

Charter Township of Oakland
Parks and Recreation

Natural Areas Stewardship 2019 Annual Report

Prepared by
Benjamin VanderWeide
Natural Areas Stewardship Manager



TABLE OF CONTENTS

2019

Part I: Stewardship Highlights

Stewardship Snapshots.....	2
Staff & Stewardship Committee.....	3
Volunteers & Outreach.....	4
Phragmites Treatment Summary.....	9
The Year In Photos.....	10

Part II: Park Stewardship Summaries

Bear Creek Nature Park.....	14
Blue Heron Environmental Area.....	16
Charles Ilsley Park.....	18
Cranberry Lake Park.....	20
Draper Twin Lake Park.....	22
Gallagher Creek Park.....	24
Lost Lake Nature Park.....	26
Marsh View Park.....	28
Mill Creek Crossing.....	30
Mill Race Trail.....	31
O'Connor Nature Park.....	32
Paint Creek Heritage Area—Fen.....	34
Paint Creek Heritage Area—Wet Prairie.....	36
Paint Creek Junction.....	38
Paint Creek Trail—Art Project.....	40
Paint Creek Trail—Kamin/Stoll Easement.....	42
Paint Creek Trail—Nicholson Prairie.....	44
Paint Creek Trail—Right-of-Way.....	46
Stony Creek Ravine Nature Park.....	48
Watershed Ridge Park.....	50

Part III: Supporting Documents

Photo Monitoring Schedule.....	53
Floristic Inventory Schedule.....	54
Paint Creek Junction Natural Features Summary	55
2019 Seed Collecting Summary	70
Natural Areas Stewardship 2020 Field Work Plan	72

Front Cover: The West Branch of Stony Creek at Stony Creek Ravine Nature Park on May 29, 2019.

Back Cover: Oak Tree Silhouette at Stony Creek Ravine Nature Park Expansion

PART I

STEWARDSHIP HIGHLIGHTS

2019

STEWARDSHIP SNAPSHOTS

2019

1. **Seasonal Technicians:** Alex Roland graduated from Michigan State University in May 2018 with a degree in environmental biology/zoology. In 2018 she completed an internship with the Student Conservation Association in Idaho doing backcountry conservation work, and she previously served as a Stewardship Coordinator Intern for the Thumb Land Conservancy. Grant Vander Laan graduated from Calvin College in 2019 with a bachelor's degree in biology. He previously worked as a land management fellow for Pierce Cedar Creek Institute and as an Ecosystem Preserve Steward for Calvin College. Marisa Kaddis has been a life-long resident of Oakland County and had just completed her first year of study in Natural Resources Management at Grand Valley State University. Marisa's dream is to study tropical rainforest ecology and endangered species restoration.
2. **Stewardship Specialist:** Alyssa Winters (Radzwion) continued as the Stewardship Specialist until August, when she took a full-time position with the Blue Water Conservation District. Grant Vander Laan applied for the Stewardship Specialist position, was offered the job, and accepted the position to continue his work in October.
3. **US Fish and Wildlife Service Partners for Fish and Wildlife Grants:** After planting nearly 75 acres of prairie re-constructions since 2015, we continued maintenance of our restoration plantings in 2019.
4. **Oakland County Cooperative Invasive Species Management Area (OC CISMA):** Oakland Township Parks and Recreation continued involvement in the OC CISMA, where Stewardship Manager Ben VanderWeide served on the committee planning the spring Invasive Species Summit. We used CISMA funds to cover 50% of road right-of-way treatment in Oakland Township in 2019 (13.7 linear miles of Phragmites).
5. **Prescribed Burns:** 2019 was a very wet year, so we weren't able to complete all of the scheduled burns. We contracted with Appel Environmental Design for a spring burn at Stony Creek Ravine Nature Park (17 ac). Plantwise also completed burns for us in October at the Kamin Easement (4.5 ac), Nicholson Prairie (1.6 ac), and Paint Creek Heritage Area—Fen (0.5 ac). We held volunteer prescribed burn crew training again in February. The volunteer crew completed burns of native plantings at Bear Creek Nature Park (0.1 ac) and Lost Lake Nature Park (0.4 ac).
6. **Forestry Mowing:** We planned forestry mowing at Bear Creek Nature Park, Draper Twin Lake Park, Marsh View Park, and along the Paint Creek Trail in the winter 2019/2020. Warm weather prevented us from completing any of that work by the end of 2019.
7. **Stewardship Blog:** The stewardship blog continued to thrive, with regular posts from Cam Mannino. The seasonal technicians also wrote weekly posts about recent stewardship work. We published 47 posts (+2 from 2018) and had 8378 visitors (+2145), with 14,776 page views (+3032). Natural Areas Notebook, oaklandnaturalareas.com
8. **Volunteer Program:** Volunteers contributed 1284 hours in 2019! Volunteer workdays focused on garlic mustard (May), invasive shrub control (July to November), and seed collecting (October). Volunteers also monitored nest boxes at Bear Creek Nature Park, Draper Twin Lake Park, Charles Ilsley Park, and the Paint Creek Trail; monitored vernal pools at Bear Creek Nature Park; and monitored water quality at Lost Lake and Twin Lake. We had fun at summer and winter potlucks and the December birder coffee hour!
9. **Education Events:** Stewardship talks included presentations on New Zealand Mud Snails, monarch butterfly ecology and conservation, coyotes, and bird nest box monitoring. We enjoyed a pleasant April evening at our annual Woodcock Watch at Bear Creek Nature Park. We also held weekly bird walks every Wednesday morning.
10. **Native Plant Sale:** We offered a native plant sale for the first time in several years, with good success.
11. **Phragmites Outreach Program:** We continued the Phragmites Outreach Program to help township residents get Phragmites treated on their property. We received about 31 requests for no-obligation cost estimates, and treated about 26 properties with a contractor, PLM Lake and Land Management.



*Unless otherwise noted, all photos were taken by Ben VanderWeide.

STAFF & STEWARDSHIP COMMITTEE

2019

Natural Areas Stewardship Manager

Dr. Benjamin VanderWeide continued to lead Natural Areas Stewardship after joining the team in April 2014. He leads ecological restoration in Oakland Township parks. We continued large-acreage prairie restoration and native landscaping and used a forestry mower to control autumn olive and other invasive woody plants in fields. In 2019 he invested time in growing volunteer and outreach opportunities, including nest box monitoring and the native plant sale.

Seasonal Technicians

Alex Roland joined our crew this summer as a land stewardship technician. She graduated from Michigan State University in May 2018 with a degree in environmental biology/zoology. Last summer Alex completed an internship with the Student Conservation Association in Idaho doing backcountry conservation work, and she previously served as a Stewardship Coordinator Intern for the Thumb Land Conservancy. She has always had an interest in the conservation of Michigan's ecosystems and wildlife and enjoys learning more about Michigan's natural areas through field work. She loves hiking, boating, camping, and identifying animal tracks. She is excited to be in the Oakland Township area and to work on preserving the local land.

Grant Vander Laan joined our crew this summer as a land stewardship technician. He graduated from Calvin College with a bachelor's degree in biology. He previously worked as a land management fellow for Pierce Cedar Creek Institute and as an Ecosystem Preserve Steward for Calvin College. He plans on pursuing jobs similar jobs in the future with the hopes of becoming a land manager eventually. He has been interested in land management, restoration and conservation for many years now, specifically interested in invasive species. He loves hiking, spending time outside, and swimming. He is excited to work in the natural areas around Oakland County and learn new things about this area.

Marisa Kaddis joined our crew this summer as a land stewardship technician. Marisa has been a life-long resident of Oakland County and has just completed her first year of study in Natural Resources Management at Grand Valley State University. She is very passionate about animal rights and is president of the Cage Free Vegan Club on campus. As a student at Mercy High School in Farmington Hills, she was involved in theater, field hockey, and the organization of the March for Our Lives. Marisa's dream is to study tropical rainforest ecology and endangered species restoration. "I'm excited for the opportunity to work as a Seasonal Land Stewardship Technician this summer!"

Stewardship Specialist

Alyssa Winters (Radzwion) continued as the Stewardship Specialist until June 2019, when she left for a full-time position with the Blue Water Conservation District. She graduated from Oakland University in December 2016 with a Bachelor's degree in biology. In 2017, Alyssa worked with the Michigan DNR stewardship crew. This experience fueled her passion for protecting natural areas and wildlife and her desire to educate others about the natural world around them. She enjoys being outdoors, especially camping, kayaking, vegetable gardening, and exploring Michigan.

Grant Vander Laan moved into the Stewardship Specialist position in October after completing the summer as a technician.

Stewardship Committee

The Charter Township of Oakland Parks and Recreation Commission directs natural areas stewardship work through their Stewardship Committee. Commissioners **Dan Bukowski**, **Cathy Rooney (chair)**, and **Dan Simon** continued service on the Stewardship Committee. **Maryann Whitman** continued her service as Citizen Advisor on the committee. Parks staff representatives included **Ben VanderWeide**, Natural Areas Stewardship Manager, and **Mindy Milos-Dale**, Parks Director.



2019 Stewardship Crew (L-R): Ben VanderWeide, Alyssa Winters (Radzwion), Marisa Kaddis, Grant Vander Laan, and Alex Roland. Photo by Carol Kasprzak.

