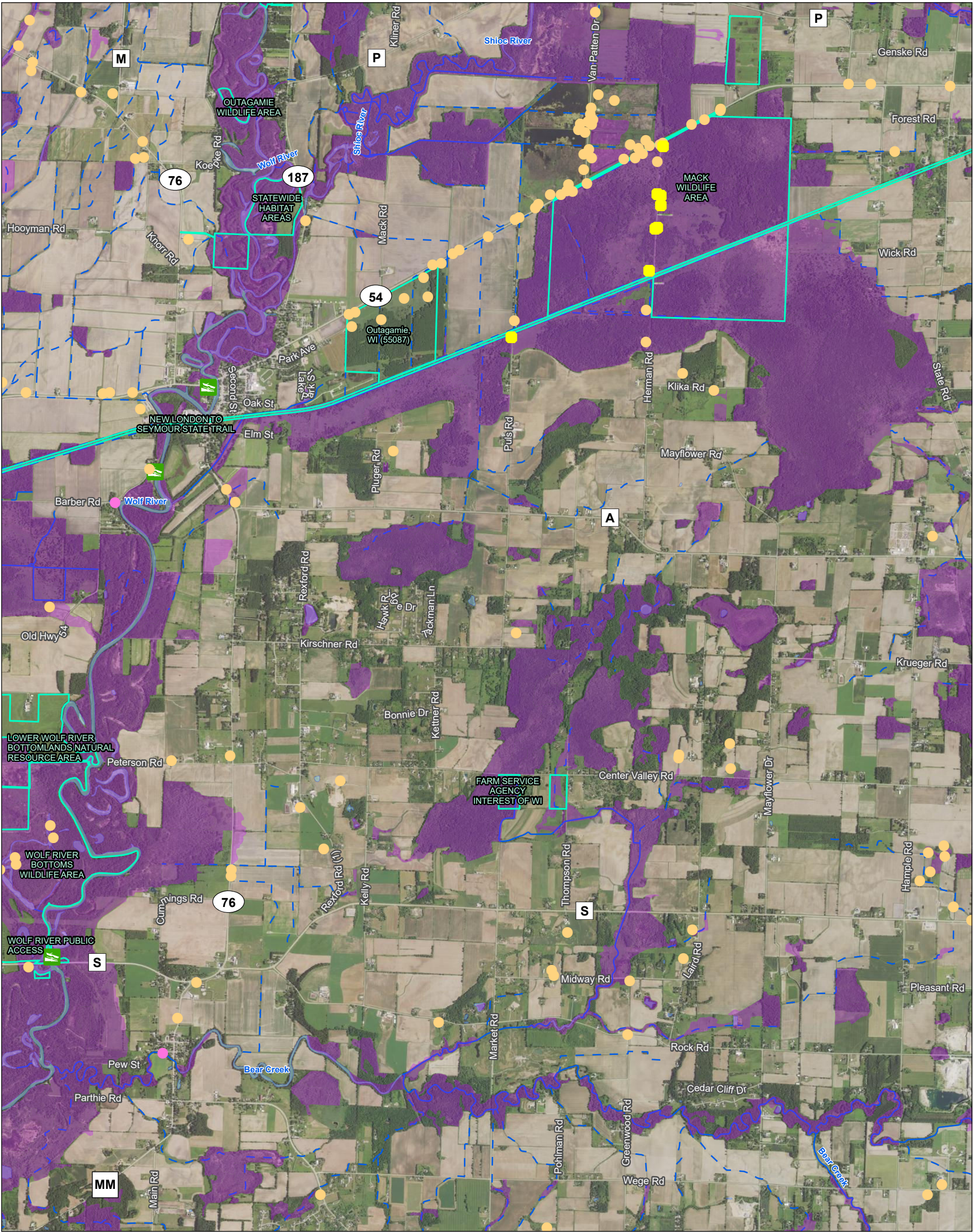
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Outagamie County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

2

Title

**Invasive Species Areas
Outagamie County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 2.32 acres
- Non-Native Phragmites, Treated: 0.01 acres
- Non-Native Phragmites, Untreated: 288.67 acres
- Native Phragmites: 35.98 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



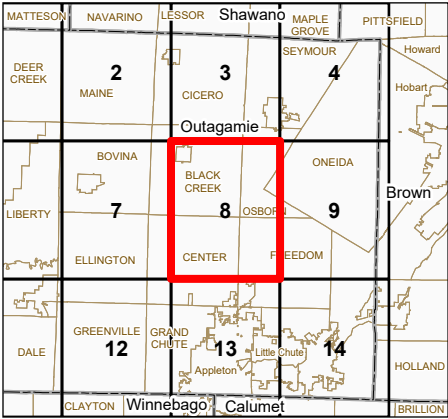
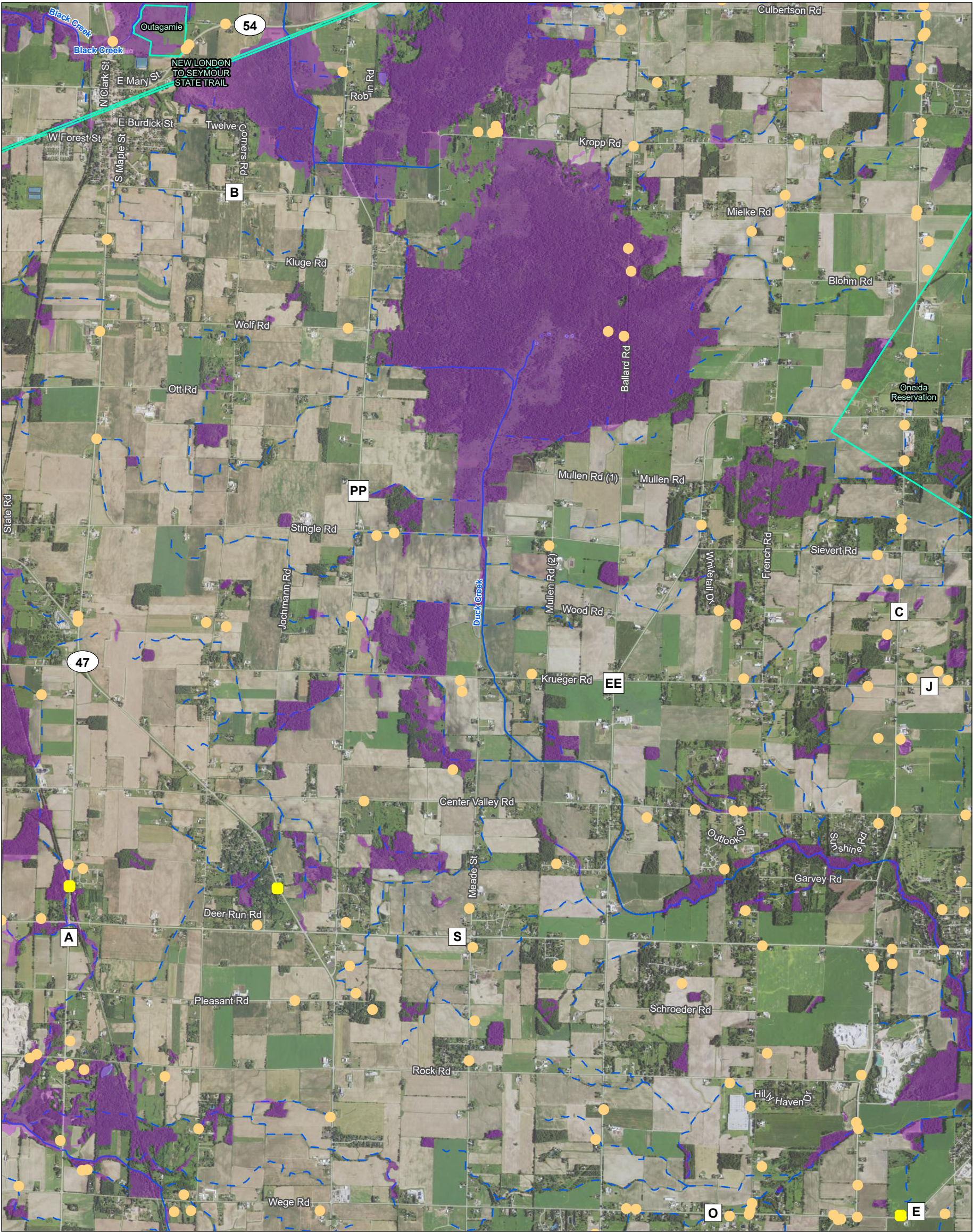
Project Location
Outagamie County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Outagamie County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.
2
Title

**Invasive Species Areas
Outagamie County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 2.32 acres
- Non-Native Phragmites, Treated: 0.01 acres
- Non-Native Phragmites, Untreated: 288.67 acres
- Native Phragmites: 35.98 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



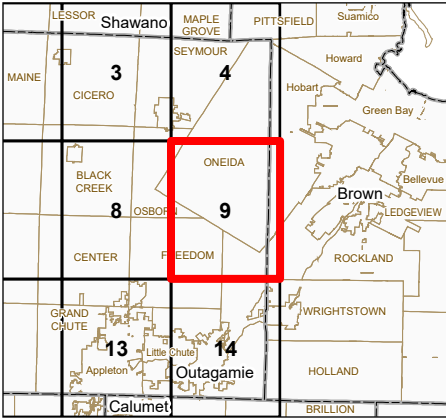
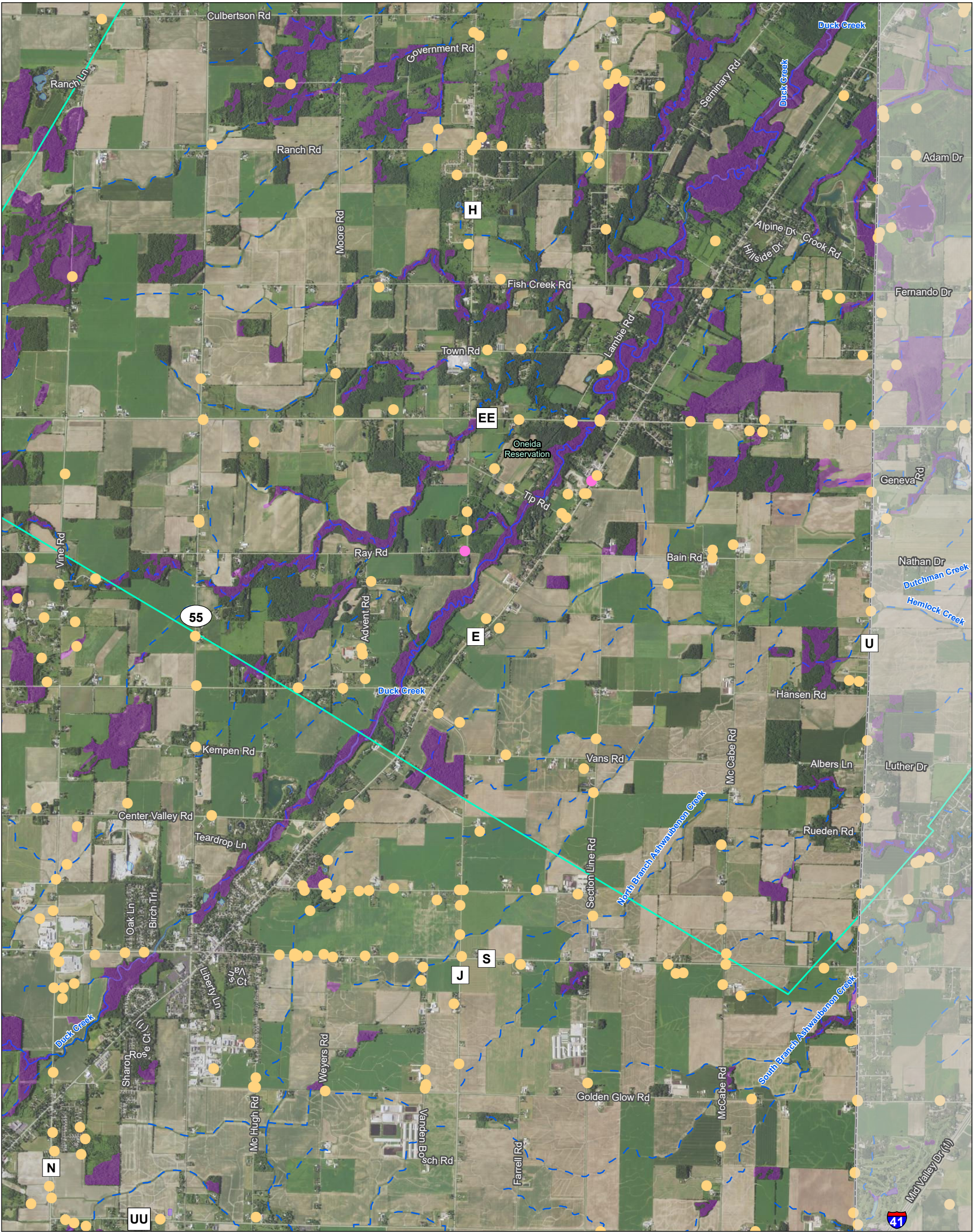
Project Location
Outagamie County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Outagamie County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.
2

Title
**Invasive Species Areas
Outagamie County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 2.32 acres
 - Non-Native Phragmites, Treated: 0.01 acres
 - Non-Native Phragmites, Untreated: 288.67 acres
 - Native Phragmites: 35.98 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



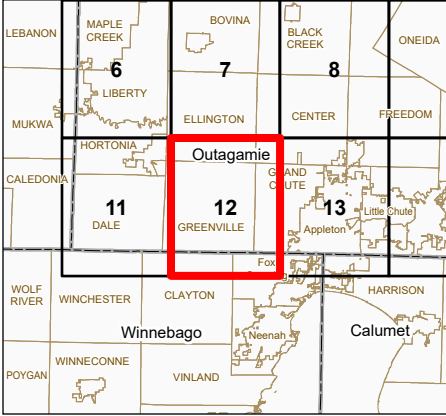
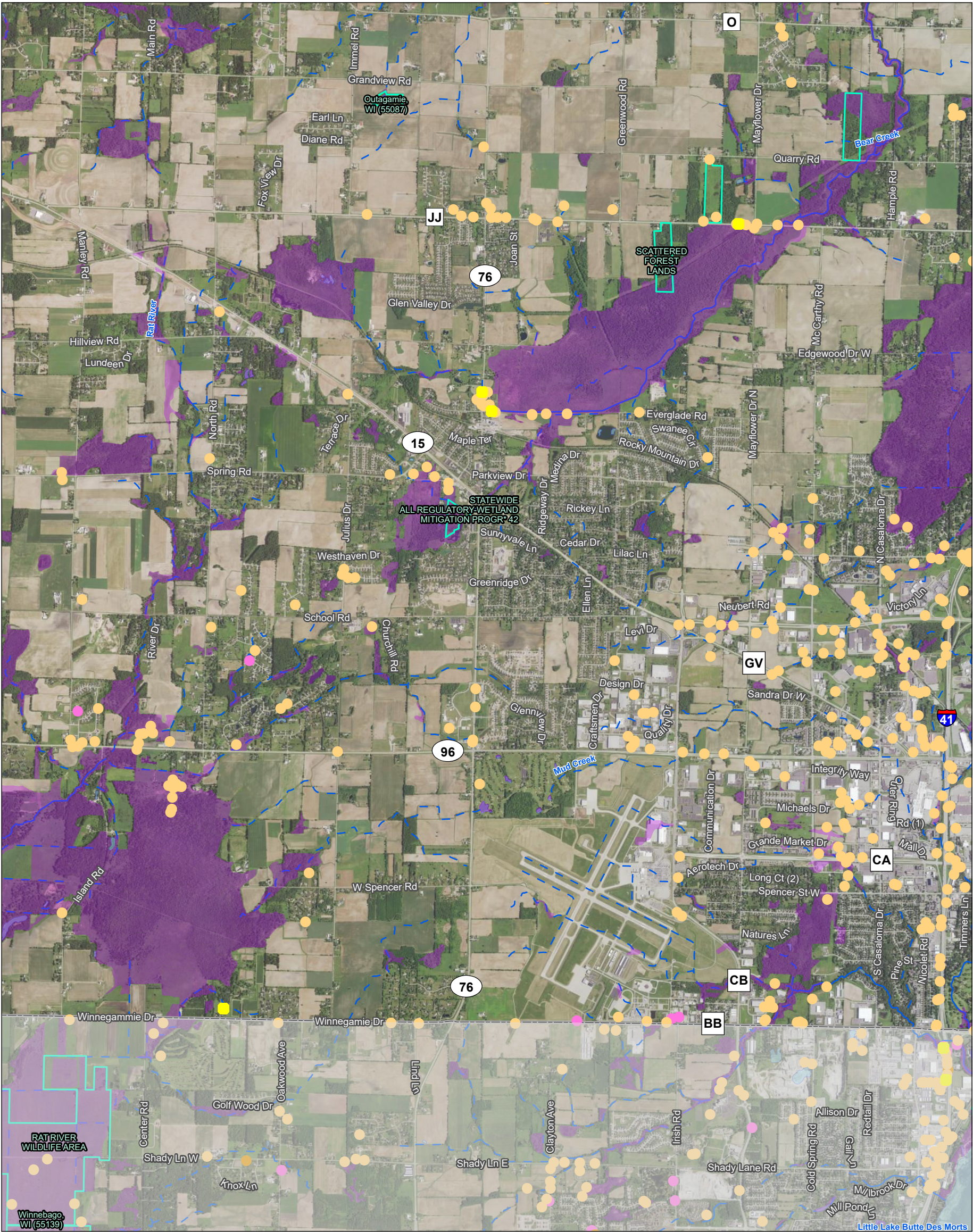
Project Location
Outagamie County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Outagamie County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.
2

Title
**Invasive Species Areas
Outagamie County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 2.32 acres
 - Non-Native Phragmites, Treated: 0.01 acres
 - Non-Native Phragmites, Untreated: 288.67 acres
 - Native Phragmites: 35.98 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000

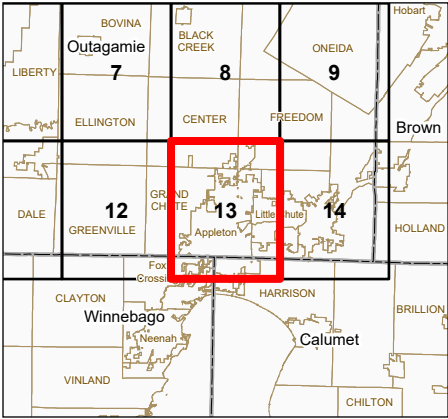
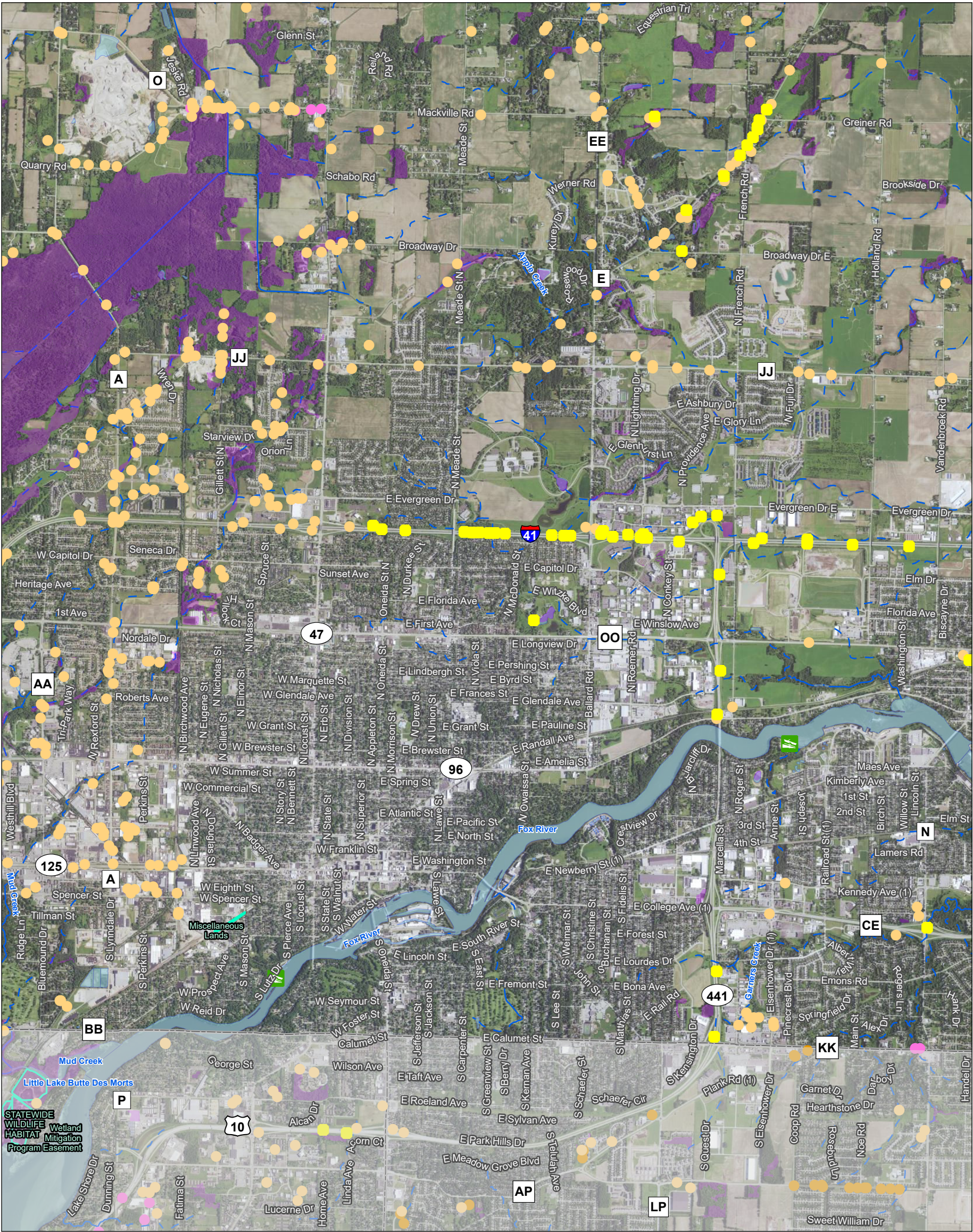


Project Location
Outagamie County
Wisconsin

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Outagamie County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.
2

Title
**Invasive Species Areas
Outagamie County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 2.32 acres
- Non-Native Phragmites, Treated: 0.01 acres
- Non-Native Phragmites, Untreated: 288.67 acres
- Native Phragmites: 35.98 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



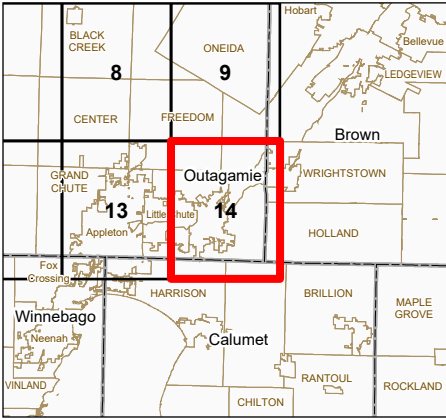
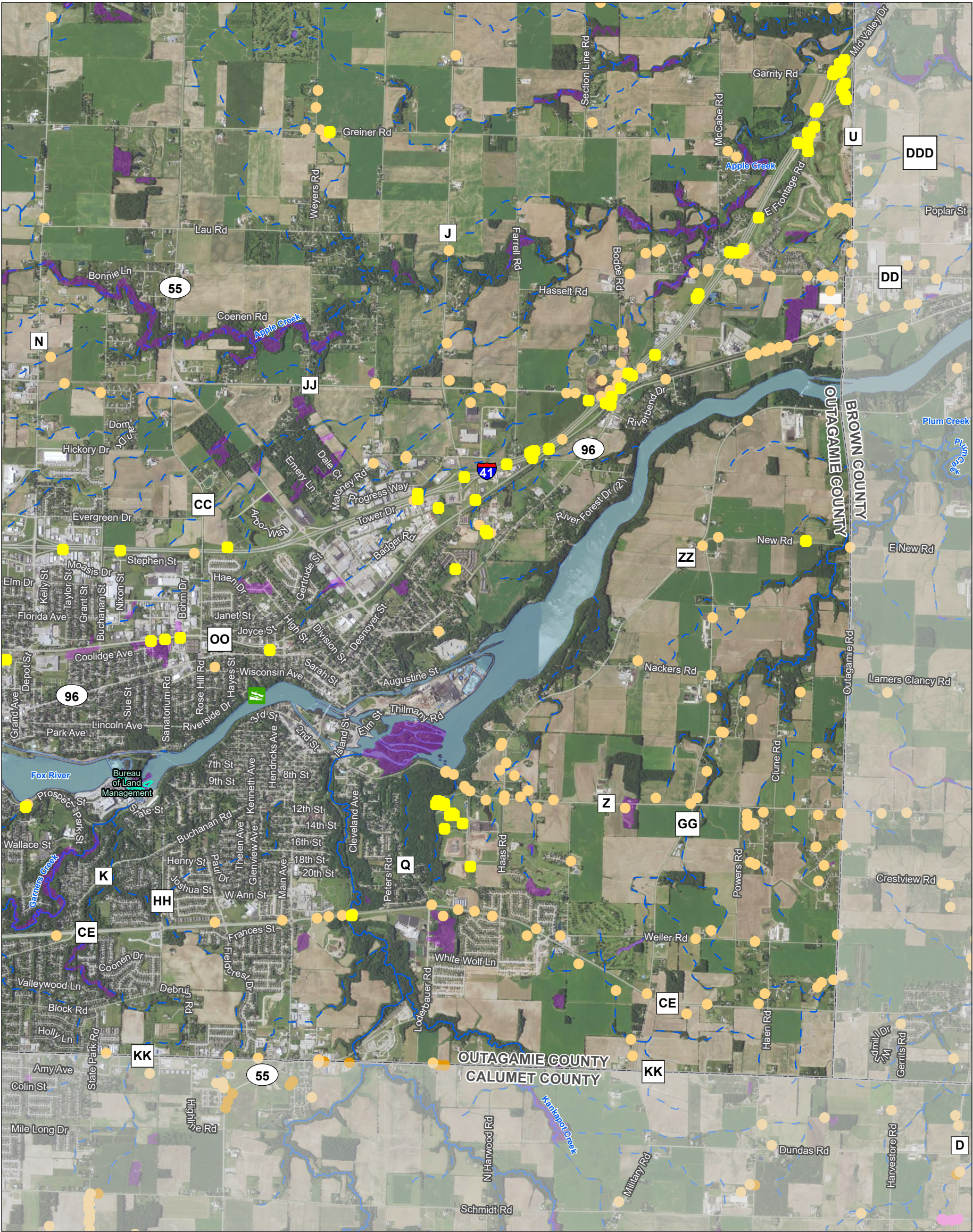
Project Location
Outagamie County
Wisconsin
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Outagamie County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

2

Title

**Invasive Species Areas
Outagamie County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 2.32 acres
 - Non-Native Phragmites, Treated: 0.01 acres
 - Non-Native Phragmites, Untreated: 288.67 acres
 - Native Phragmites: 35.98 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000

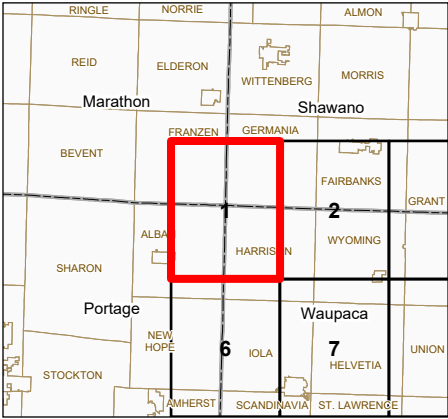
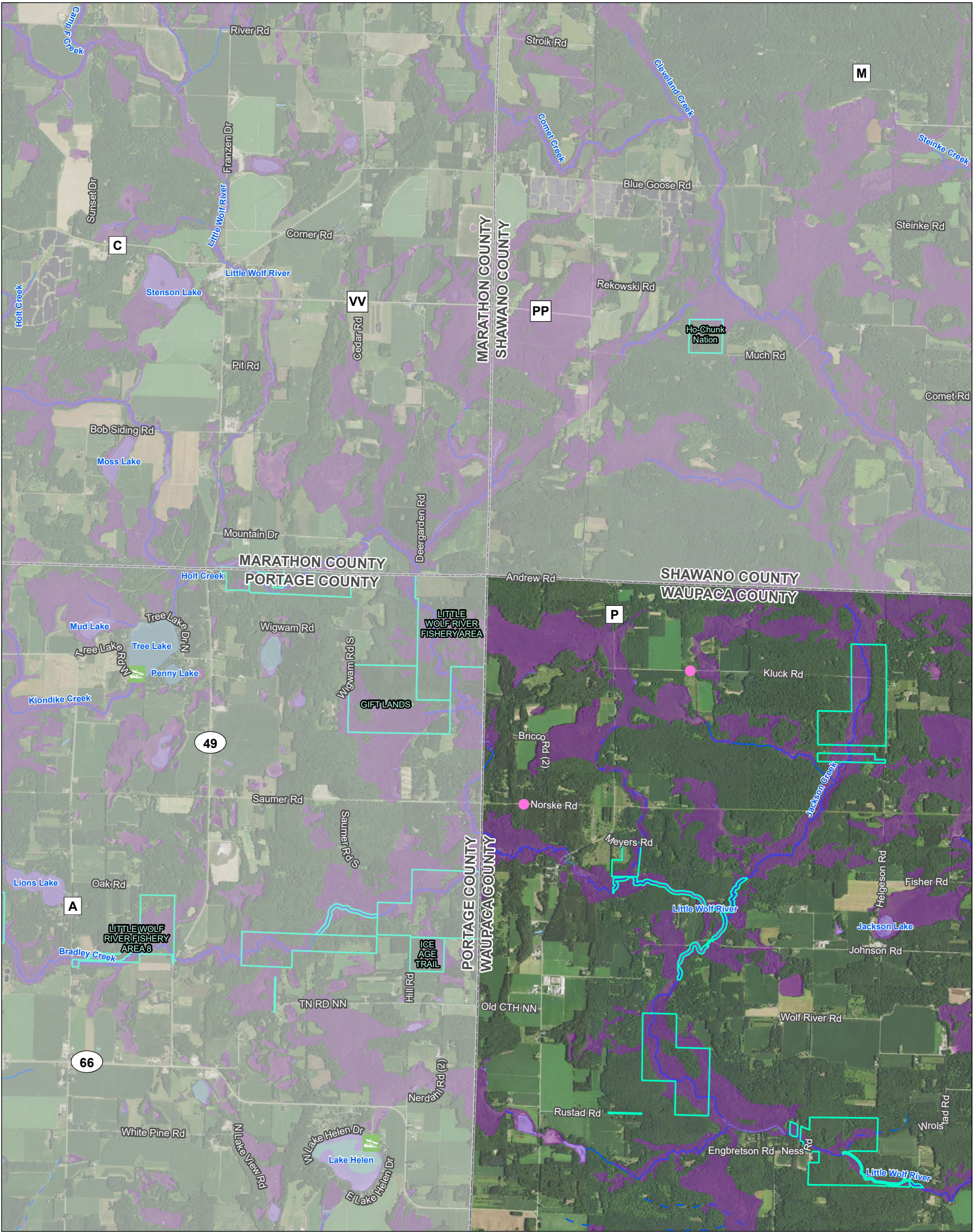


Project Location
Outagamie County
Wisconsin

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Outagamie County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.
2

Title
**Invasive Species Areas
Outagamie County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 9.24 acres
- Non-Native Phragmites, Treated: 4.59 acres
- Non-Native Phragmites, Untreated: 49.77 acres
- Native Phragmites: 11.88 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

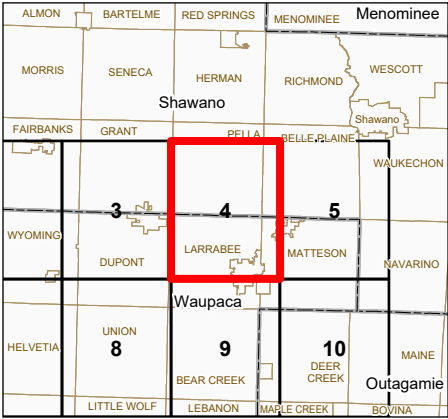
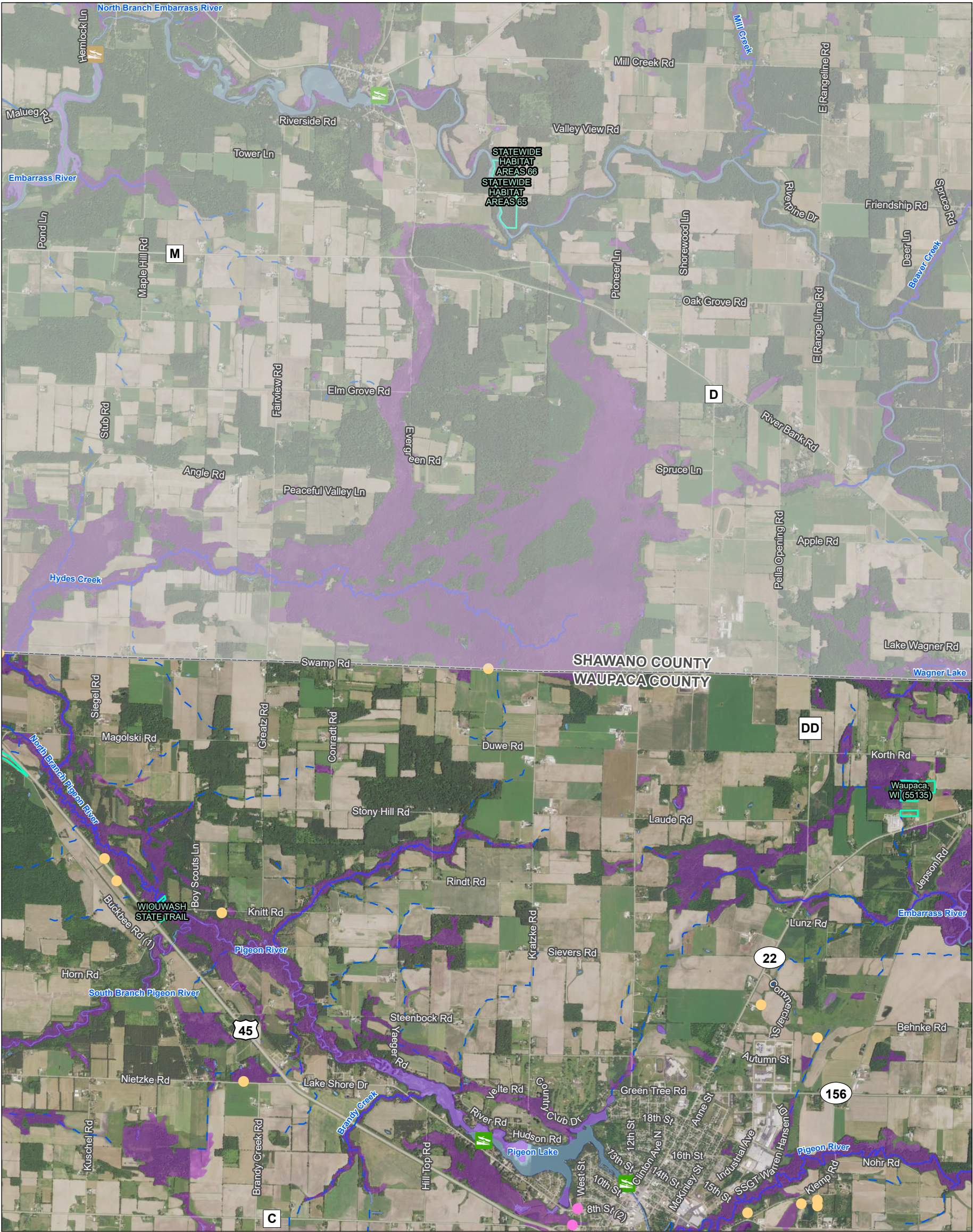
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