VOLUNTEERS & OUTREACH

2019

Thank You!

Volunteers are an important part of our natural areas stewardship program. In addition to the invaluable hours they give to protect and restore our wetlands, forests, and grasslands, volunteers learn ecological land management techniques that they can bring home. Ninety-five volunteers contributed 1284 hours in 2019!

Joe Greguane Mariles Shortreed Jessica Graydon
Elizza Kudret Sudheendra Steven Carberry
Anne Barowicz Jerry Rosenick Richard Lovell
Rick Burns Vinnie Morganiti Jack Dubiel
Aaron Barnes Patrick McKean David Stiles
Ian Ableson Leslie Clark Daryl Bernard
Nancy Kautz Dena Scher Jason Pashvan Chris Thomas Ryan Graydon
Dave Bargiel Sean Weitz Kennedy Phillips Brennan Hudgens
Mario Echeverri Dan Simon Alex Roland Pat Chirapatsakul
Francesco Bertolino Cam Mannino
Andy Donal Anna Tawril Dean Purcell Karen Page Chris Rush Joerg Hensel
John Kuhn Adam Skornia Dave Patritto Sue Peters Alyssa Radzwin Armondas Walker John Knap
Todd Krager Walter Zechmeister Jon Reed Phil Mann Dawn Sun John Cunningham
Kyle Geck Rick Baert Adam Mucciaccio Laurie Pehlo Albana Nikprel's Kimberly Fay
Katie Crites Paul Mansour Jason Prineau Loni Callahan
Bill Kamman Alyssa Winters R. Stewart Robertson Cathy Wesley
Lynn Hansford Alyssa Fantauzzo Mike Lund Greg Matsura John Rothly Karin Bickle
Mike Kent Michael Michniewicz Colleen Barkham Louise Hartung
Jim Foster Nancy Russell
Rob Ling Maryann Wehbe Alex Korb
Tom Korb Whitman Jane Giblin
Dave Fox-Davies Kanak Soundra
Robert MacDonald



Sorting native plant sale orders on June 7, 2019.
Stephanie Patil (center) gave us the nudge we needed to restart our native plant sales.



Volunteers at Blue Heron Environmental Area
helped us pull garlic mustard on May 17, 2019.



Installing native plant landscaping at Gallagher Creek Park on June 6, 2019.



FCA (Fiat-Chrysler) Volunteers at Bear Creek Nature Park removed lots of buckthorn on October 18, 2019.

VOLUNTEERS & OUTREACH

2019

Volunteer Workdays

Our 2019 volunteer workdays focused on pulling garlic mustard (and some dame's rocket) at Blue Heron Environmental Area, Bear Creek Nature Park, and along the Paint Creek Trail; cutting and treating invasive shrubs at Paint Creek Heritage Area—Wet Prairie; installing the new native plant landscaping at Gallagher Creek Park in June, and seed collecting in October. We hosted Stewardship Potlucks in January and July.

Bird Walks

In 2019 we continued our weekly bird walks. We had a regular group of 5-10 birders throughout the year, with up to 15 birders on a few walks! These bird walks help us document the bird species using our parks so that we can better manage our natural areas for bird diversity. Thanks to all of our birders for your help with these monitoring efforts. According to eBird in January 2019, we have documented **114 species** at Bear Creek Nature Park (+1), **110 species** at Draper Twin Lake Park (+4), **108 species** at Charles Ilsley Park (+6), **135 species** at Cranberry Lake Park (+4), and **82 species** at Lost Lake Nature Park (+1). We held our annual birder coffee hour on December 11 with about 15 people in attendance. We shared our latest nature inspirations and Mark Isken reviewed the results of his analysis of our birding data from the past 5 years.



Wednesday morning birders enjoy a fall morning at Charles Ilsley Park. Blue skies, whimsical clouds, and just a touch of fog made the scene special. November 20, 2019.

Nest Box Monitoring

In our second year of the nest box monitoring program, we continued to make improvements. We added stovepipe predator guards to all of our existing nest boxes at Draper Twin Lake Park, Charles Ilsley Park, and the Paint Creek Trail. We expanded the next box program to Bear Creek Nature Park, installing six new nest boxes with predator guards. Oakland Township Parks & Recreation continued as an official NestWatch Chapter with the Cornell Lab of Ornithology. Fourteen people participated in nest box monitor training on March 28 at 3 pm, and nine continued as NestWatch volunteers in township parks. We had 55 nest attempts, and 32 of those produced at least one fledgling (58% nesting success rate). We had 124 fledglings from four species from those nest attempts.

Prescribed Fire Volunteer Crew

In our fourth season with volunteers participating in our in-house prescribed fire crew, we continued to increase our experience and capacity. Volunteers completed training summarized below. Due to the wet spring, we only burned native plantings at Bear Creek Nature Park (0.1 acres) and Lost Lake Nature Park (0.4 acres). Thanks to Dena, Jon, and Walter for their help on our one burn day!

Volunteer Crew Training - 9 am to 2:30 pm on Saturday, February 23, Paint Creek Cider Mill. If you are interested in joining our volunteer prescribed fire crew, join us for this training workshop. We will cover reasons for using prescribed fire, preparations for conducting a fire, necessary tools, roles of each burn crew member, and ignition patterns. Weather permitting we will do a small demonstration burn after lunch.



Volunteer Jon Reed ignites the bioswale in the parking lot at Lost Lake Nature Park on April 22, 2019.

VOLUNTEERS & OUTREACH

Educational Events

2019

Stewardship hosted a variety of educational events in 2019. Check out the newsletter descriptions below.

New Zealand Mud Snails: A Threat to Michigan's Rivers and Lakes

Emily Bovee & Kennedy Phillips, Oakland Univ. Aquatic Ecology Lab, Thurs. Jan. 17, 6:30 pm, Paint Creek Cider Mill

The Great Lakes region contains 20% of Earth's freshwater, but this enormous ecosystem is threatened by aquatic non-native species. These non-native species have altered every level of the food web and reduced the diversity of native species. Annually, aquatic invasive species impose costs of over 100 million dollars in the Great Lakes region. The New Zealand Mud Snail is the latest invasive species. Initially found in the western United States in the 1980s, the New Zealand Mud Snail has recently invaded Michigan rivers, including the Au Sable River, an internationally renowned trout stream. This presentation will discuss the impacts of aquatic invasive species in the Great Lakes and focus on New Zealand Mud Snails, including current research at Oakland University to better understand the impacts of these invaders. Emily Bovee and Kennedy Phillips are graduate students in the Aquatic Ecology Lab at Oakland University.

Monarch Butterfly Ecology and Conservation

Dr. Nate Haan, Michigan State University Department of Entomology, Thurs, Feb 7, 6:30 pm, Paint Creek Cider Mill.

Monarch butterflies are one of the most interesting and recognizable insects in the world. Every year they migrate thousands of miles, from our backyards in Michigan to mountains in central Mexico. They also have fascinating interactions with their toxic milkweed host plants. Unfortunately, monarchs have declined in recent decades and the overwintering population in Mexico is only around 20% of its former size. Nate Haan is a postdoctoral research associate at Michigan State University who does research on monarch butterflies. He will share about their natural history and ecology, as well as some of the current research on their decline and what we can do to save them.

NestWatch Monitor Training

Ben VanderWeide, Natural Areas Stewardship Manager. Thursday, March 28, 3:00 pm at Paint Creek Cider Mill.

Become a citizen scientist and make a difference! Learn how to safely and properly monitor bird nests, and contribute towards the conservation and study of birds by joining the Oakland Township Parks and Recreation chapter of the Cornell Lab of Ornithology's NestWatch program.

Watch the Woodcock Dance: an Earth Day Observation

Friday, April 26, 7:30 pm at Bear Creek Nature Park.

We'll savor s'mores and watch "timberdoodles" do their cool aerial mating dance! While we wait for sunset, we'll enjoy snacks, a spring evening, and some cool facts about woodcock biology. As the light fades we will watch with hushed anticipation for this avian spectacle. Bring a comfortable chair, binoculars, and layers to add as the night cools down.

Rochester Garden Walk at Bear Creek Nature Park

Thursday, June 20, 2019 10 am to 5 pm at Bear Creek Nature Park

The Rochester Garden Walk will be held on Thursday, June 20 from 10 am to 5 pm. This exciting and popular event is sponsored by the Rochester Garden Club and the Rochester Hills Museum at Van Hoosen Farm. The walk will showcase six private gardens throughout the greater Rochester area as well as a special public garden, Bear Creek Nature Park, on display in Oakland Township.

Prairie Tours at Charles Ilsley Park

Saturday, August 3, 2019. Drop in any time between 9 am and 12 pm at Charles Ilsley Park

Since 2015 we've installed over 70 acres of prairie plantings in two parks, with 50 of those acres at Charles Ilsley Park. Some fields at this park are in their fourth growing season while other fields were planted in 2018, so you'll get to see how these prairies mature in the first few years. For those mobility needs, we will provide a special golf cart tour.