3

Title

**Invasive Species Areas
Waupaca County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 9.24 acres
- Non-Native Phragmites, Treated: 4.59 acres
- Non-Native Phragmites, Untreated: 49.77 acres
- Native Phragmites: 11.88 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

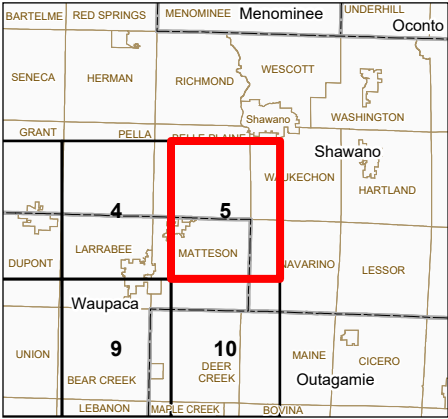
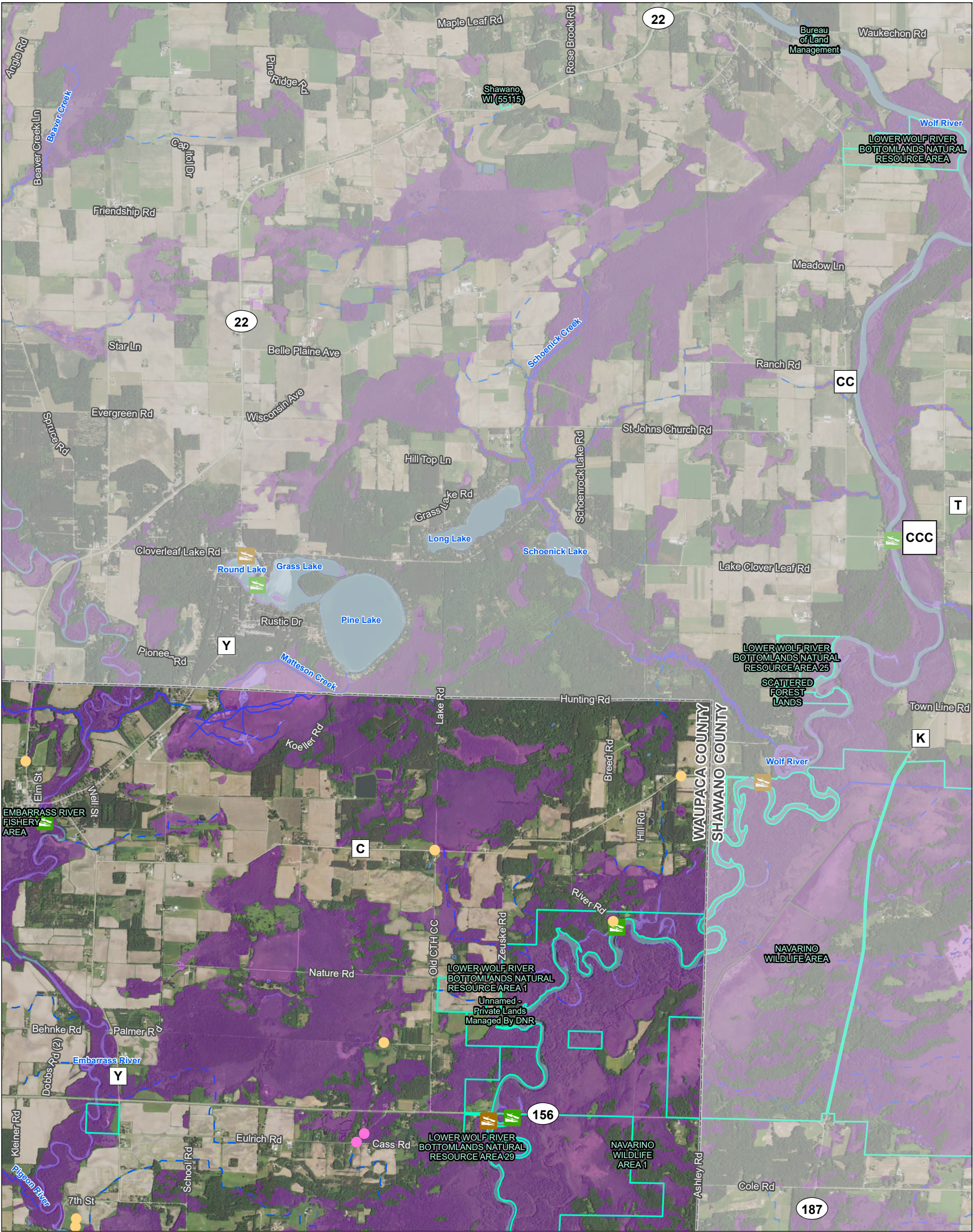
Figure No.

3

Title

**Invasive Species Areas
Waupaca County**

V:\1937\Active\WI_Invasive_Work\03_data\gis_cadd\gis\mxds\FWWA_Proposal\FWWA_Proposal.aprx Revised: 2025-05-12 By: jdelprete



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 9.24 acres
 - Non-Native Phragmites, Treated: 4.59 acres
 - Non-Native Phragmites, Untreated: 49.77 acres
 - Native Phragmites: 11.88 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody



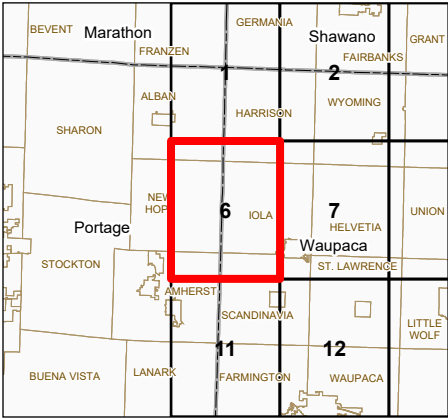
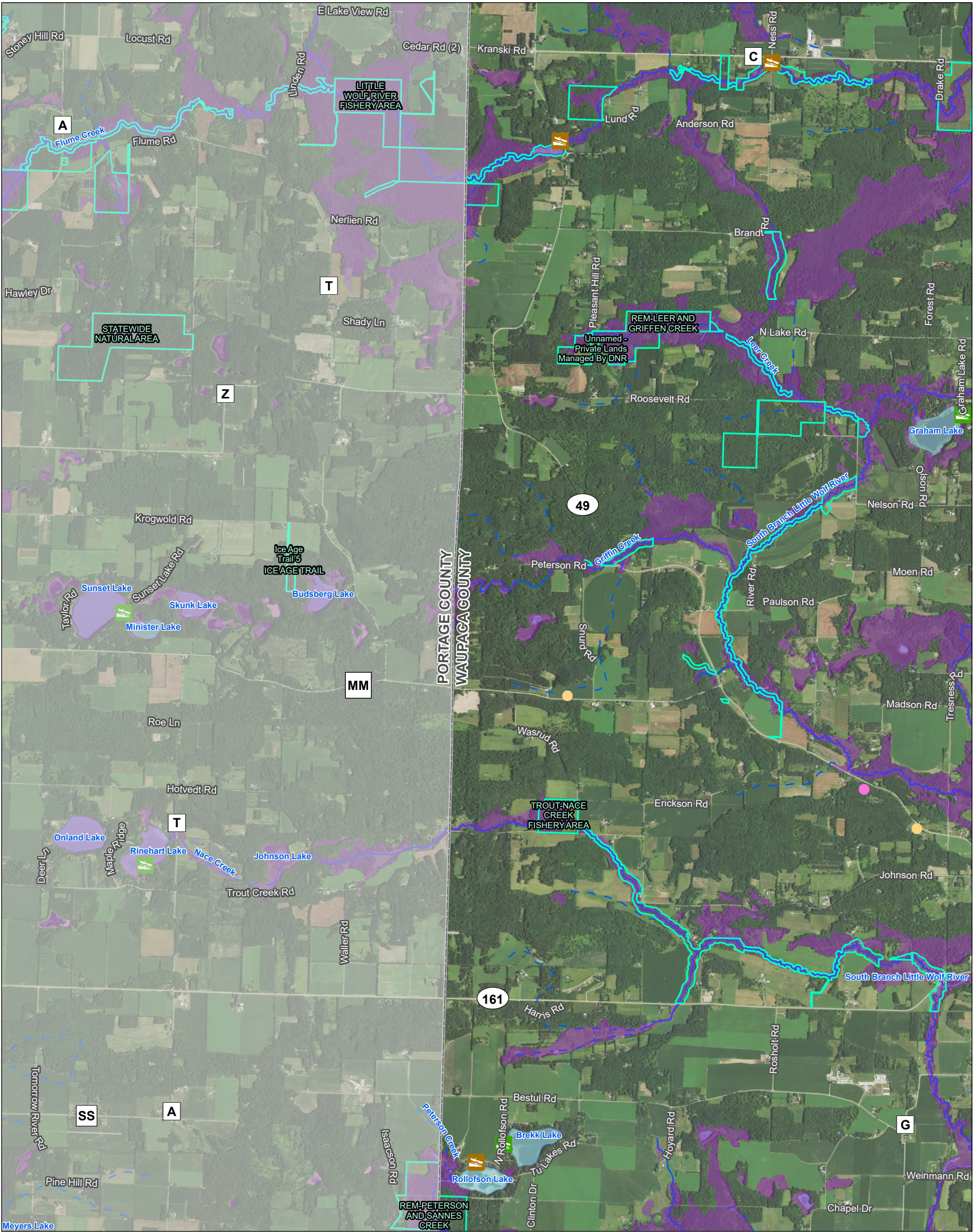
Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.
3

Title
**Invasive Species Areas
Waupaca County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 9.24 acres
- Non-Native Phragmites, Treated: 4.59 acres
- Non-Native Phragmites, Untreated: 49.77 acres
- Native Phragmites: 11.88 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Waupaca County
Wisconsin

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

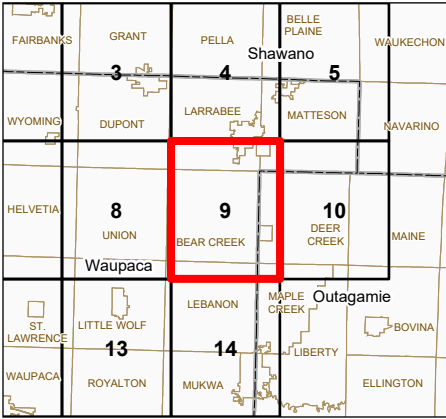
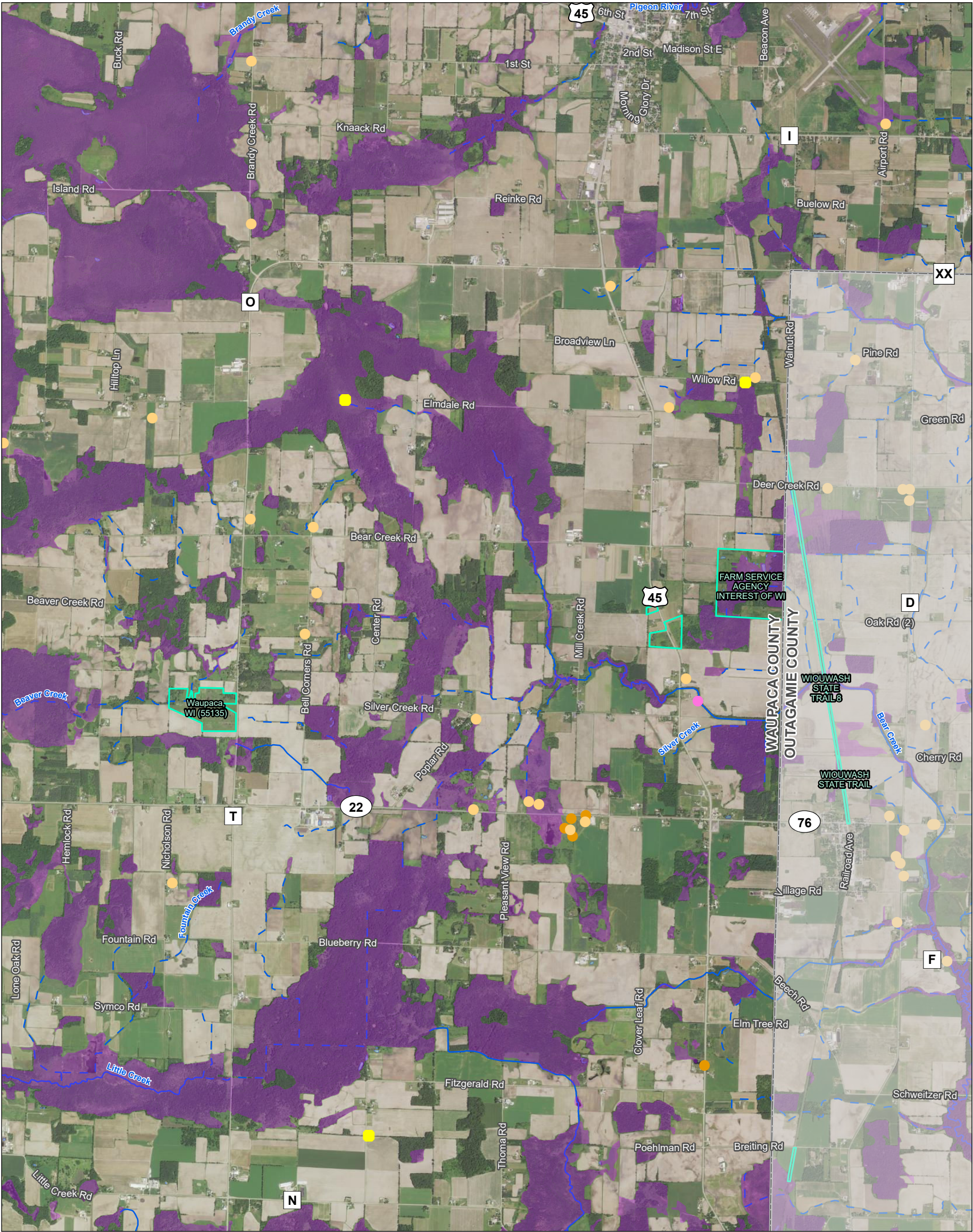
Figure No.

3

Title

**Invasive Species Areas
Waupaca County**

V:\1937\Active\WI_Invasive_Work\03_data\gis_cad\gis\mxds\FWWA_Proposal\FWWA_Proposal.aprx Revised: 2025-05-12 By: jdelprete



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 9.24 acres
 - Non-Native Phragmites, Treated: 4.59 acres
 - Non-Native Phragmites, Untreated: 49.77 acres
 - Native Phragmites: 11.88 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

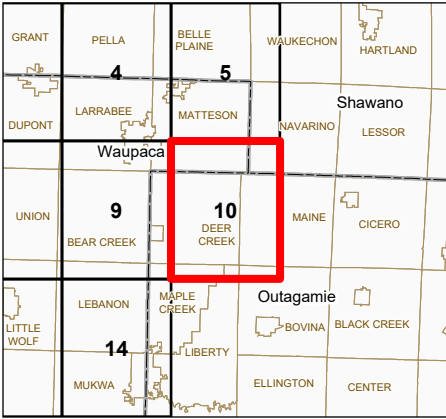
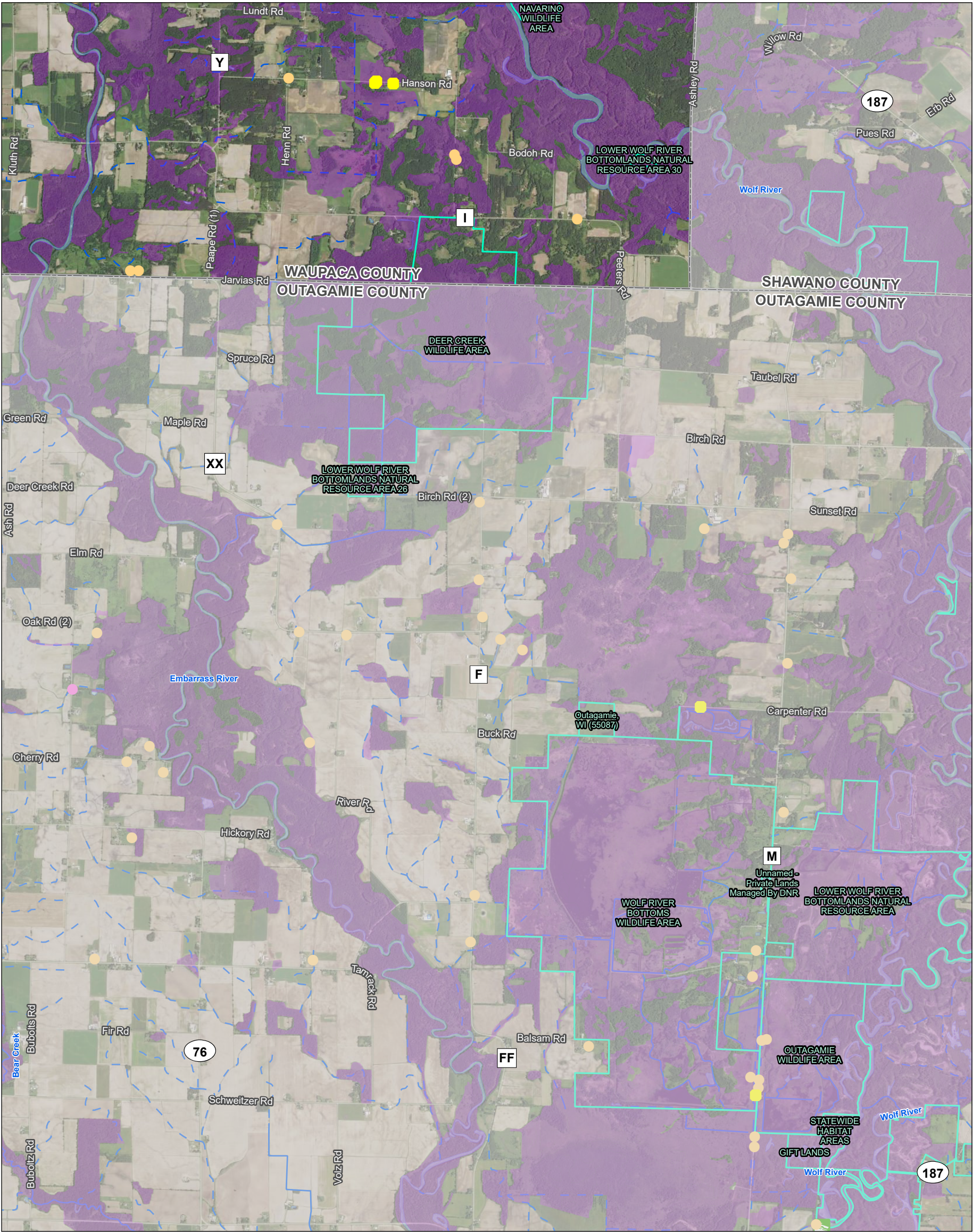
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

3

Title

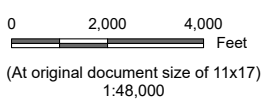
**Invasive Species Areas
Waupaca County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 9.24 acres
- Non-Native Phragmites, Treated: 4.59 acres
- Non-Native Phragmites, Untreated: 49.77 acres
- Native Phragmites: 11.88 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody



Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

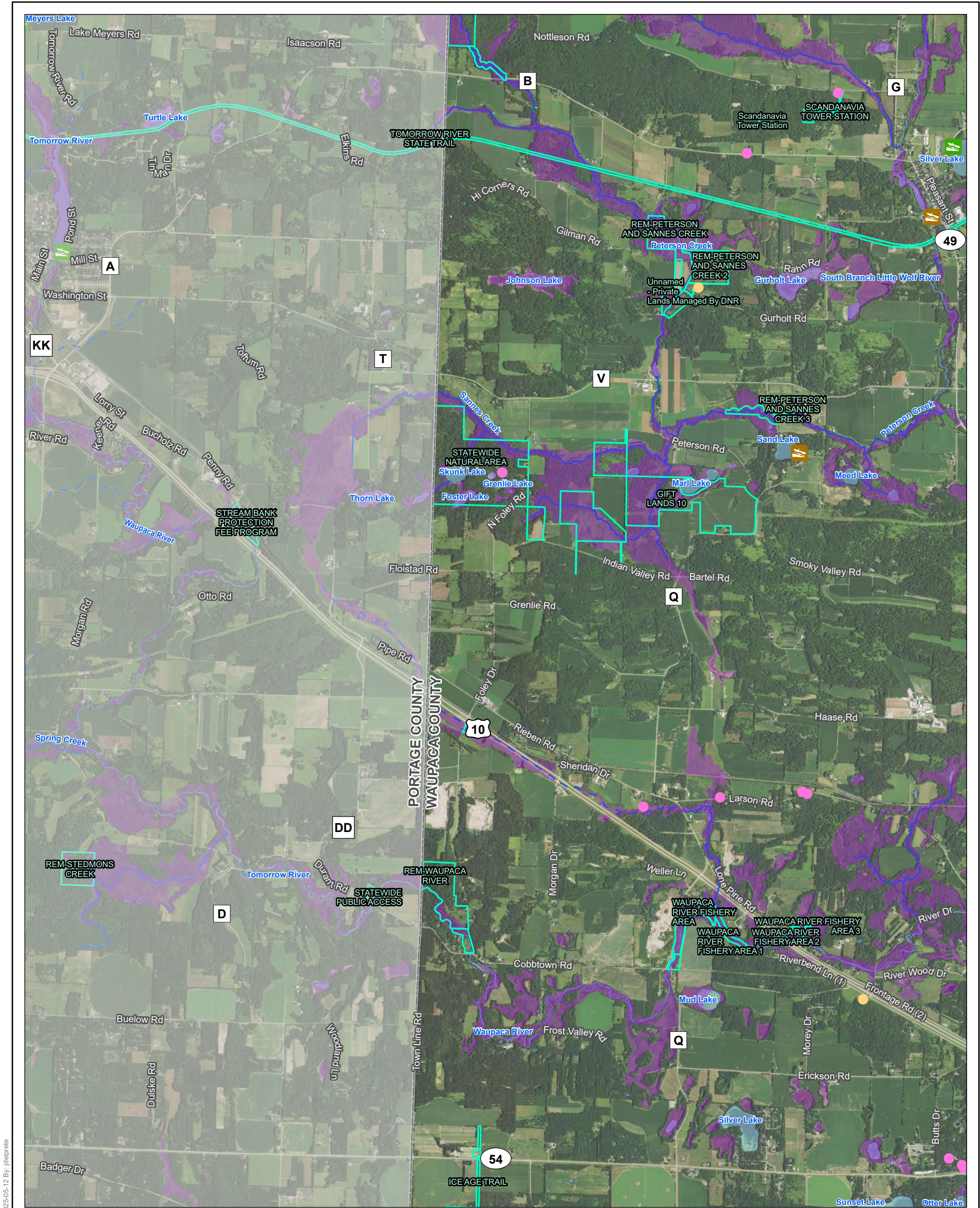
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

3

Title

**Invasive Species Areas
Waupaca County**



Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 9.24 acres
- Non-Native Phragmites, Treated: 4.59 acres
- Non-Native Phragmites, Untreated: 49.77 acres
- Native Phragmites: 11.88 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

Notes

- Coordinate System: NAD 1983 UTM Zone 16N
- Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
- Background: NAIP 2020

Scale

0 2,000 4,000 Feet

(At original document size of 11x17)

1:48,000

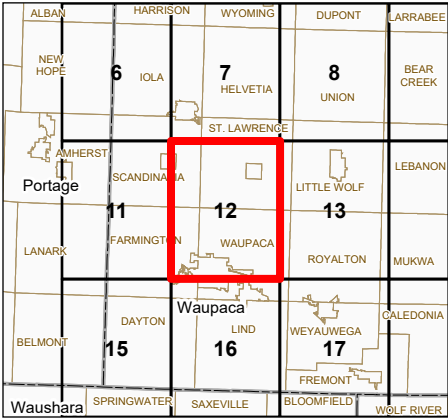
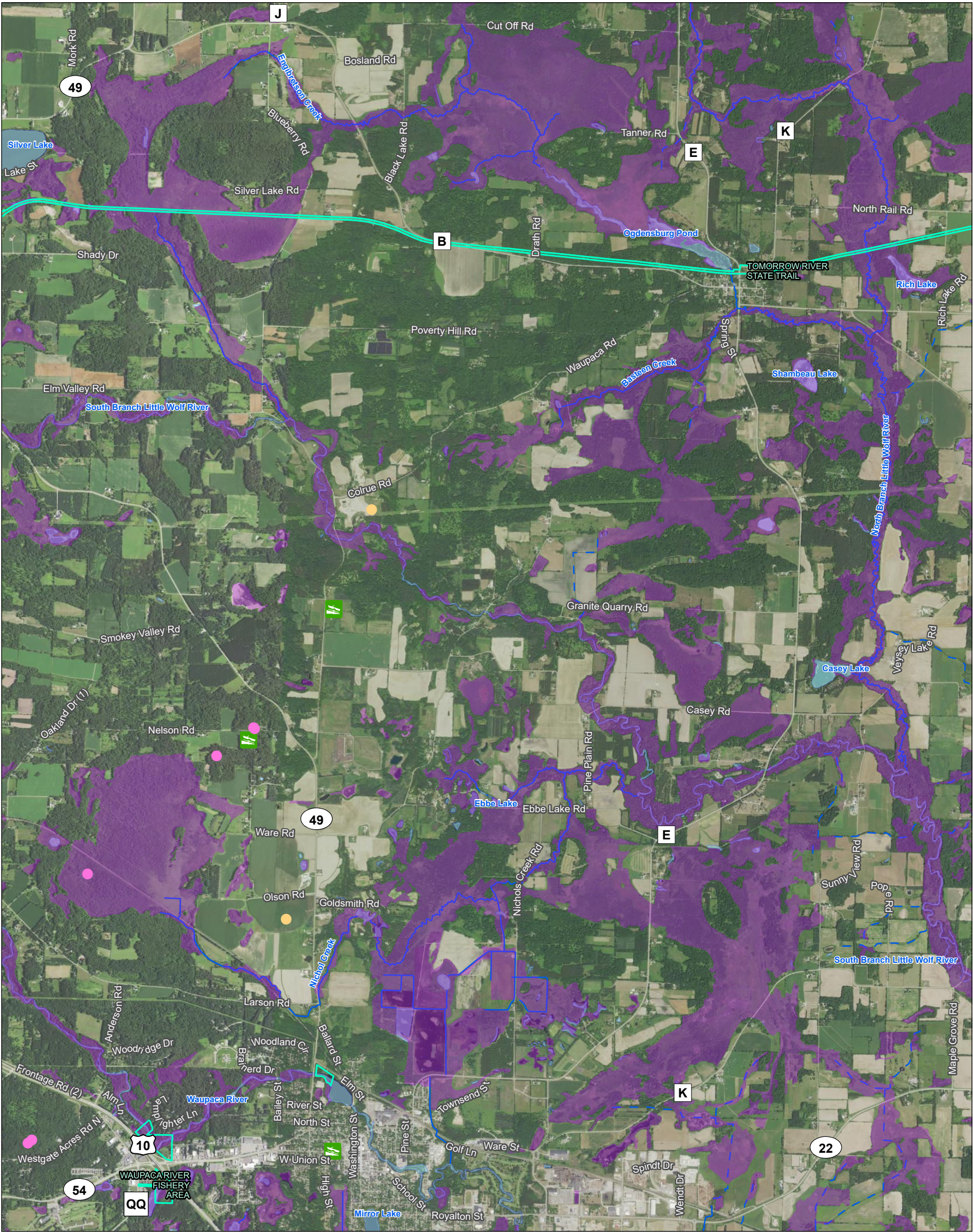
Stantec

Project Location
Waupaca County
Wisconsin

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.
3

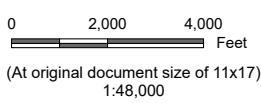
Title
**Invasive Species Areas
Waupaca County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 9.24 acres
- Non-Native Phragmites, Treated: 4.59 acres
- Non-Native Phragmites, Untreated: 49.77 acres
- Native Phragmites: 11.88 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody



Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

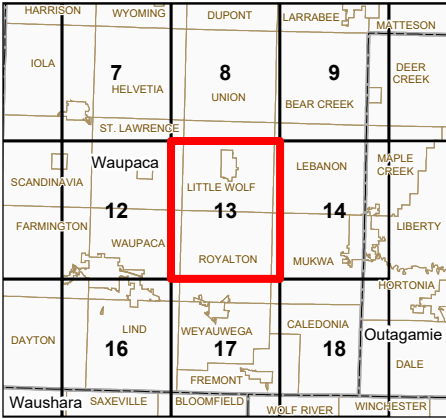
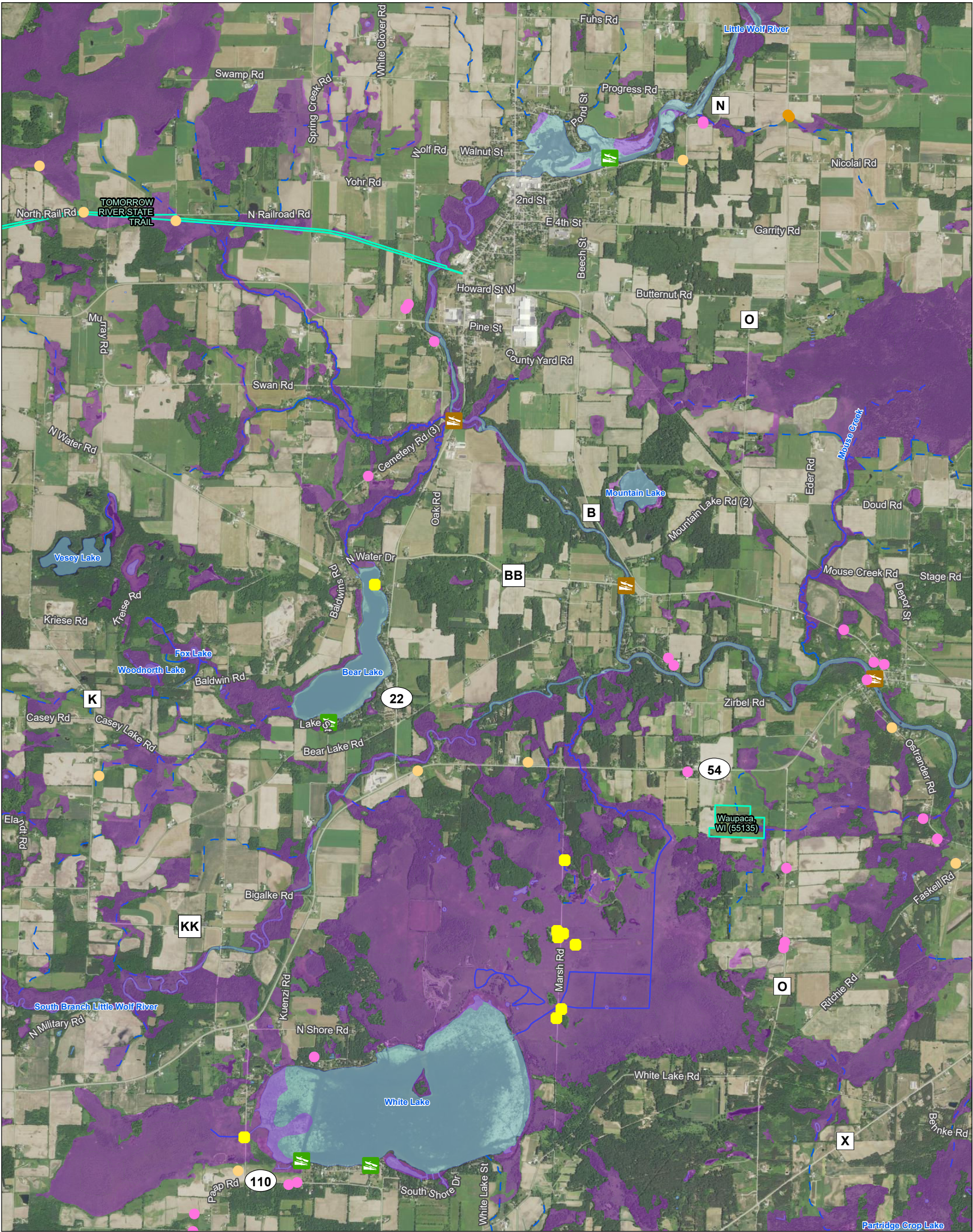
Figure No.