Coexisting with Coyotes

Jonathan Schechter, Thursday, February 7, 2019, 6:30 to 8:30 pm at the Oakland Township Hall, 4393 Collins Rd

Eastern Coyotes are found across North America and are very much at home in Oakland County. They are here to stay and have adapted quickly to our ways, our behavior, and our landscaping practices and as a result they often live in close proximity to our homes. Human indifference, however, is not the appropriate response for a coyote that lingers outside a home. It is easier than one may think to change their behavior and harmoniously coexist by keeping coyotes wild. This program will include photos and video, present facts on coyote natural history and behavior, and include techniques to minimize human-wildlife encounters and conflicts. Jonathan Schechter is the Nature Education Writer for Oakland County Government and a seasonal Lighthouse Keeper for Sleeping Bear Dunes National Lakeshore.

VOLUNTEERS & OUTREACH

2019



Alyssa Winters and Vinnie Morganti planting an oak tree in the new native plant landscaping at Gallagher Creek Park on June 14, 2019.



Dan Simon monitoring vernal pools at Bear Creek Nature Park on April 9, 2019.



Volunteers practice checking nest boxes at Charles Ilisley Park on May 15, 2019.



Volunteers and staff celebrate spring, daffodils, and a successful garlic mustard workday at Blue Heron Environmental Area on May 10, 2019.



Volunteers cleaned locally collected native plant seed at Watershed Ridge Park on December 3, 2019



Maryann Whitman reads Secchi disc transparency at Lost Lake Nature Park on May 13, 2019 to collect data for the Cooperative Lakes Monitoring Program.

VOLUNTEERS & OUTREACH

2019

Phragmites Outreach Program

We continued to work with Professional Lake and Land Management (PLM) to help township residents treat Phragmites on their land. We provided 31 no-obligation cost estimates to private property owners, and PLM treated Phragmites on 26 of those properties. **About 13.2 acres of Phragmites were treated!**

Prescribed Fire Outreach Program

Since natural areas cross property boundaries, we try to include willing park neighbors in our prescribed burn units when possible. In addition to the benefits of prescribed fire on the additional acreage, this approach often allows us to use natural fire breaks instead of installing breaks. This makes the burning process more efficient and safe. Participating property owners are responsible for any additional costs for burning on their property. In 2019 we worked with a property owner adjacent to the Paint Creek Heritage Area—Fen to burn 4.5 acres of private land on October 8. This allowed us to use Paint Creek as a fire break instead of making a new break through dense cattails.



Prescribed burn at the Paint Creek Heritage Area—Fen along the Paint Creek Trail. October 9, 2019

Oakland County CISMA

Oakland Township Parks and Recreation continued involvement in the Oakland County Cooperative Invasive Species Management Area. The Oakland Township Board of Trustees funded half of the fourth year of treatment for Phragmites infestations in the right-of-way of major roads in Oakland Township, with the CISMA covering the other half with funds from the Road Commission for Oakland County. Ben VanderWeide, Natural Areas Stewardship Manager, attended the monthly OC CISMA meetings and continued to serve as a member-at-large on the Executive Committee. Major initiatives included the first Spring Invasive Species Summit, continued work on grants from the Michigan Invasive Species Grant Program, right-of-way Phragmites treatment and monitoring throughout Oakland County, European frogbit surveys near Novi, landowner outreach, and outreach events.

Michigan Vernal Pools Partnership

Oakland Township has over 100 potential vernal pools in its parks. These seasonal wetlands are biodiversity hotspots, serving as homes for unique creatures such as fingernail clams, fairy shrimp, and diving beetles, and breeding areas for salamanders, spring peepers, and other amphibians. The Natural Areas Stewardship Manager worked with staff and several volunteers to monitor several vernal pools at Bear Creek Nature Park and Watershed Ridge Park. We also participate in the Michigan Vernal Pools Partnership, a new group that works on vernal pool mapping, science, outreach, education, and protection. Keith Berven from Oakland University completed vernal pools research at vernal pools in Bear Creek Nature Park with his students.

Natural Areas Stewardship Website

We continued to grow our stewardship website, the **Natural Areas Notebook** (oaklandnaturalareas.com). The blog contains information about stewardship events, volunteer opportunities, prescribed burning, grassland restoration, and regular posts on stewardship work or natural history observations. Cam Mannino continued her lead role in 2019, writing features about significant stewardship projects and nature observations. In 2019 we published 47 posts and had 8,378 visitors (+2,145 from 2018), with 14,776 views (+3,032 from 2018) and 73 comments.

Park Stewards

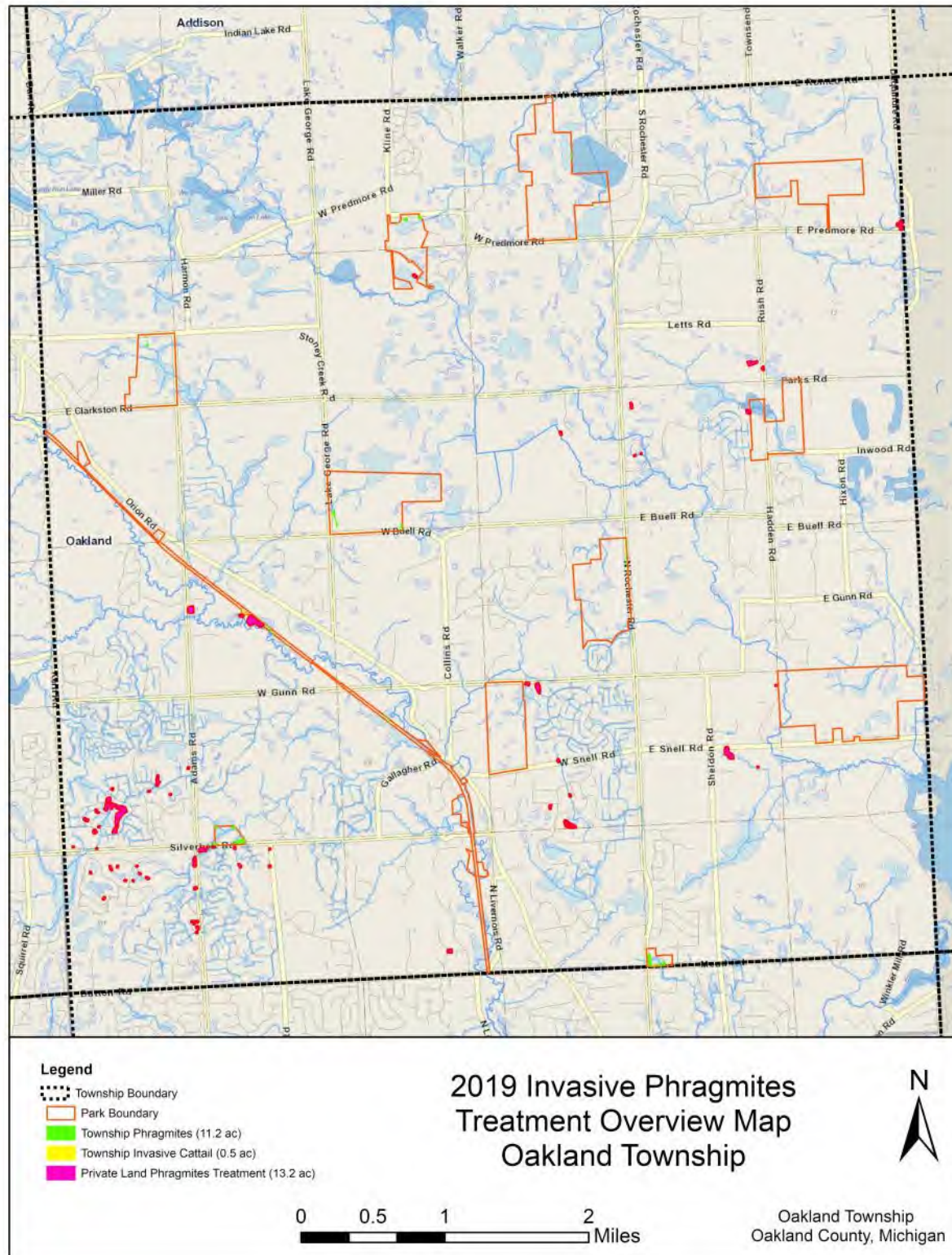
A few special volunteers help us with many aspects of our natural areas stewardship work on a regular basis.

- **Cam Mannino** wrote nearly all of the features on the blog this year, gathered and cleaned native seed, monitored vernal pools, and monitored nest boxes at Charles Ilsey Park.
- **Tom Korb** continued as a lead volunteer for the nest box monitoring program. He helped maintain the nest boxes and regularly provided help to other nest monitoring volunteers.
- **Jon Reed** lent a helping hand wherever needed in 2019. He helped install native plant landscaping at Gallagher Creek Park, hand-dug teasel at Gallagher Creek Park, built predator guards for nest boxes, and volunteered on the prescribed fire crew.

PHRAGMITES TREATMENT SUMMARY

2019

This map summarizes all known Phragmites treatment in Oakland Township in 2019. Rights-of-way along major roads were treated by the Oakland County CISMA using funds from the Road Commission for Oakland County and Oakland Township general funds approved by the Board of Trustees. Private lands were treated under the Phragmites Outreach Program. Township park property was treated by the Natural Areas Stewardship team.



THE YEAR IN PHOTOS

2019



Stewardship crew planting plugs in a new bioswale at Bear Creek Nature Park to control erosion. September 13, 2019.



Stewardship technician Alex installs a new nest box at Bear Creek Nature Park on April 15, 2019.



Stewardship technician Grant prepares to fell a tree as part of chainsaw training on June 26, 2019.