3

Title

**Invasive Species Areas
Waupaca County**

V:\1937\Active\WI_Invasive_Work\03_data\gis\mxds\FWWA_Proposal\FWWA_Proposal.aprx Revised: 2025-05-12 By: jdelprete



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 9.24 acres
 - Non-Native Phragmites, Treated: 4.59 acres
 - Non-Native Phragmites, Untreated: 49.77 acres
 - Native Phragmites: 11.88 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites**
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography**
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

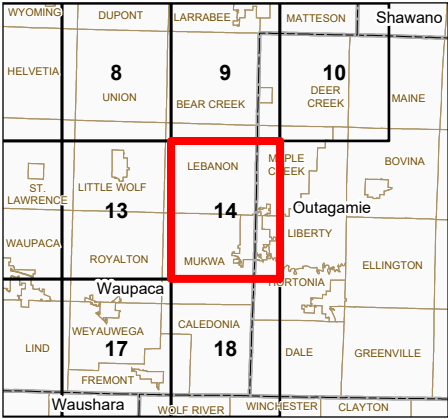
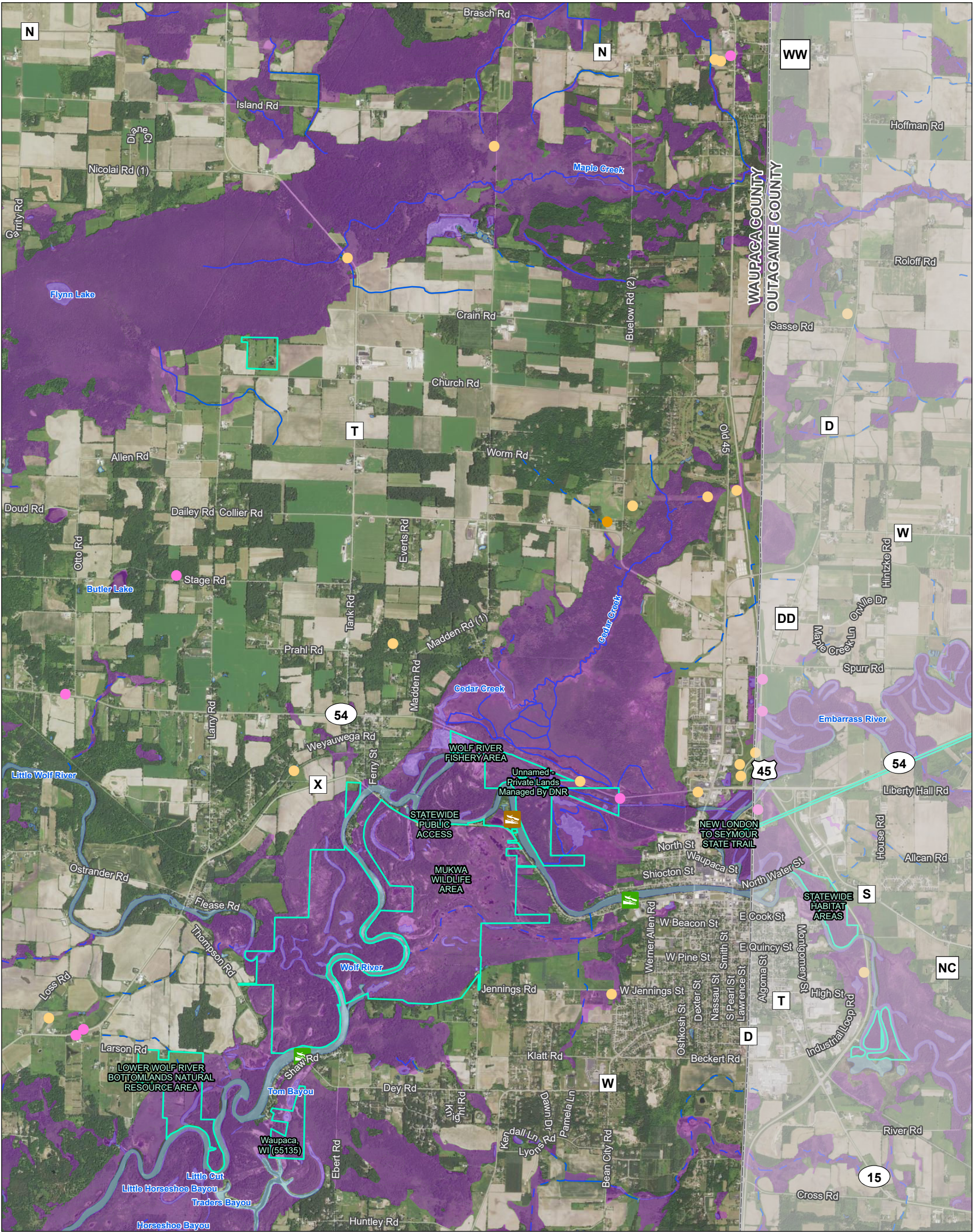
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

3

Title

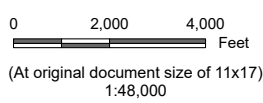
**Invasive Species Areas
Waupaca County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 9.24 acres
- Non-Native Phragmites, Treated: 4.59 acres
- Non-Native Phragmites, Untreated: 49.77 acres
- Native Phragmites: 11.88 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody



Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

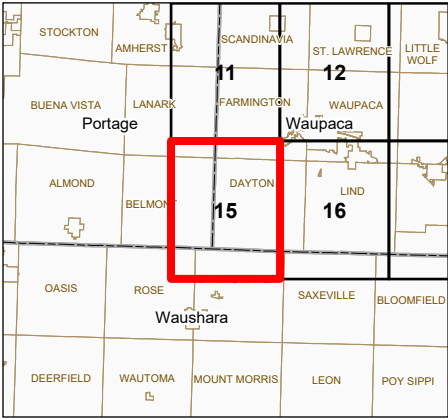
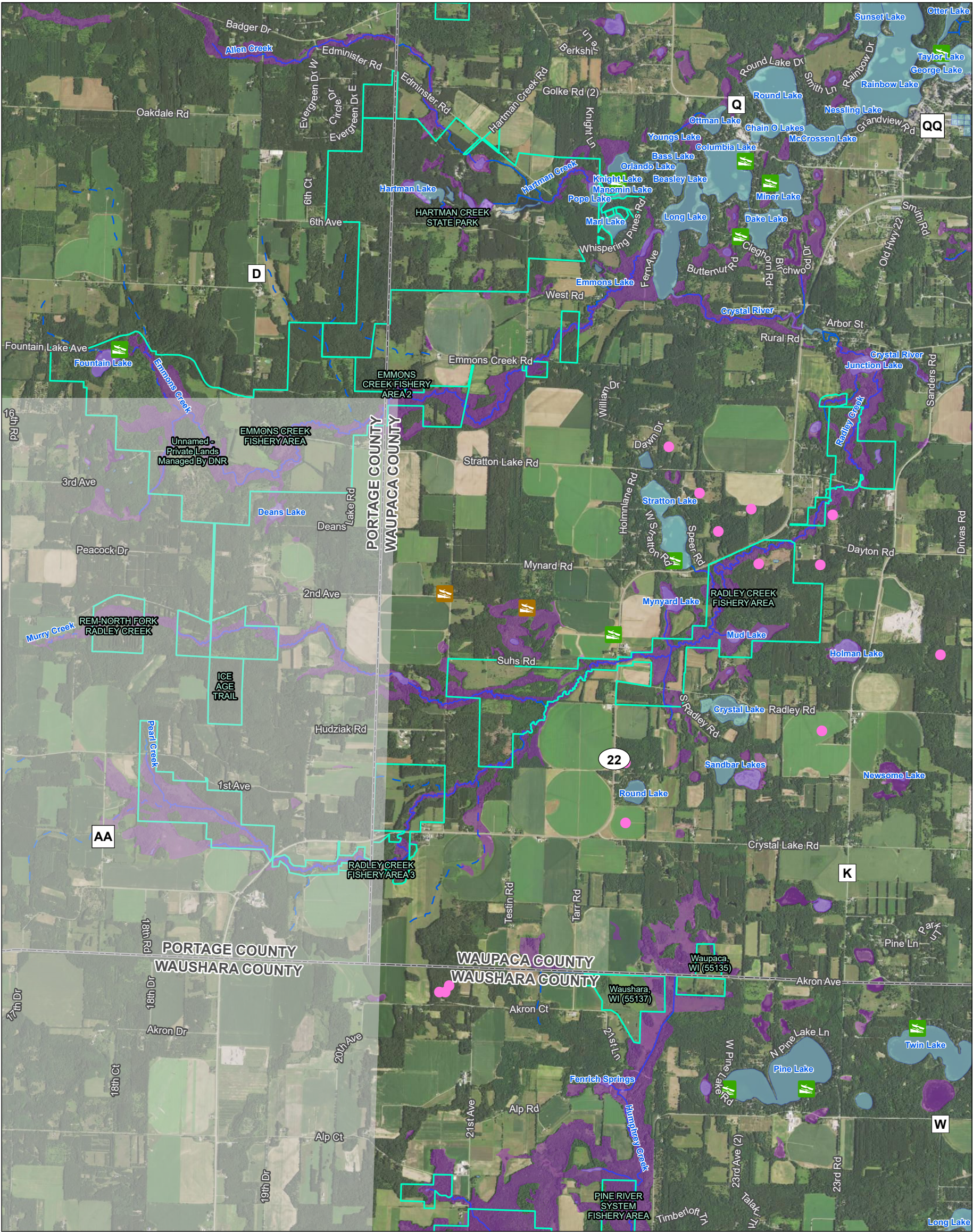
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

3

Title

**Invasive Species Areas
Waupaca County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 9.24 acres
 - Non-Native Phragmites, Treated: 4.59 acres
 - Non-Native Phragmites, Untreated: 49.77 acres
 - Native Phragmites: 11.88 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



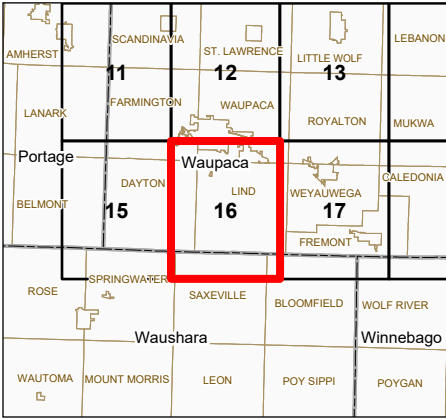
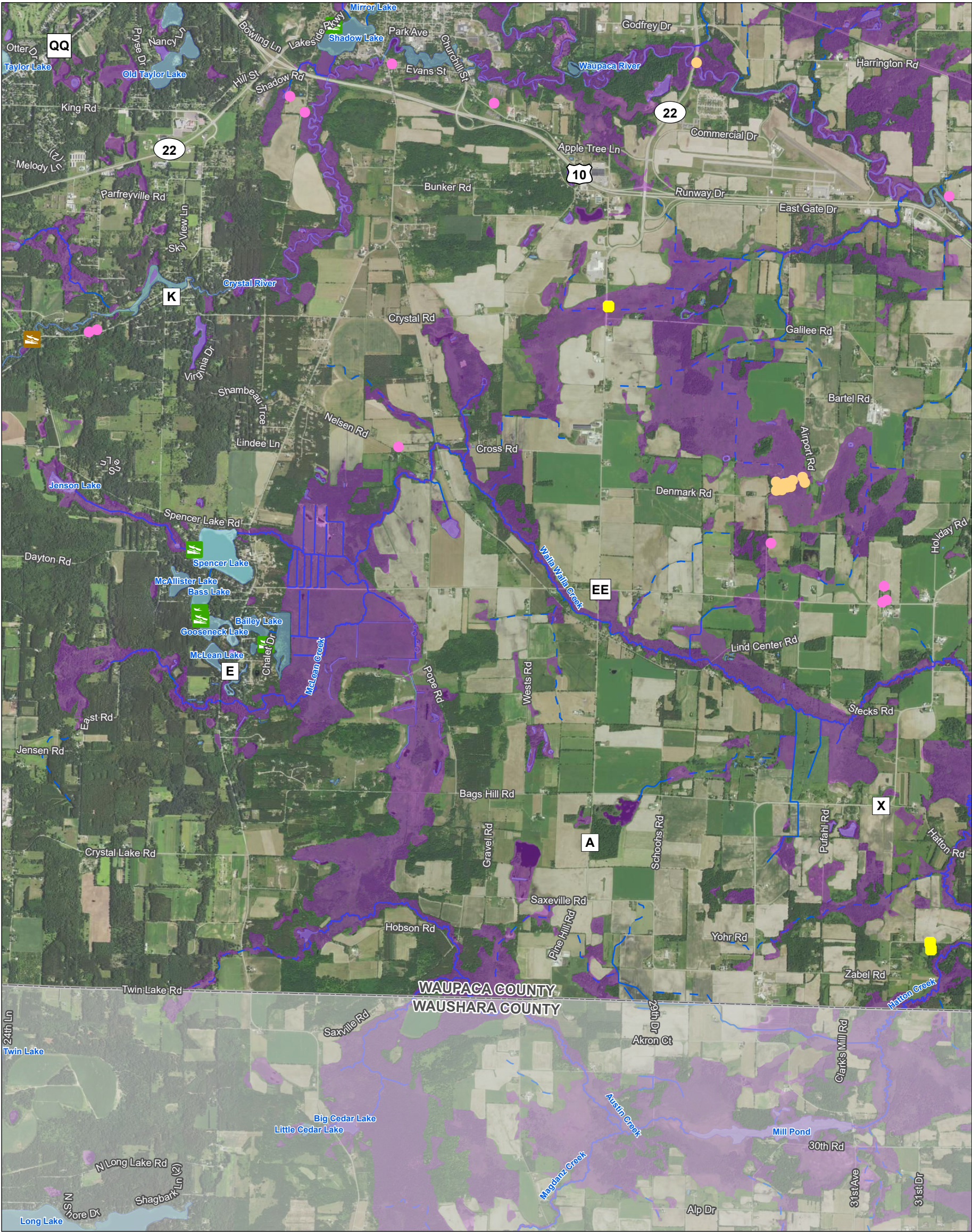
Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.
3

Title
Invasive Species Areas
Waupaca County



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 9.24 acres
 - Non-Native Phragmites, Treated: 4.59 acres
 - Non-Native Phragmites, Untreated: 49.77 acres
 - Native Phragmites: 11.88 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

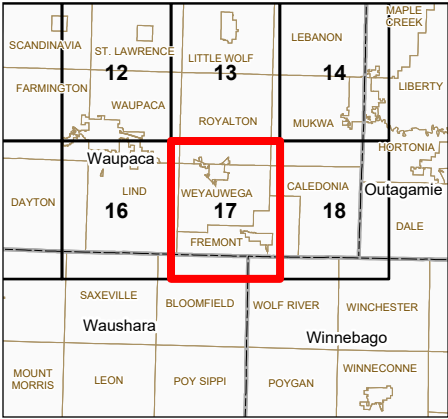
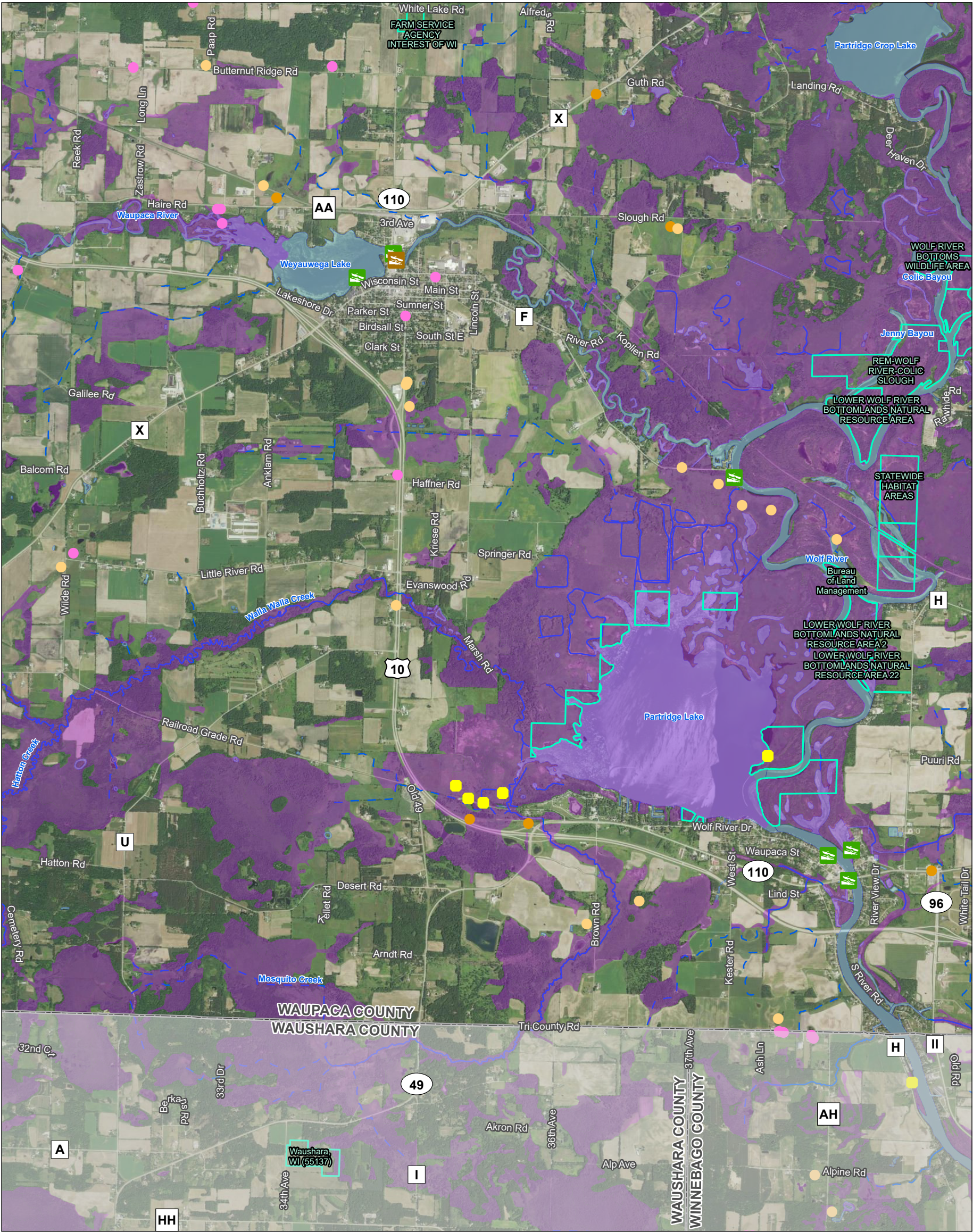
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

3

Title

**Invasive Species Areas
Waupaca County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 9.24 acres
- Non-Native Phragmites, Treated: 4.59 acres
- Non-Native Phragmites, Untreated: 49.77 acres
- Native Phragmites: 11.88 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

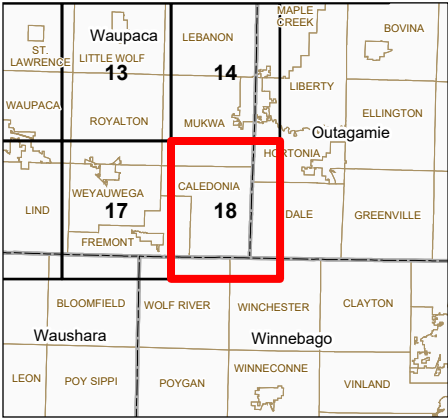
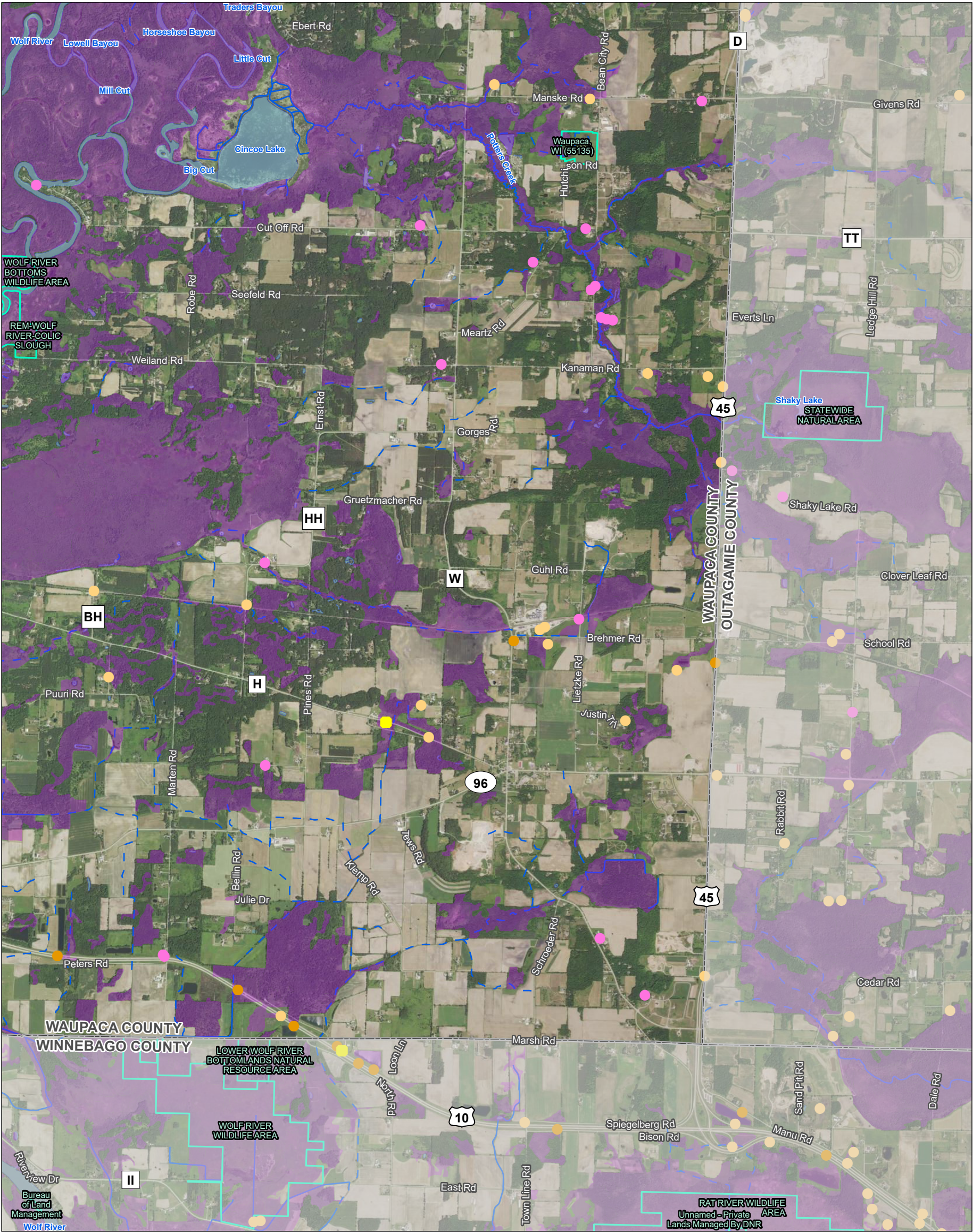
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

3

Title

**Invasive Species Areas
Waupaca County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 9.24 acres
- Non-Native Phragmites, Treated: 4.59 acres
- Non-Native Phragmites, Untreated: 49.77 acres
- Native Phragmites: 11.88 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

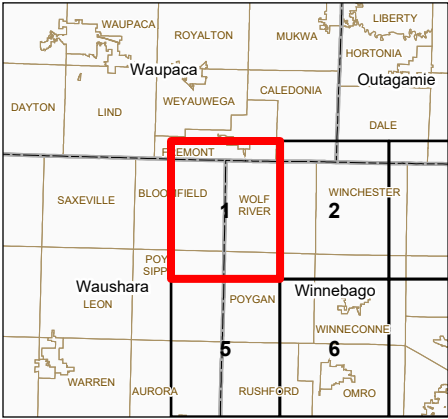
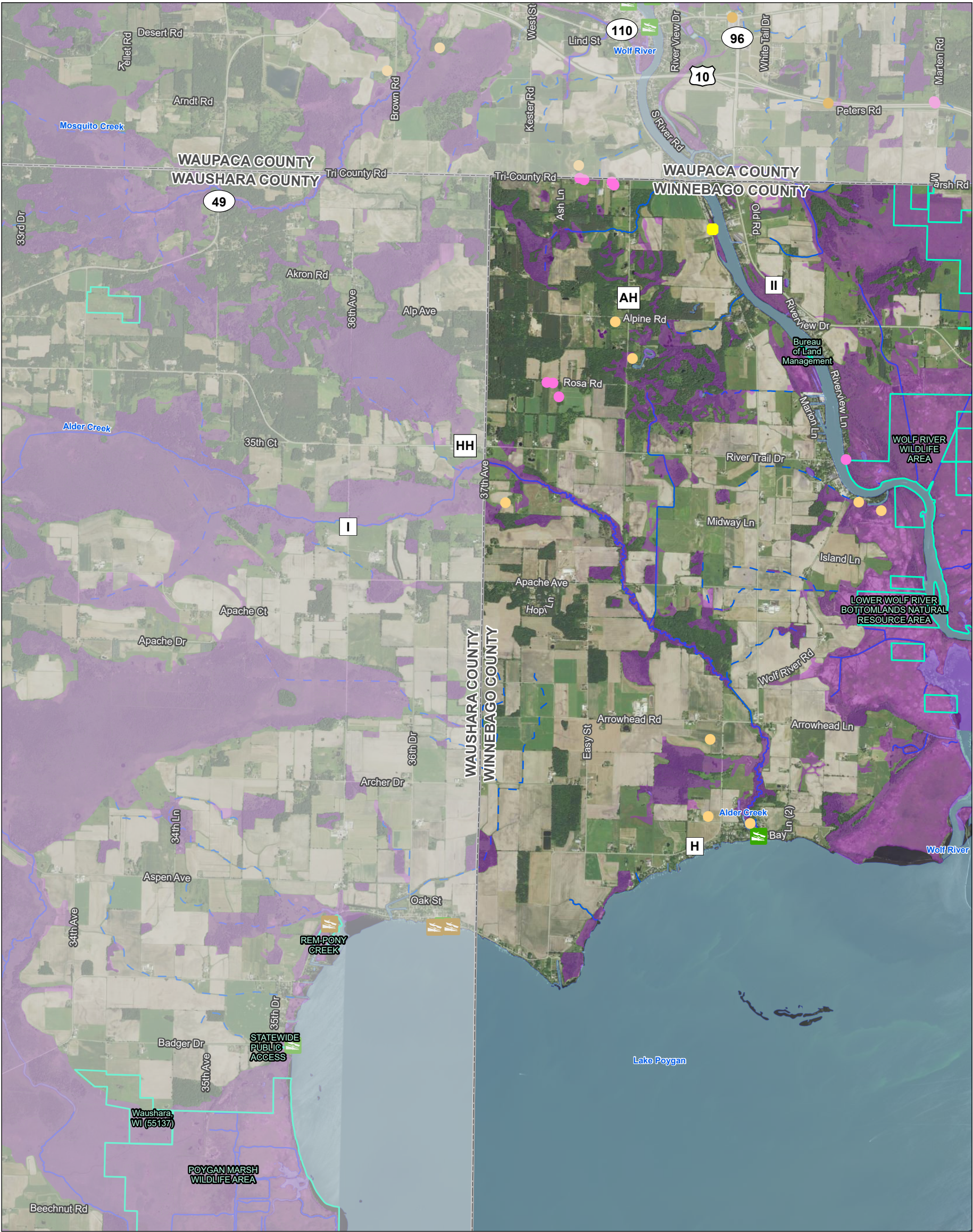
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Waupaca County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

3

Title

**Invasive Species Areas
Waupaca County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 13.43 acres
- Non-Native Phragmites, Treated: 121.53 acres
- Non-Native Phragmites, Untreated: 247.83 acres
- Native Phragmites: 67.25 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Waupaca County
Wisconsin

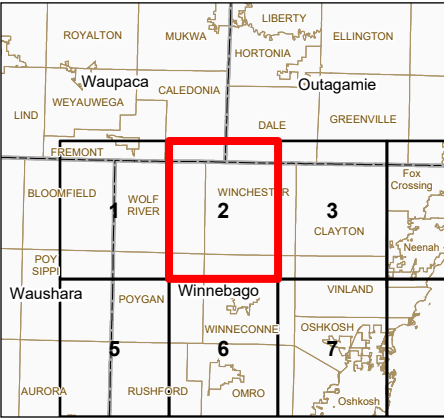
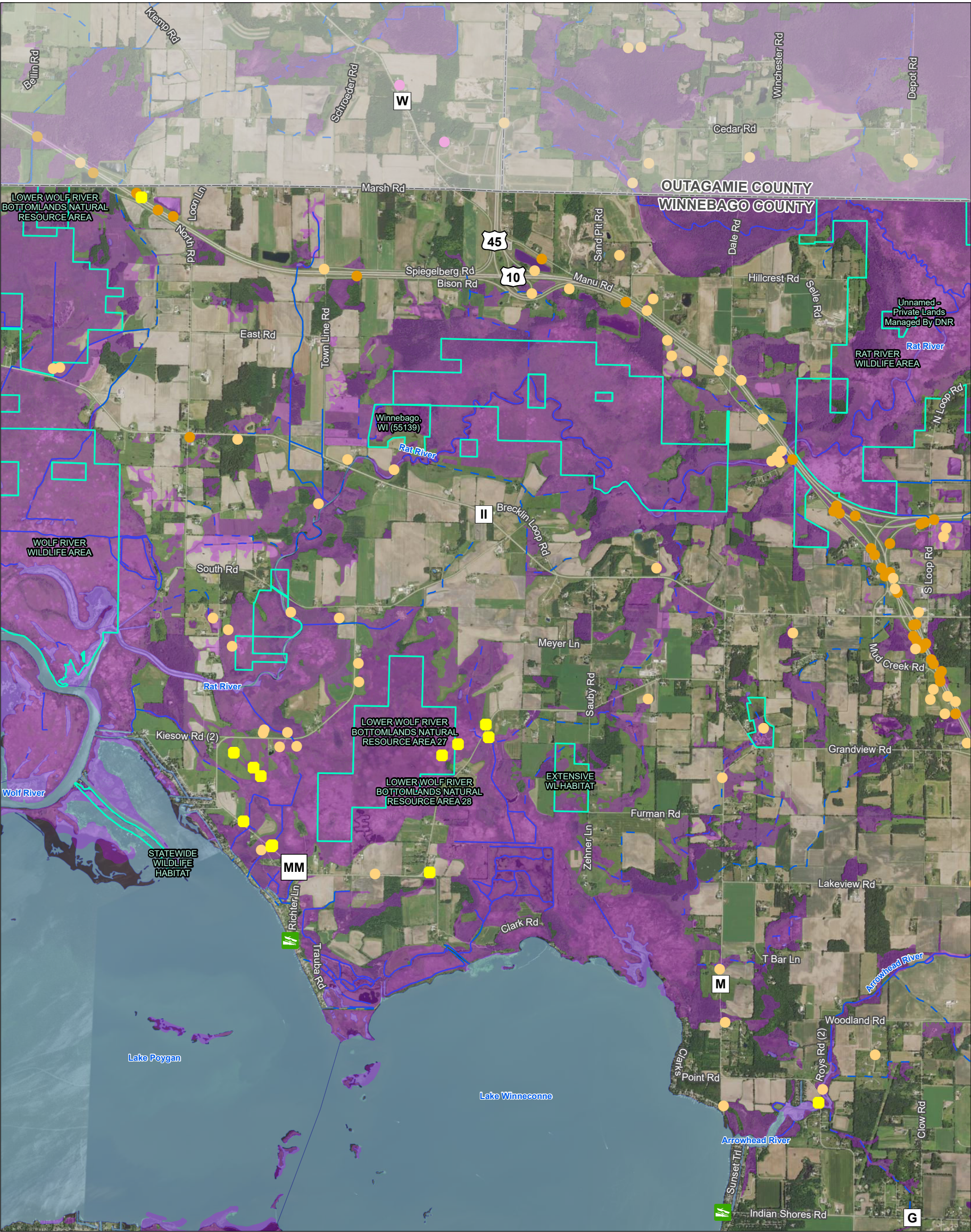
Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Winnebago County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

4

Title
Invasive Species Areas
Winnebago County



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 13.43 acres
- Non-Native Phragmites, Treated: 121.53 acres
- Non-Native Phragmites, Untreated: 247.83 acres
- Native Phragmites: 67.25 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



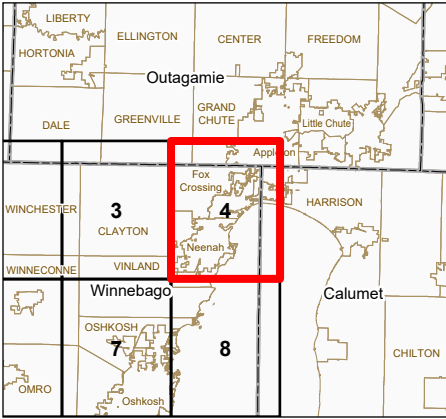
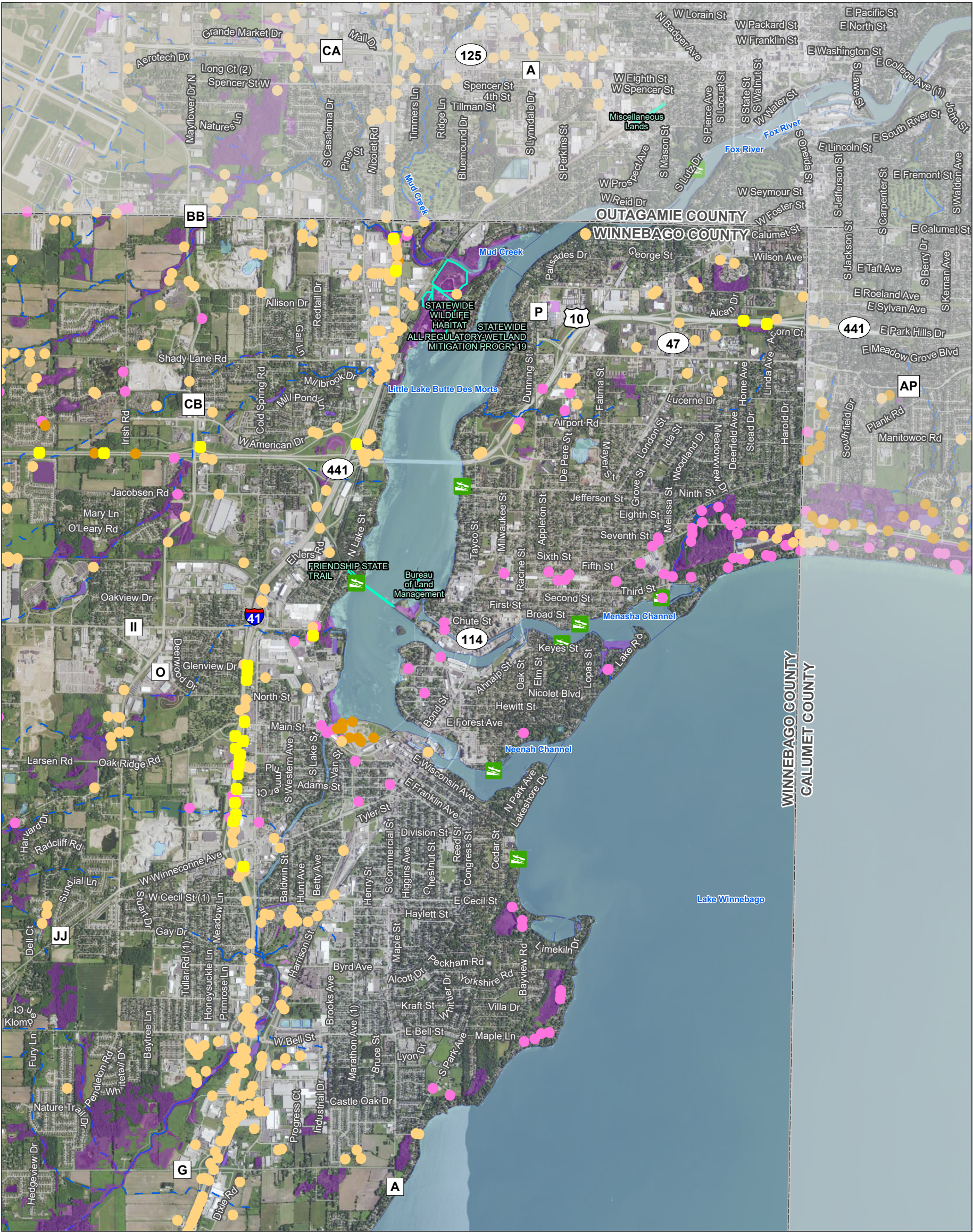
Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Winnebago County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.
4