Marisa, Alex, Grant, and Alyssa in Springfield Township at eastern massasauga rattlesnake training on May 31, 2019.



Volunteers and staff install the native plant landscaping at Gallagher Creek Park around the picnic pavilion and playground on June 6, 2019.



Grant harvests native seed at Charles Ilsey Park on October 24, 2019.



Spring Beauty (*Claytonia virginica*) at Blue Heron Environmental Area on May 14, 2019.



Yellow Trout Lily (*Erythronium americanum*) at Cranberry Lake Park. May 6, 2019.



Swamp milkweed (*Asclepias incarnata*) blooming in a wet swale at Marsh View Park on August 4, 2019.



Early buttercup (*Ranunculus fascicularis*) at Paint Creek Heritage Area—Wet Prairie on May 16, 2019. New record for this park.



Whorled milkwort (*Polygala verticillata*) at Paint Creek Heritage Area—Wet Prairie on October 7, 2019. New record for this park.



Bottle gentian (*Gentiana andrewsii*) at Stony Creek Ravine Nature Park east expansion on October 7, 2019.



Fall swamp on the west shore of Cranberry Lake on October 14, 2019

PART II: PARK STEWARDSHIP SUMMARIES

2019

Part II contains summaries for each township park and township-managed property. Look for five elements in each summary:

- Stewardship Tasks Completed
- Monitoring Tasks—Completed and Upcoming
- Future Stewardship Recommendations
- Photos from 2019
- Stewardship Summary Map.

* Note that invasive species points shown are **all mapped locations from all years**. Depending on the survey effort for each species, this may not reflect the actual distribution in the parks. High priority species (e.g. Phragmites, swallow-wort, crown vetch, garlic mustard) are mapped more completely than other species.

BEAR CREEK NATURE PARK

2019

Stewardship Tasks

1. Native plant beds at the Snell entrance were burned in the spring (circle drive bed) or had dead stems removed in April. Cut back tall plants along paths to reduce height.
2. Mapped and pulled garlic mustard throughout the park. Volunteers assisted with two workdays in May.
3. Swallow-wort and crown vetch. Treated all known patches in the park.
4. Mapped and treated a new patch of brown knapweed (*Centaurea jacea*).
5. Woodyies: Cut and treated glossy buckthorn and other invasive woody plants on the south side of Bear Marsh near the south observation deck. Volunteer workday in October 2019 was co-hosted by Six Rivers Land Conservancy and was attended by FCA volunteers.
6. Phragmites: Treated all known patches of Phragmites, and worked with neighbors to get Phragmites in northeast corner of Bear Marsh treated.
7. Prescribed Fire: completed burn on parking lot island with in-house crew in 2019.
8. Seed collecting: native seeds were collected from the native plantings near the parking lot.
9. Forestry mowing: stewardship staff spread a mix of native grass seed in the forestry mowing areas from 2018, and completed follow-up treatment of invasive shrub re-sprouts in late summer.

Quick Stats

- Purchased 1977
- 107 acres
- Oak forest with vernal pools in north half of park, fields and ponds in south half of park.
- 39.49 acre conservation easement held by Six Rivers Land Conservancy on northern third of the park.

Monitoring

- Bird walks on 1st Wednesday of the month. 114 bird species observed in park since 2014 (+1 from 2018).
- Installed six new nest boxes with predator guards. Cam Mannino completed nest box monitoring. We had 9 nest attempts, with 21 eastern bluebirds and 9 tree swallows successfully fledging.
- Continued monitoring four vernal pools with Michigan Vernal Pool Partnership protocol. Oakland University biology professor Dr. Keith Berven conducted additional vernal pool research with students in the summer.
- Upcoming monitoring: Complete photo monitoring in 2020. Complete floristic inventory in 2022.

Future Stewardship Tasks

- Continue treatment of high priority invasive plants (swallow-wort, crown vetch, Phragmites, garlic mustard)
- Treat invasive shrub resprouts in forestry mowing and shrub control areas. Broadcast additional native plant seed to increase native plant diversity and discourage reinvasion by invasive shrubs.
- Continue annual invasive woody plant control in the northern oak forest, particularly around Bear Marsh.
- Continue forestry mowing in old fields and invasive shrubs thickets. Planned for winter 2020/2021.
- High deer densities are degrading the northern forest. Deer control is needed. Consider exclosures to assess the impact of deer browse and preserve sensitive plant species.
- Continue to use prescribed fire to discourage fire-sensitive tree species and promote oak regeneration in the northern forest. Begin thinning fire sensitive tree species to promote understory development.



FCA volunteers clearing buckthorn near Bear Marsh on October 18, 2019.



Michigan Lily (*Lilium michiganense*) flowered in the forestry mowing area near the center pond on July 10, 2019.

- Scanned park for garlic mustard.
- Treated Phragmites.
- Treated pale swallow-wort and checked old swallow-wort locations.
- Treated crown vetch in SW corner
- Controlled woody vegetation by the south dock on Bear Marsh. Partnered with Six Rivers for volunteer workday on Oct 18.
- Prescribed fire in parking lot island April 22, 2019.
- Treated invasive shrubs in north forest and forestry mowing area.
- Monitored 4 vernal pools in cooperation with MI Vernal Pools Partnership: Pools 0001, 0002, 0005, 0006, 0007, 0008. Collaborated with Keith Berven at Oakland University to collect additional vernal pool data.
- Maintained native plant beds.
- Bird walks on 1st Wednesday of month. 114 species observed to date (+1 from 2018).



BLUE HERON ENVIRONMENTAL AREA

2019

Stewardship Task Completed

1. Garlic Mustard
 - Mapped and pulled garlic mustard throughout the park. Worst areas continue to be the southern border and central patch by the former rookery site, although densities were lower than previous years.
 - Collaborated with Six Rivers Land Conservancy for two garlic mustard work-days with FCA volunteers on May 10 and 17, 2019.
2. Phragmites: patches along the road and in northern wet forest were treated again. We also treated a new patch found near southern boundary in 2018.
3. Japanese Knotweed: patches by circle drive and in woods immediately to the west monitored, and treated in 2019. Continue to reduce numbers, but some still persisting.
4. Completed treatment of invasive shrubs resprouts on 7.8 acres where forestry mowing was completed in 2018.
5. Worked with a USFWS biologist to create plans for upland and wetland restoration to reduce runoff from farm fields.

Monitoring

- 65 bird species observed in the park since 2014 (+8 from 2018).
- Monitored boundaries for dumping, hunting blinds, and encroachment.
- Completed photo monitoring in 2019. Repeat next in 2021.
- Complete floristic inventory in 2023, according to the schedule.
- Consider monitoring potential vernal pools to collect baseline information and confirm vernal pool status.

Future Stewardship Tasks

- Continue to survey and pull garlic mustard.
- Continue to monitor and aggressively treat Phragmites and Japanese knotweed.
- Continue to treat invasive shrubs in forestry mowing areas and along field edges. Sweep forests biannually for invasive shrubs.
- Implement wetland and upland restoration plans with USFWS biologist to reduce runoff from farm fields. Restore farm fields to native vegetation if farming ceases.
- Invasive woody plants should be surveyed and treated annually. The patches with mature woodies should be targeted: the southern border, around edges of wetland, and around edges of fields.
- High deer densities are degrading the forest. Deer control is needed. Finish deer enclosure installation and use to assess the impact of deer browse and preserve sensitive plant species.

Quick Stats

- 139 acres
- Contains a mix of farm fields, upland hardwood forest, swamp, and shrub-by wetlands.
- Designated for protection of special high quality natural features, which included a great blue heron rookery until 2007.
- 135.65 acre conservation easement held by Six Rivers Land Conservancy cover the entire park except a few acres in south-east corner.