Title
**Invasive Species Areas
Winnebago County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 13.43 acres
- Non-Native Phragmites, Treated: 121.53 acres
- Non-Native Phragmites, Untreated: 247.83 acres
- Native Phragmites: 67.25 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Waupaca County
Wisconsin
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Winnebago County Fox Valley Phragmites and
Japanese Knotweed Management Plan

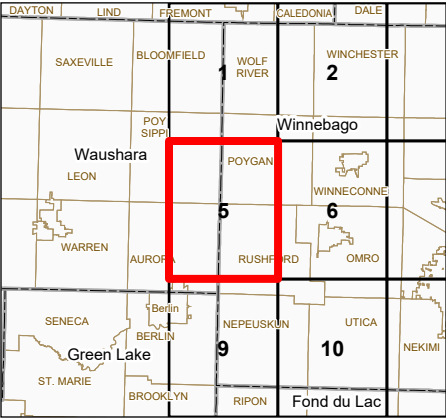
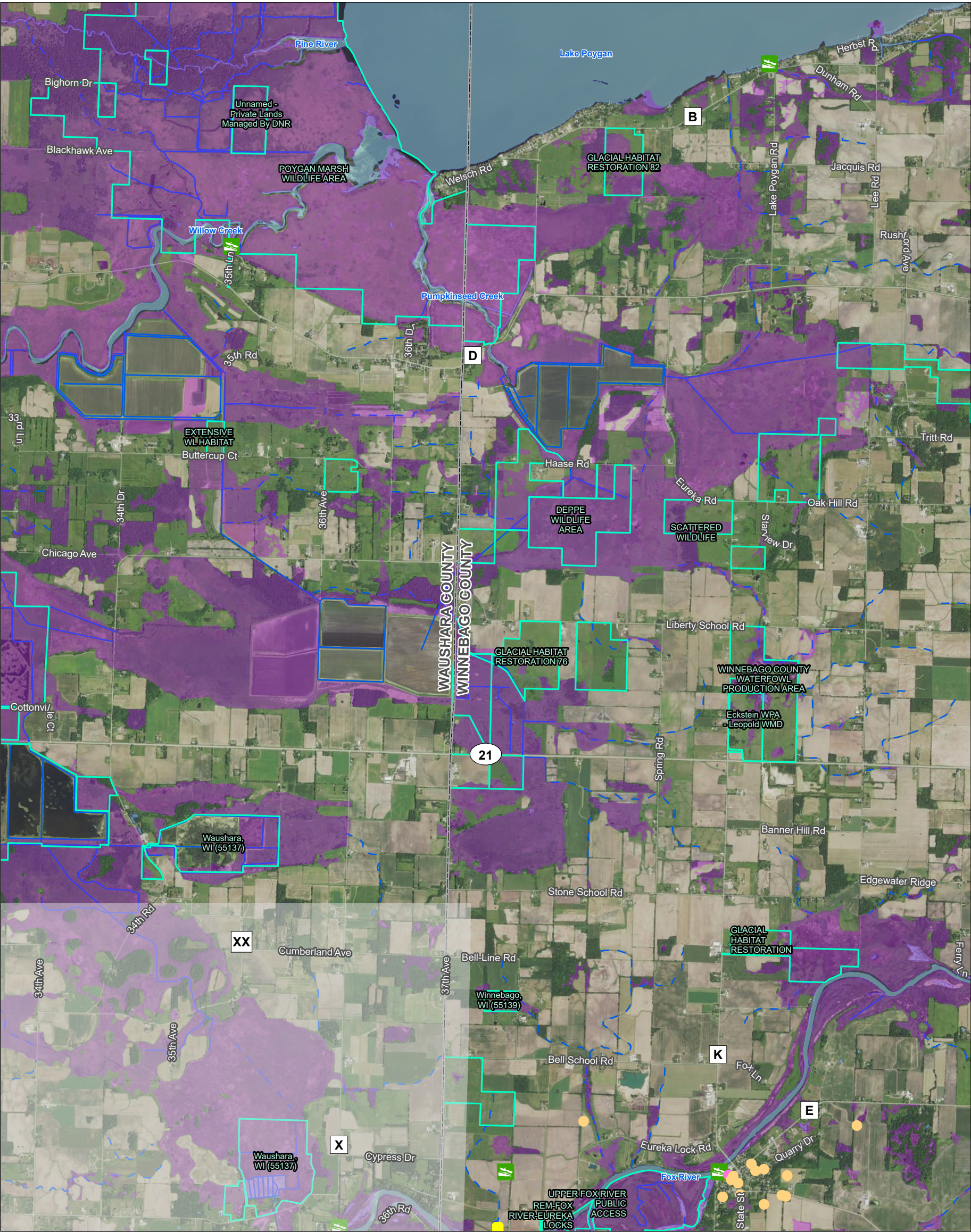
Figure No.

4

Title

**Invasive Species Areas
Winnebago County**

V:\1937\Active\WI_Invasive_Work\03_data\gis\mxds\FWWA_Proposal\FWWA_Proposal.aprx Revised: 2025-05-12 By: jdelpre



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 13.43 acres
 - Non-Native Phragmites, Treated: 121.53 acres
 - Non-Native Phragmites, Untreated: 247.83 acres
 - Native Phragmites: 67.25 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



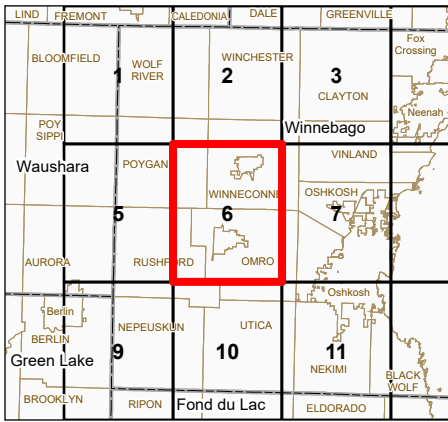
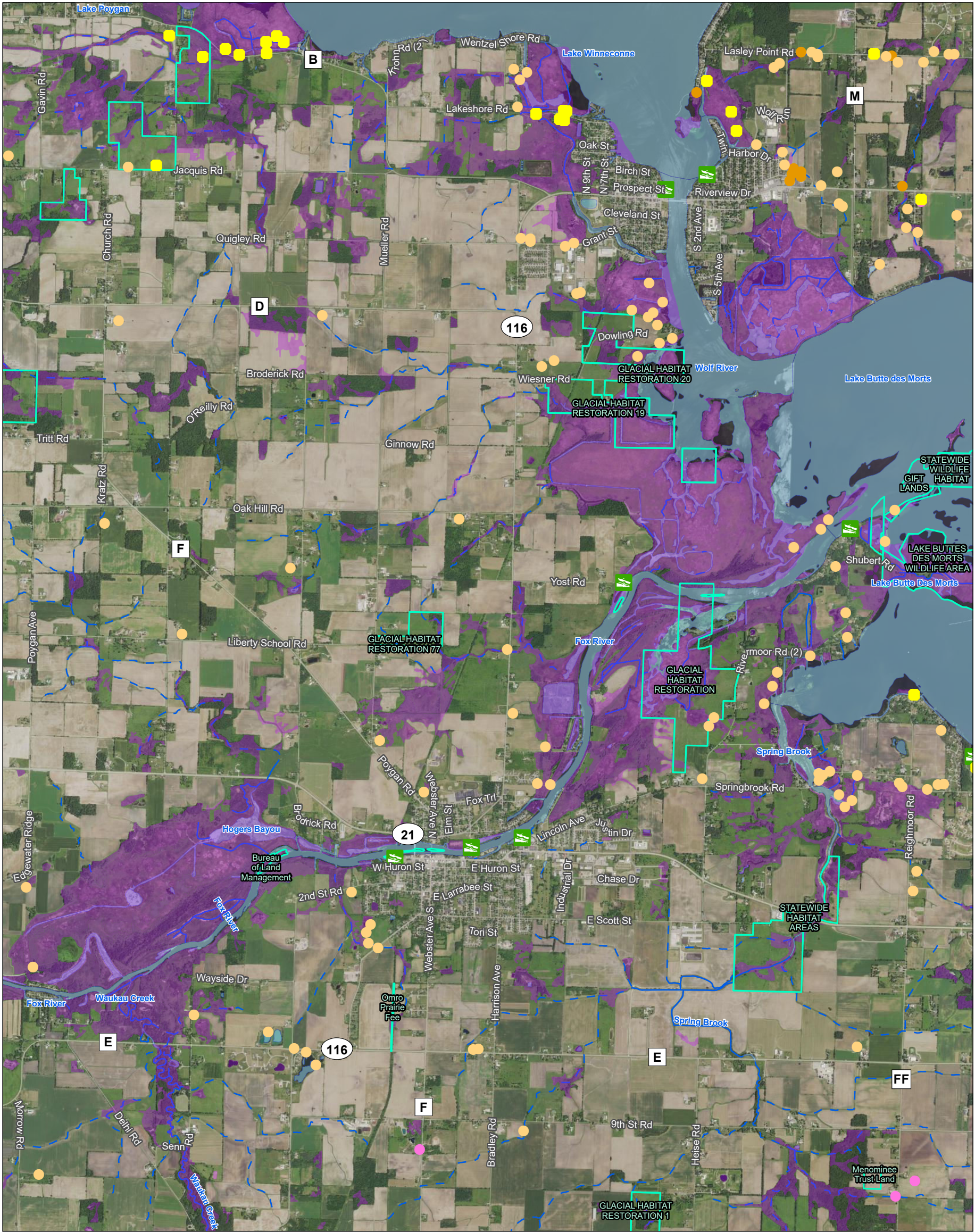
Project Location
Winnebago County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Winnebago County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.
4

Title
Invasive Species Areas
Winnebago County



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 13.43 acres
 - Non-Native Phragmites, Treated: 121.53 acres
 - Non-Native Phragmites, Untreated: 247.83 acres
 - Native Phragmites: 67.25 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

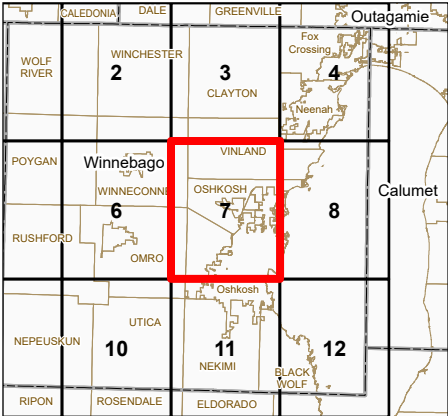
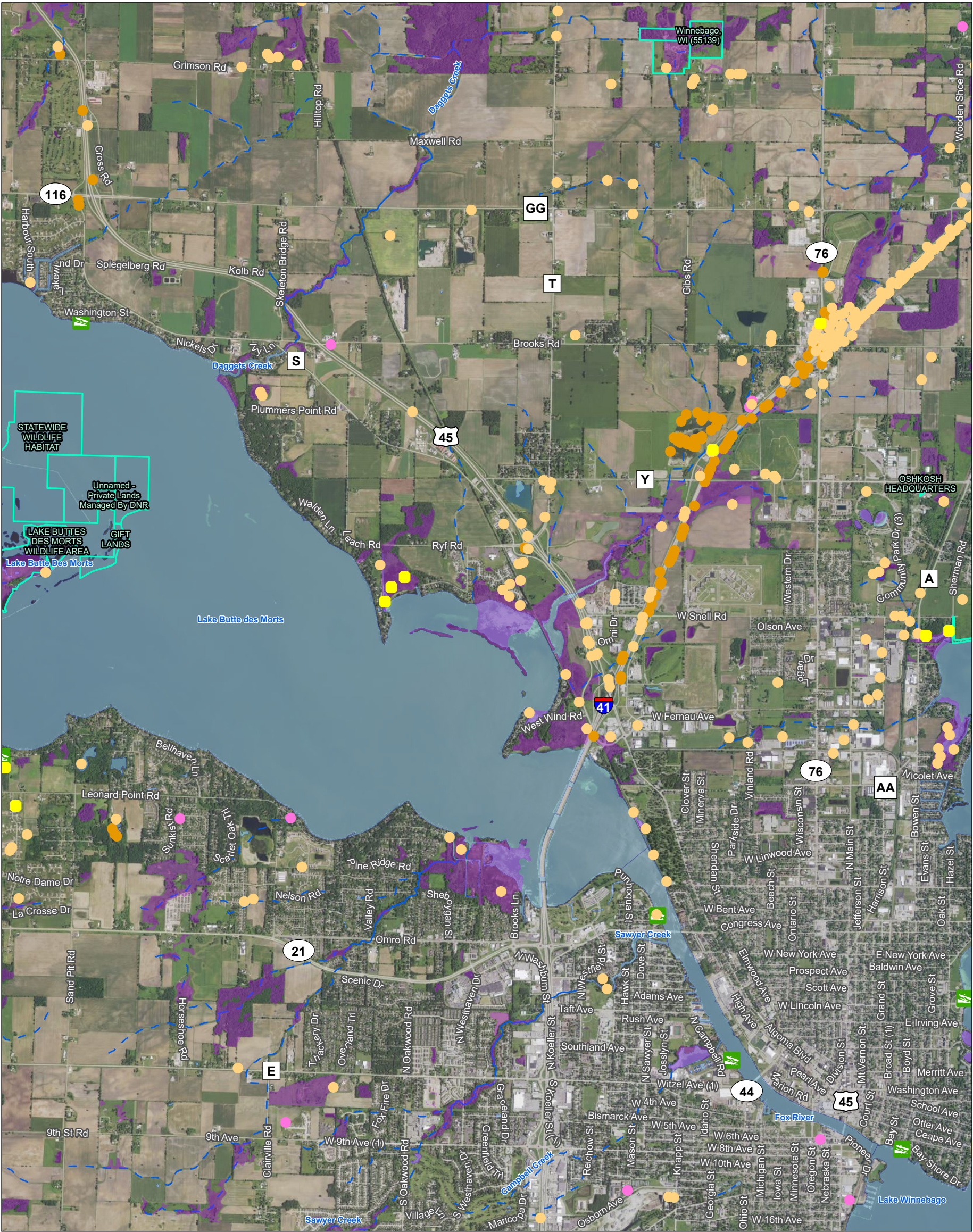
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Winnebago County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

4

Title

**Invasive Species Areas
Winnebago County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 13.43 acres
- Non-Native Phragmites, Treated: 121.53 acres
- Non-Native Phragmites, Untreated: 247.83 acres
- Native Phragmites: 67.25 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



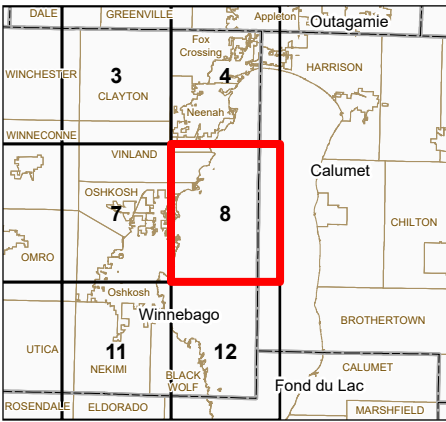
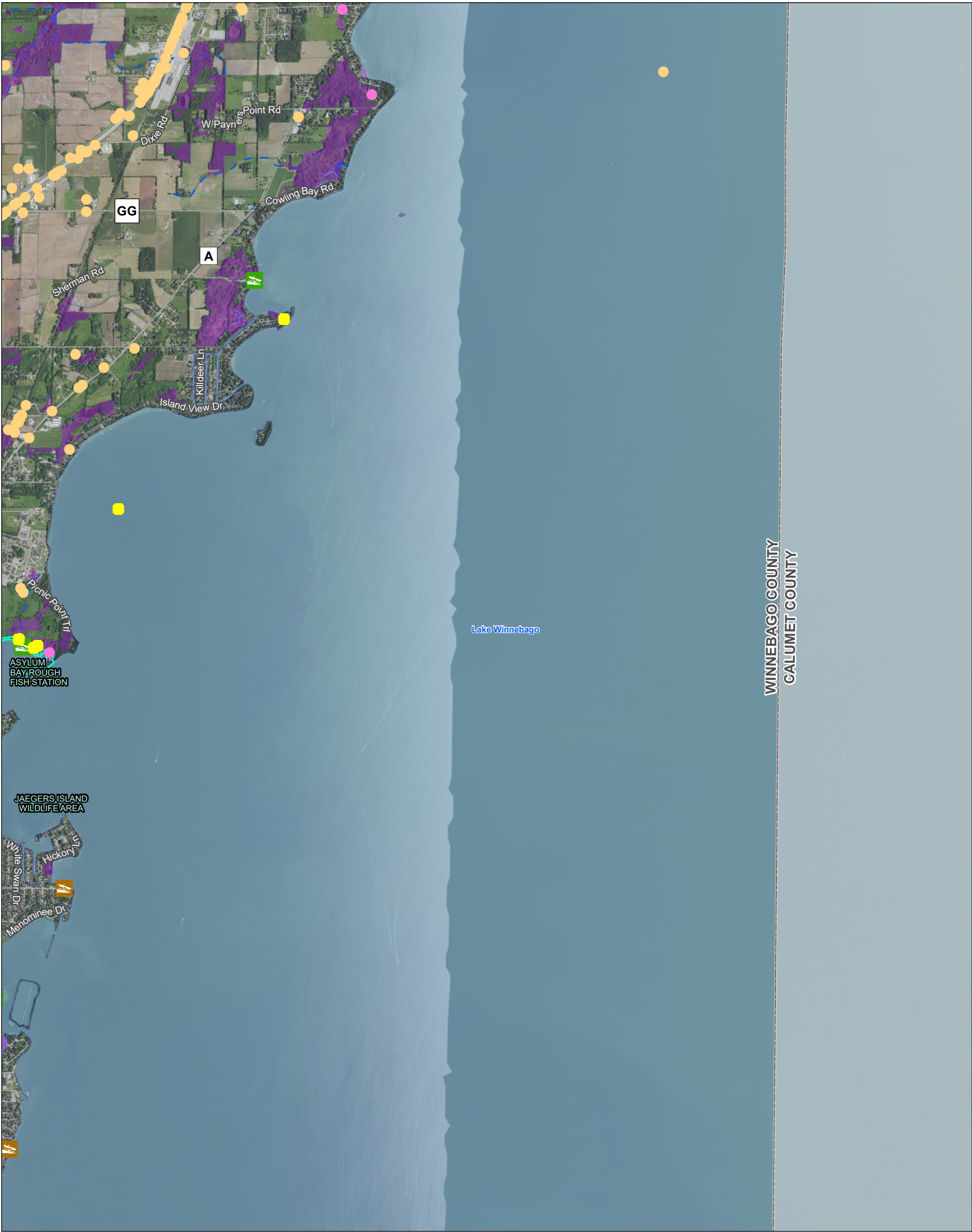
Project Location
Winnebago County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Winnebago County Fox Valley Phragmites and Japanese Knotweed Management Plan