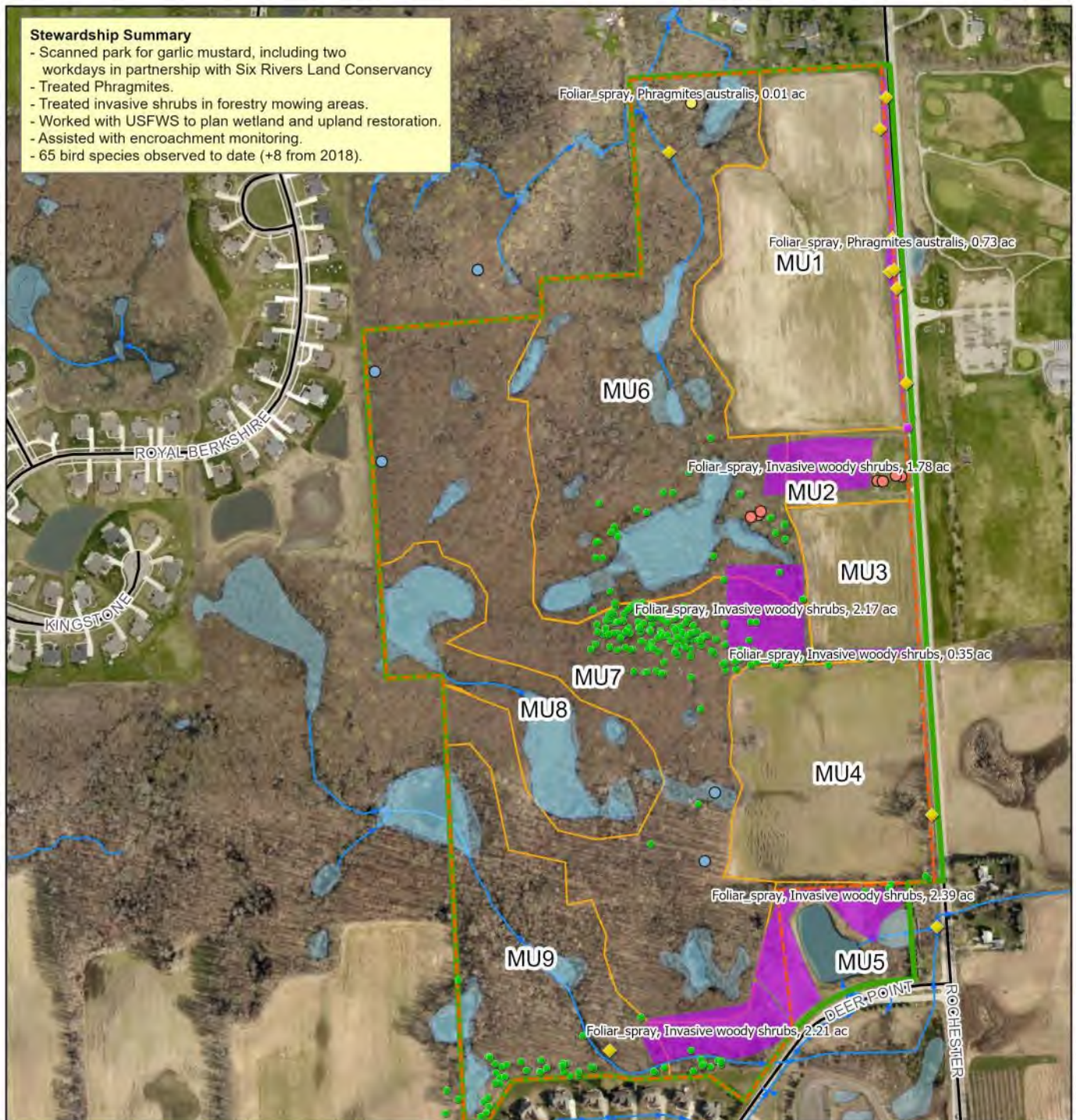
Blue lobelia flowering in an opening in the northern wet forest on October 7, 2019.



Horse gentian (*Triosteum aurantiacum*) in a thicket west of the circle drive on May 15, 2019.

Stewardship Summary

- Scanned park for garlic mustard, including two workdays in partnership with Six Rivers Land Conservancy
- Treated Phragmites.
- Treated invasive shrubs in forestry mowing areas.
- Worked with USFWS to plan wetland and upland restoration.
- Assisted with encroachment monitoring.
- 65 bird species observed to date (+8 from 2018).



Blue Heron Environmental Area Stewardship Summary 2019



0 250 500 1,000
Feet



CHARLES ILSLEY PARK

2019

Stewardship Tasks Completed

1. Garlic Mustard: Mapped and pulled garlic mustard throughout the park. Not all garlic mustard was pulled near entrance and in hedgerows, but forested areas covered well.
2. Swallow-wort: Checked old swallow-wort locations and treated as necessary. Found very little swallow-wort in 2019.
3. Crown vetch: Checked old crown vetch locations and treated as necessary. Biggest patch is in east field.
4. Spread seed in forestry mowing area in west, but we were not able to complete invasive shrub resprout treatment.
5. Prairie Restoration: Collected seed in prairie restorations, and spread additional seed in wetland pockets
5. Phragmites: Patches in the northeast corner of central field and in northwest forested area were treated again.
6. Invasive woody shrubs controlled along the southern panhandle.

Monitoring

- 108 bird species observed in the park since 2014 (+6 from 2018).
- Installed predator guards on nest boxes. Volunteers monitored through the nesting season. From the 81 eggs laid, at least 61 young birds fledged (a few nests not monitored later in the season). This included Eastern Bluebird and Tree Swallows, plus one clutch of American Goldfinches!
- Observed Blanding's turtle on April 23, 2019.
- Completed photo monitoring in 2019. Repeat annually to assess establishment of prairie plantings.
- Complete floristic inventory of entire park in 2020, according to the schedule. The previous inventory was in 2001 and did not include the 37 acres added in 2005.
- Potential site for installation of deer exclosures to monitor the effects of deer browse on prairie plantings

Future Stewardship Tasks

- Continue to survey and control garlic mustard, Phragmites, crown vetch, and swallow-wort. Work with neighbor to implement swallow-wort control efforts on adjacent land.
- Continue maintenance of prairie plantings, including targeted mowing to reduce Queen Anne's lace/spotted knapweed/Canada goldenrod abundance, prescribed fire, and spot treating invasive plants. Continue to open up hedgerows between fields to connect grassland habitat.
- Use prescribed fire to maintain prairie plantings and woodlands.
- Oriental bittersweet should be treated throughout the park.
- Invasive woody plants in northeast and northwest forests should be controlled biannually.
- Continue to remove old fencing.

Quick Stats

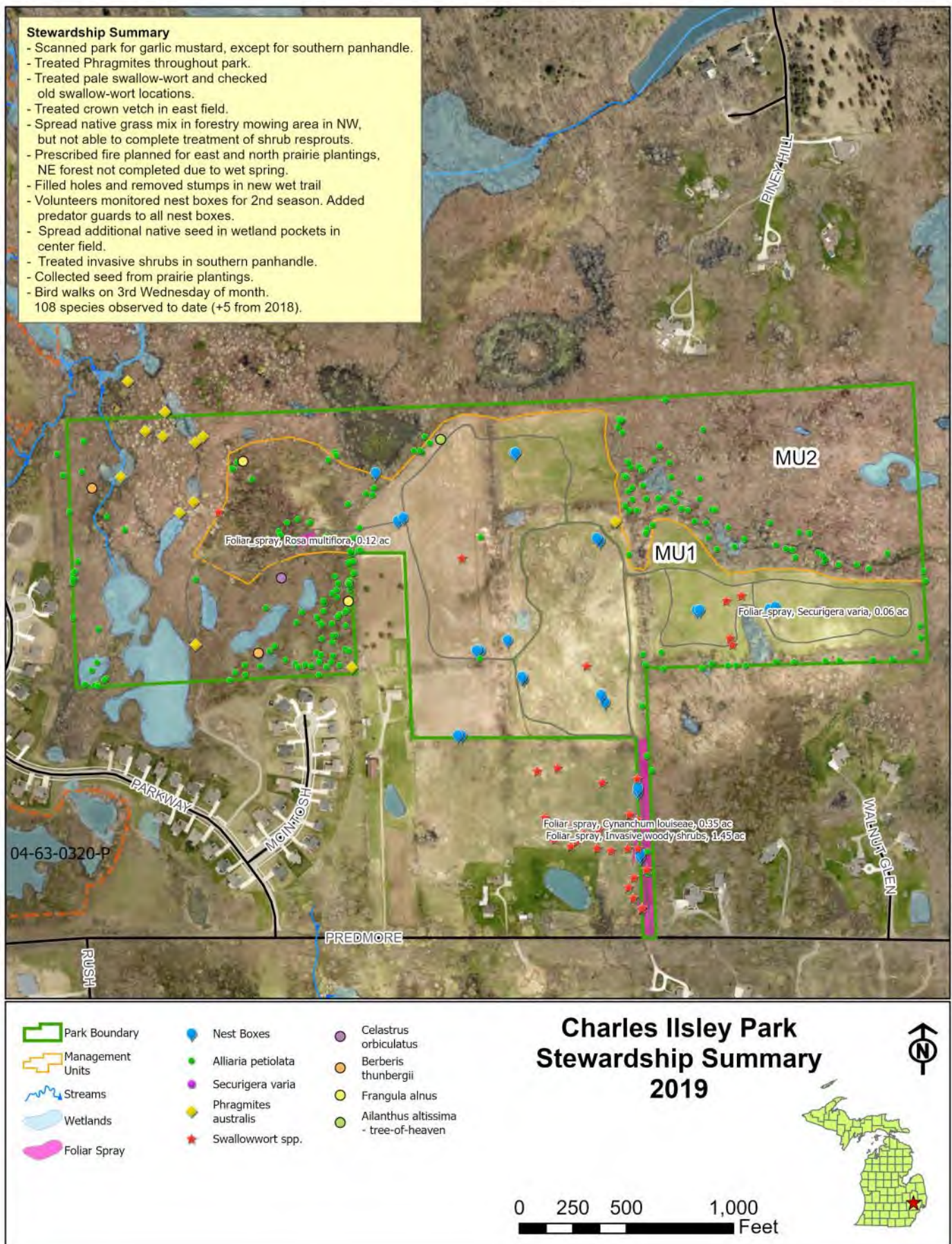
- 120 acres total. 83 acres donated in 1990, 37 acres donated in 2005.
- Farm fields in central area have been planted with native prairie species.
- Upland and lowland hardwood forests cover the rest of the park.



Blanding's turtle (*Emydoidea blandingii*) observed at Charles Ilsley Park on April 23, 2019.



Cardinal flower (*Lobelia cardinalis*) flowers in a wet swale in the western prairie planting on August 28, 2019.



CRANBERRY LAKE PARK

2019

Stewardship Tasks Completed

1. Plant Beds: Maintained juniper bed in the historic district prior to concert.
2. Garlic Mustard: Mapped and pulled garlic mustard throughout the park. We did not work in heavily infested areas near the historic district.
3. Phragmites: Checked all known locations and treated as needed. Treated new location on south side of Cranberry Lake in rich tamarack swamp.
4. Japanese Knotweed: Checked known location near north entrance. No new growth observed.
5. Apple orchard restoration: We assisted with design and installation of the native seed mix in the orchard area in 2017, and we spot treated black locust resprouts in 2018 and 2019.
6. Treated narrow-leaf cattail in the reflecting pond near the farm.

Monitoring

- 135 bird species have been documented in the park to date using eBird (+4 from 2018). New bird species observed include Bald Eagle, Lincoln's sparrow, Broad-winged Hawk, and Yellow-Billed Cuckoo.
- Update floristic inventory for the park in 2021 as scheduled, including inventory on the 22 acre parcel on the west side that was not included in the 2001 inventory.
- Photo monitoring was last completed in 2018, and is planned for 2020.
- Continued beaver activity observed near the trail at Cranberry Lake.

Future Stewardship Tasks

- Continue to survey and treat garlic mustard, Phragmites, and Japanese knotweed.
- Remove Scotch pines (*Pinus sylvestris*) by girdling or cutting off below the lowest branch.
- Remove invasive woody vegetation in old fields. A combination of prescribed fire, herbicide, and forestry mowing should be used as appropriate. Plan for forestry mowing rotation to work through all of old field areas within five years.
- Oriental bittersweet should be treated throughout the park, starting in highest quality areas.
- Northern fields and forest have characteristics of degraded oak savanna, including some oak savanna indicator species and wolf trees. Begin control of invasive woody shrubs in this area. Also begin thinning fire-sensitive trees (red maple, silver maple, elm, etc.) from the understory to promote recruitment of oaks.
- Continue to use prescribed fire to manage natural areas.
- Remove trash from old farm dumps as it is documented.

Quick Stats

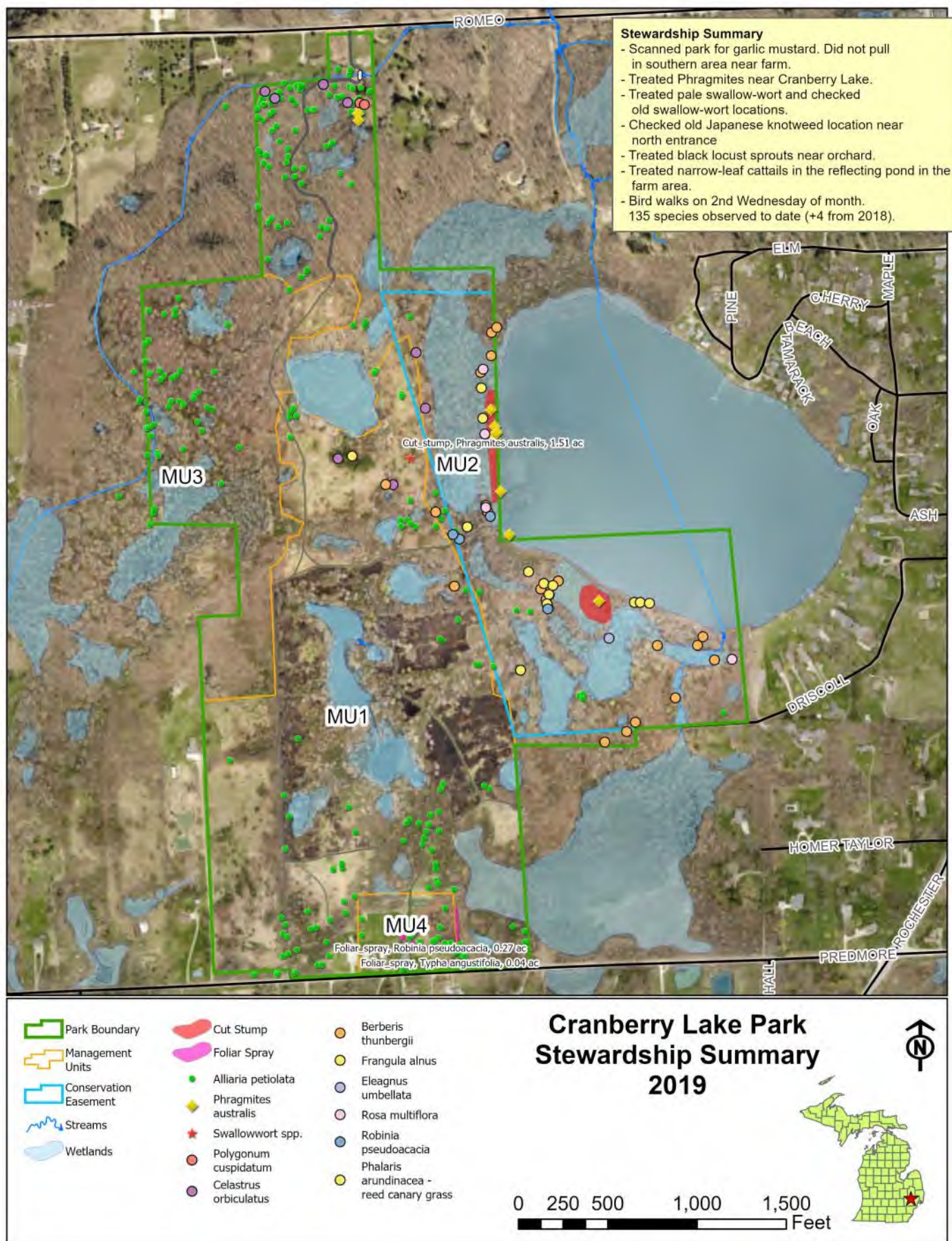
- 213 acres
- Contains a mix of fields, upland hardwood forest, swamp, bog, and shrubby wetlands.
- 52.67 acre conservation easement held by Six Rivers Land Conservancy on wetland area around Cranberry Lake.



The forested area on the west side of the park supports a diverse native groundcover, including Christmas fern, trillium, spring beauty, wild geranium, and woodland sedges. This sedge, possibly *Carex woodii*, is shown flowering on May 7, 2019.



Michigan holly, *Ilex verticillata*, showing its vibrant red fruits in the wetlands near Cranberry Lake on October 14, 2019.



DRAPER TWIN LAKE PARK

2019

Stewardship Tasks Completed

1. As in previous years, garlic mustard was not controlled in 2019.
2. Swallow-wort: Checked and treated known patches. Documented and treated new patches.
3. Crown vetch: treated patches along eastern path by garage, near west edge of prairie restoration, and western path by parking lot treated.
4. Prairie Restoration: mowed in burn breaks in early spring, but unable to complete prescribed burn due to wet spring.
5. Woody Vegetation Control: Treated invasive shrubs in eastern old field to follow up on previous work. Treated invasive shrub resprouts in forestry mowing area on the east side, and along the trail to the dock on the west side.
6. Phragmites: Treated patch across the lake from the dock.
7. Contractor treated curly-leaf pondweed near the public dock.
8. Removed trash from forestry mowing area. Removed old dump of construction debris and part of a pile of old concrete along the east property line.
9. Installed park boundary markers and signs after the park parcels were surveyed in the spring.

Quick Stats

- 90 acres
- Contains a mix of lakes, streams, fields, upland hardwood forest, wet meadow, a boggy kettle wetland, and shrubby wetlands.
- 20 acre field in northwest corner planted to native prairie species in fall 2015.

Monitoring

- Bird walks on 4th Wednesdays. 113 bird species documented to date in eBird (+7 since 2018).
- Installed predator guards on nest boxes. Volunteers monitored through the nesting season (2nd season). From the 44 eggs laid, at least 24 young birds fledged. This included Eastern Bluebird and Tree Swallows.
- Participated in the Cooperative Lakes Monitoring program for Twin Lake East. Tested spring overturn total phosphorus, fall total phosphorus, and biweekly Secchi disk readings through the growing season.
- Photo monitoring was completed in 2019. Repeat annually to assess establishment of prairie planting.
- Finish floristic inventory of the entire park in 2020. We surveyed parts of the park in 2017 and 2018.