Figure No.
4

Title
Invasive Species Areas
Winnebago County



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 13.43 acres
 - Non-Native Phragmites, Treated: 121.53 acres
 - Non-Native Phragmites, Untreated: 247.83 acres
 - Native Phragmites: 67.25 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Waupaca County
Wisconsin

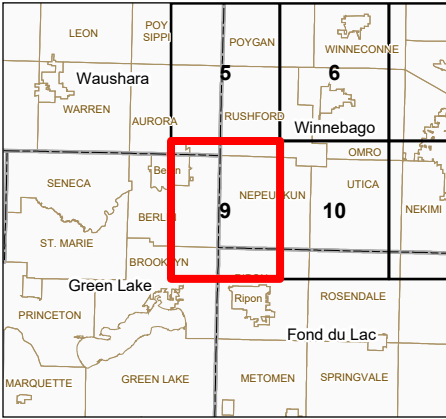
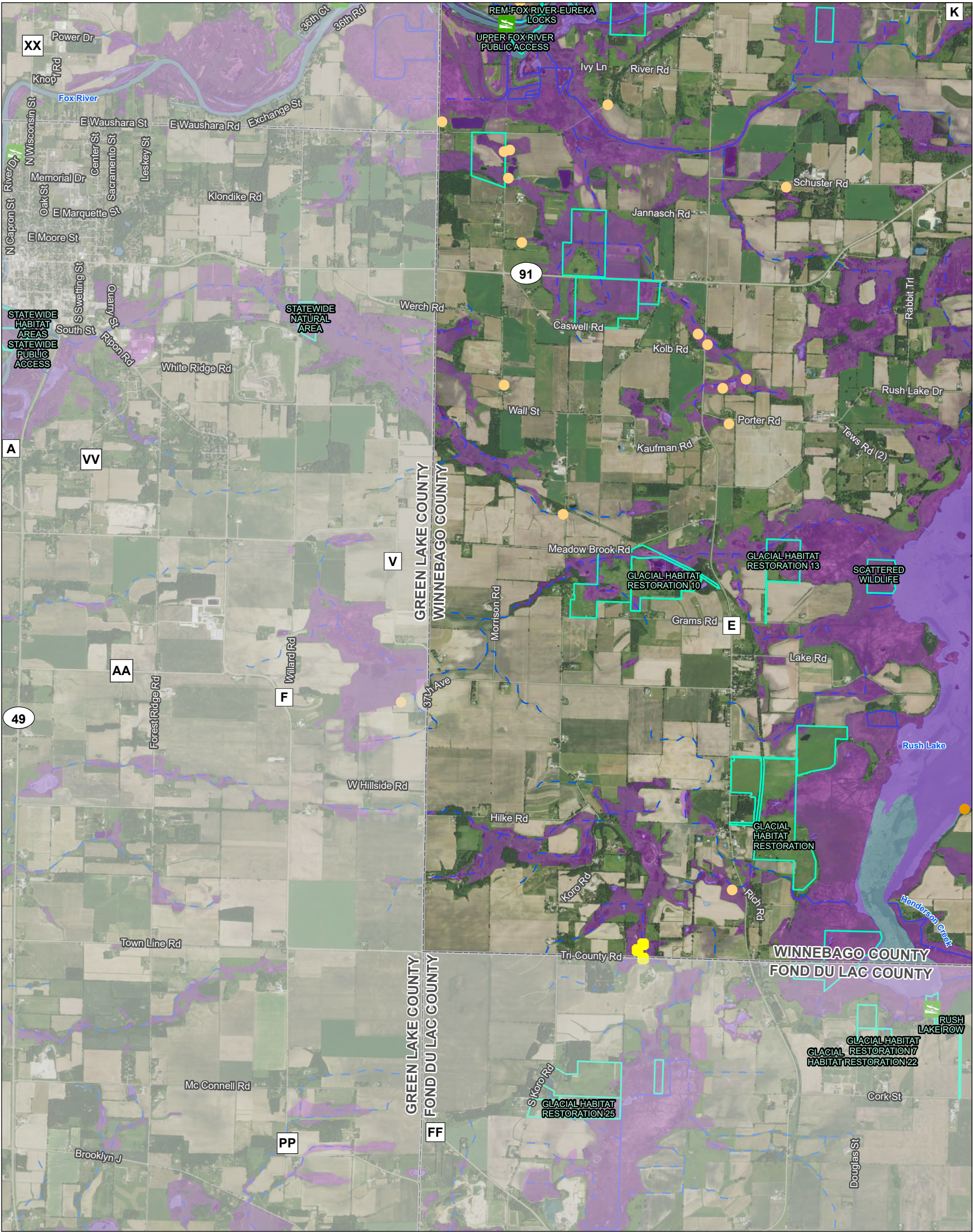
Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Winnebago County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

4

**Invasive Species Areas
Winnebago County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 13.43 acres
- Non-Native Phragmites, Treated: 121.53 acres
- Non-Native Phragmites, Untreated: 247.83 acres
- Native Phragmites: 67.25 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



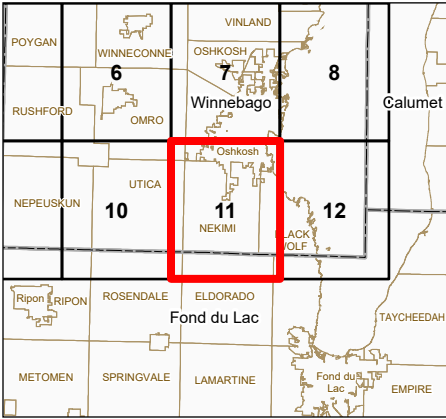
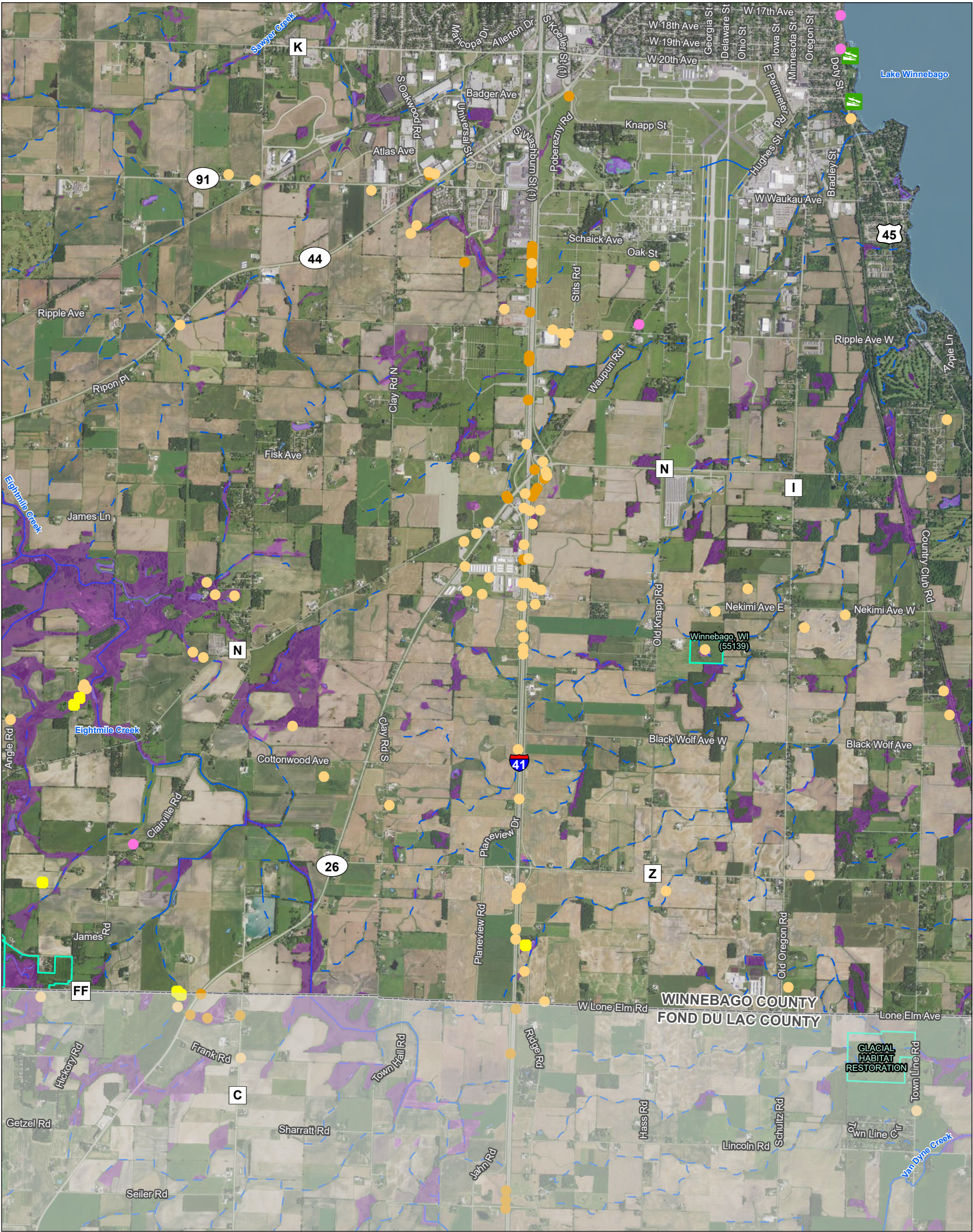
Project Location
Waupaca County
Wisconsin
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Winnebago County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

4

Title

**Invasive Species Areas
Winnebago County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

Legend

- Japanese Knotweed, Treated: 0 acres
- Japanese Knotweed, Untreated: 13.43 acres
- Non-Native Phragmites, Treated: 121.53 acres
- Non-Native Phragmites, Untreated: 247.83 acres
- Native Phragmites: 67.25 acres
- Wisconsin Wetland Inventory
- Protected Areas Database
- Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
- DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Winnebago County
Wisconsin

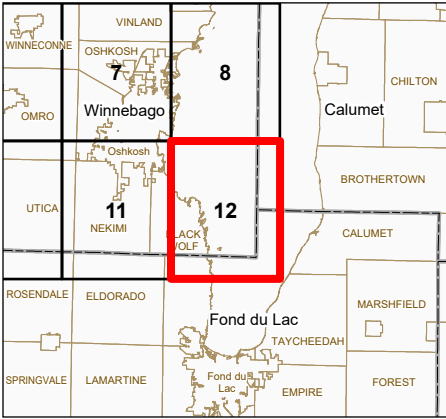
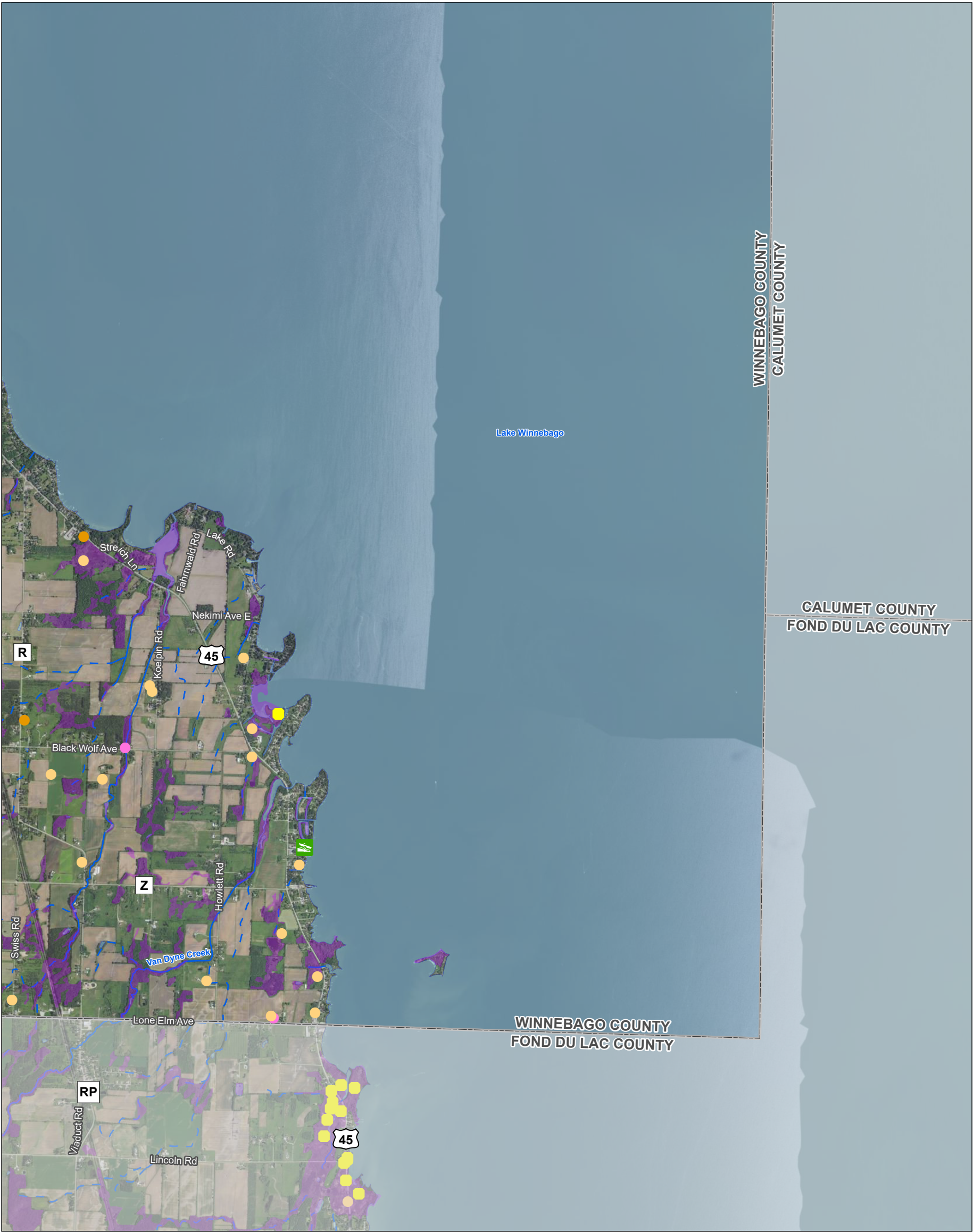
Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Winnebago County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

4

Title

**Invasive Species Areas
Winnebago County**



Notes
1. Coordinate System: NAD 1983 UTM Zone 16N
2. Data Sources: Stantec, WisDOT, WDNR, PADUS, USGS
3. Background: NAIP 2020

- Legend**
- Japanese Knotweed, Treated: 0 acres
 - Japanese Knotweed, Untreated: 13.43 acres
 - Non-Native Phragmites, Treated: 121.53 acres
 - Non-Native Phragmites, Untreated: 247.83 acres
 - Native Phragmites: 67.25 acres
 - Wisconsin Wetland Inventory
 - Protected Areas Database
 - Public Boat Access Sites
 - CARRY-IN
 - RAMP
 - UNKNOWN
 - DNR 24k Hydrography
 - Perennial Stream
 - Intermittent Stream
 - Waterbody

0 2,000 4,000 Feet
(At original document size of 11x17)
1:48,000



Project Location
Waupaca County
Wisconsin

Prepared by JD on 2025-05-06
TR by MR on 2025-05-12
IR by MC on 2025-05-12

Client/Project
Fox-Wolf Watershed Alliance (FWWA)
Winnebago County Fox Valley Phragmites and
Japanese Knotweed Management Plan

Figure No.

4

**Invasive Species Areas
Winnebago County**