Future Stewardship Tasks

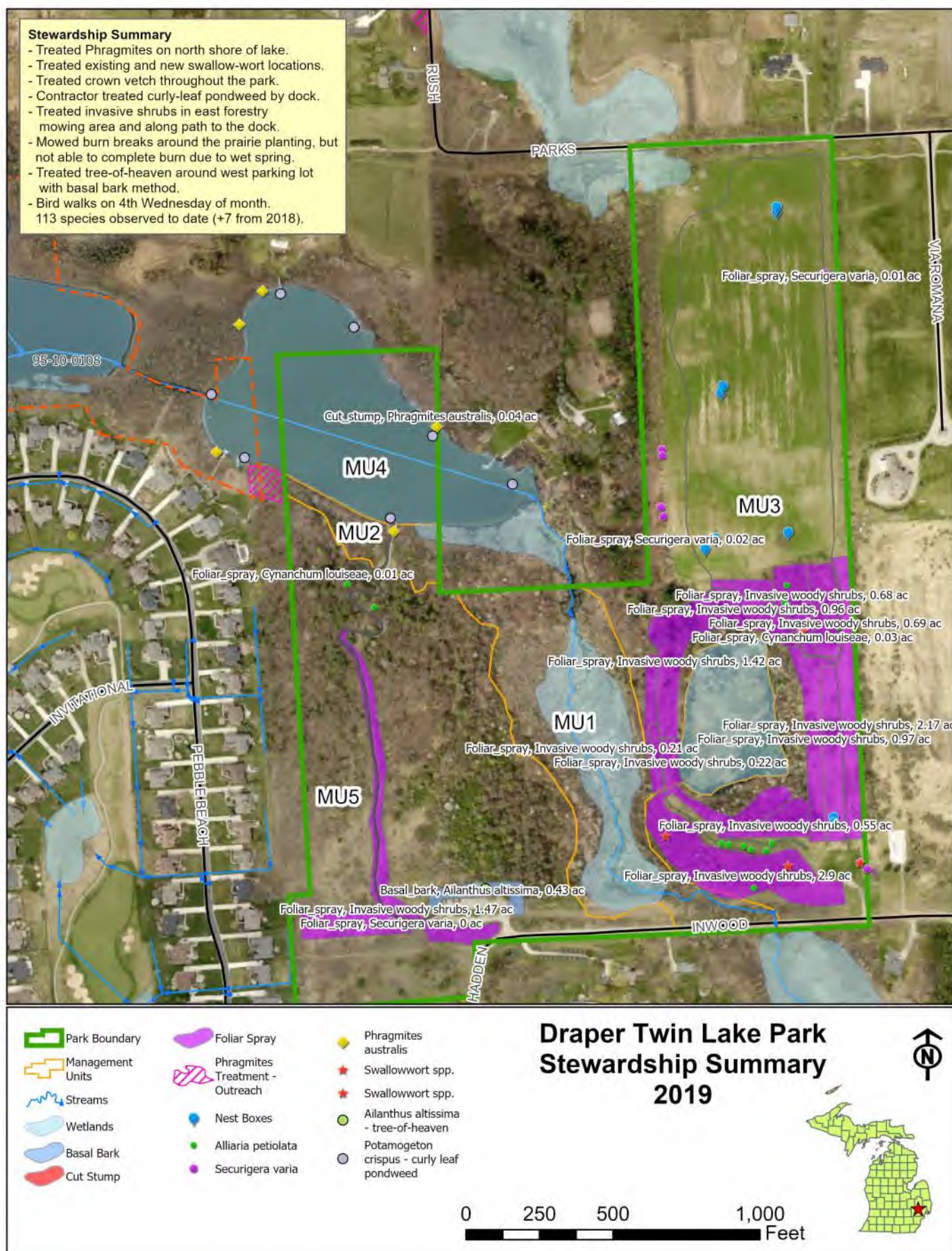
- Control invasive woody plants in central and eastern marsh (prioritize east marsh perimeter).
- Conduct targeted mowing of prairie restoration areas to control spotted knapweed, sweet clover, and other species as needed. Control noxious weed species (spotted knapweed, crown vetch, etc.).
- Use prescribed fire to maintain the prairie restoration and control invasive shrubs in forestry mowing areas.
- Oriental bittersweet should be treated throughout the park as resources allow (prioritize east side).
- Complete forestry mowing at this park on the west side.
- Continue to clean up farm dumps.



The center wetland lining the McClure Drain is largely intact with a diverse native plant community and few invasive plants. Photo from September 11, 2019.



Ben and Grant removed carpet, tires, an old lawn mower, a TV, construction debris, and lots of concrete from the east side of Draper Twin Park. Photo from December 4, 2019.



GALLAGHER CREEK PARK

2019

Stewardship Tasks Completed

1. Prairie restoration: Gridded through plantings and spot treated any invasive plants found. Spot mowed invasive thistles on east side of parking lot in August.
2. Phragmites: Surveyed and treated Phragmites patches throughout the park.
3. Cutleaf Teasel and Wild Parsnip: Hand dug teasel and wild parsnip along roadside in June July with the help of a volunteer.
4. Hand pulled and foliar sprayed seedling black alder found in upland areas.
5. New patch of Japanese knotweed found on north side of Silverbell Rd at Gallagher Creek stream crossing. In new limestone cobbles from sidewalk construction, so likely brought in with construction materials. Observed Smeared Dagger (*Acrionicta oblinita*) caterpillars feeding on knotweed on October 10, 2019.
6. Crown vetch: Treated crown vetch throughout upland areas in June.
7. Installed native landscaping around the new playground with lots of help from volunteers. We received grants from the Rochester Garden Club, Wildflower Association of Michigan, and a donation from Stephanie Patil to help make the plantings possible. Watered and weeded the plantings through the first growing season.

Quick Stats

- 15 acres donated in 2000.
- Natural areas include Gallagher Creek, wet meadow, emergent marsh, old fields.
- Upland old fields planted to native species in 2016 and 2018
- Playground installed in 2018, native landscaping installed in 2019.
- EGLE conservation easements on wetlands.

Monitoring

- 74 bird species observed in the park since 2014 (no change from 2018).
- Observed Northern Red-Bellied Snake near the parking lot on July 2, 2019.
- Confirmed ID of flowering rush just upstream of the park where Gallagher Creek crosses Adams Rd.
- Photo monitoring was completed in 2019. Repeat annually to document prairie planting establishment, Phragmites control, and other restoration work.
- Completed next floristic inventory in 2024, according to schedule. The original floristic inventory was in 2014.
- Complete surveys to see if *Papaipema* moths exist on Culver's root.
- Monitor areas that were disturbed by construction of playground and pathways for invasive plants.

Future Stewardship Tasks

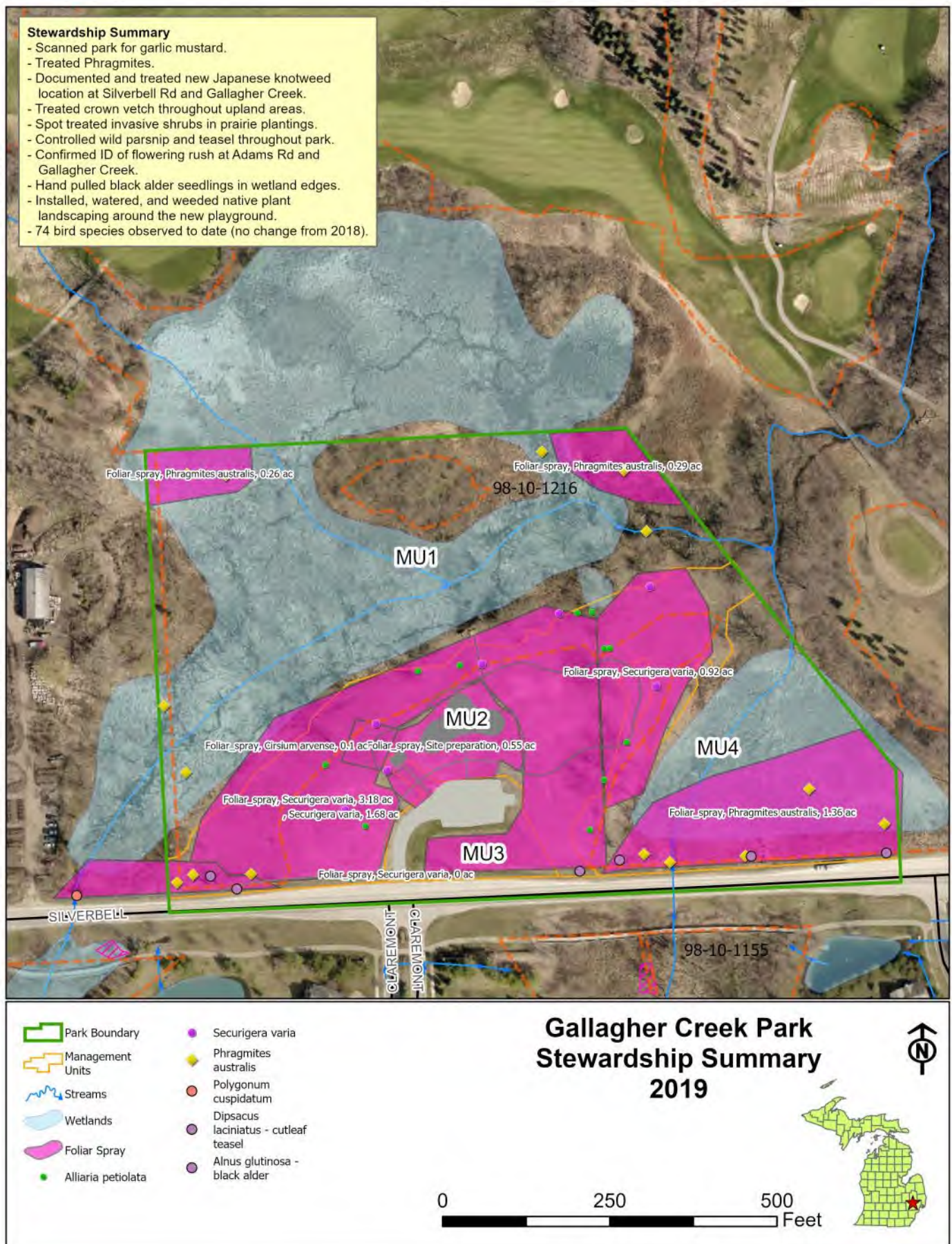
- Maintain the native landscaping and rain garden. Supplement with additional plants as needed to complete season-long bloom display for pollinators.
- Begin removal of invasive woody plants from the "island" in the north-central part of the park. Plantwise indicated wet prairie potential in this area in their 2011 management plan.
- Continue control of black alder throughout the park, a known invasive small tree.
- Begin control of reed canary grass in the wetland areas. Plant treated areas with aggressive native sedges.
- Continue to use prescribed fire to maintain prairie plantings, remove old Phragmites stems, and control invasive woody plants.
- In wetland areas showing fen characteristics, seed in more fen species to increase diversity.



Native plant landscaping shows off its fall colors after the first growing season. October 29, 2019.

Stewardship Summary

- Scanned park for garlic mustard.
- Treated Phragmites.
- Documented and treated new Japanese knotweed location at Silverbell Rd and Gallagher Creek.
- Treated crown vetch throughout upland areas.
- Spot treated invasive shrubs in prairie plantings.
- Controlled wild parsnip and teasel throughout park.
- Confirmed ID of flowering rush at Adams Rd and Gallagher Creek.
- Hand pulled black alder seedlings in wetland edges.
- Installed, watered, and weeded native plant landscaping around the new playground.
- 74 bird species observed to date (no change from 2018).



LOST LAKE NATURE PARK

2019

Stewardship Tasks Completed

1. Garlic Mustard: Mapped and pulled garlic mustard throughout the park.
2. Swallow-wort: Monitored areas that previously had swallow-wort patches. No new plants.
3. Crown vetch: Treated crown vetch along Turtle Creek Lane, on sled hill, and in forest.
4. Phragmites: Checked all known locations and treated all Phragmites found.
5. Completed prescribed burn of bioswale in parking lot and native planting between the parking lot and the dock on April 22, 2019.
6. Participated in Cooperative Lakes Monitoring program for Lost Lake. Tested spring overturn total phosphorus, fall total phosphorus, and biweekly Secchi disk readings through the growing season.
7. Contractor controlled aquatic plants around the dock to improve access for recreation.

Monitoring

- Bird walks on 5th Wednesdays. 82 bird species observed to date (+1 from 2018).
- Photo monitoring was completed in 2019 and is scheduled for 2021 (biannually).
- Complete floristic inventory in 2021, as scheduled. The original floristic inventory was in 2001.
- High deer densities are degrading the forest. Deer control is needed. Exclosures could be used to assess deer browse and preserve sensitive plant species.
- Document current light levels under the canopy, and repeat annually to document effects of canopy thinning.

Future Stewardship Tasks

- Continue to survey and treat garlic mustard, crown vetch, oriental bittersweet, Phragmites, and other high priority invasive plants.
- Control invasive woody plants around Lost Lake and other wetlands.
- Continue to restore oak barrens using prescribed fire, canopy thinning, invasive species control, and additions of local-genotype seed.
- Plan for wetland restoration in the southeastern part of the park in degraded fen/ sedge meadow habitat where eastern massasauga rattlesnakes have been found historically.
- Monitor invasive species in native plantings and control as needed.
- Monitor effects of nuisance aquatic plant treatment around the dock.

Quick Stats

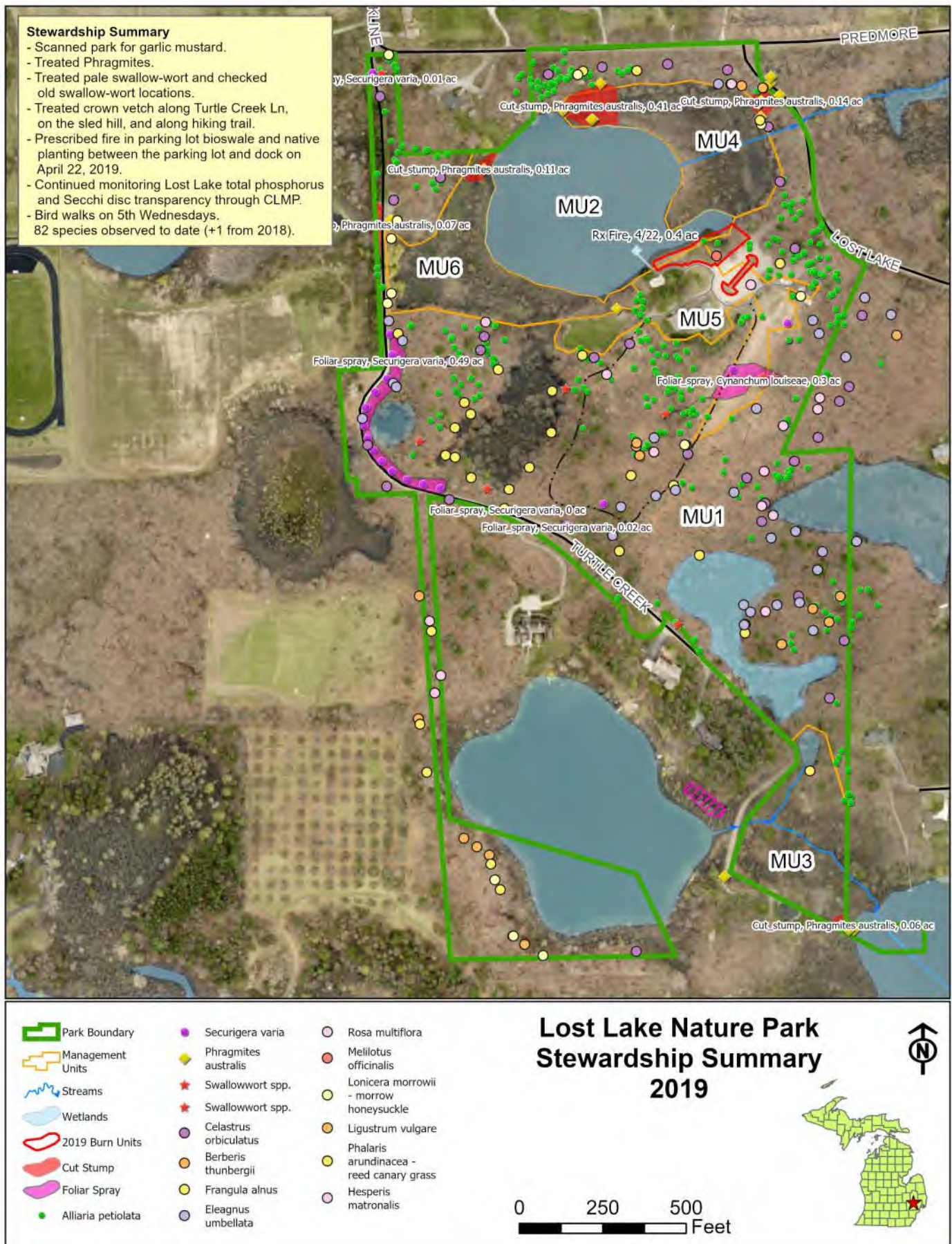
- 58 acres
- Contains a mix of lakes, streams, fields, oak-pine barrens, emergent wetlands, shrubby wetland, degraded fen, and vernal pools.
- Historical sighting of eastern massasauga rattlesnake.
- Caretaker family and nature center occupy house.
- Sled hill with warming shelter is a popular attraction.



Stewardship staff and volunteers helped complete the prescribed burn of the parking lot bioswale and native planting by the dock on April 22, 2019.



Canopy thinning and prescribed burning have helped increase sunlight at ground level in the woodlands, but additional thinning is needed to return the area to savanna physiognomy. Photo from August 30, 2019.



MARSH VIEW PARK

2019

Stewardship Tasks Completed

1. Maintained parking lot native plant beds: Removed dead thatch in spring, weeded monthly.
2. Cut and treated stumps of invasive shrubs in plantings around athletic fields.
3. Treated crown vetch around the athletic fields.
4. Treated Phragmites around the athletic fields and on the north side of the park.
5. Parking Lot and Archery Range Expansion: Installed a seed mix to plant on disturbed areas around the new archery building after construction was complete.
6. Helped identify location for the new pavilion by the west parking lot. Scheduled forestry mowing to clear invasive shrubs in the “viewscape” of the pavilion for winter 2020/21.

Quick Stats

- 95.6 acres
- Natural areas include a large marsh and degraded old fields in upland areas. Native plants have been installed around the athletic fields.
- Athletic fields and archery range occupy the south side of the park.

Monitoring

- 39 bird species observed to date (no change from 2018).
- As trail development and volunteer interest allows, remove old nest boxes and replace with new to restart the nest box trail at Marsh View Park.
- Photo monitoring was last completed in 2018, and is scheduled for 2020.
- Complete floristic inventory for the park in 2022 as scheduled, including the parcel on the southwest corner added to the park most recently. The original floristic inventory was in 2001.

Future Stewardship Tasks

- Use forestry mowing and follow-up treatment to control invasive woody plants in old fields.
- Teasel is just getting established at a few points in the park. Document locations and control.
- Survey park annually for swallow-wort and treat as needed.
- Continue to control Phragmites aggressively. Monitor wetlands for Phragmites annually. Mark plants around athletic field with flagging as found during the growing season.
- Monitor native plantings for invasive species and treat as needed.
- Install new species in the native plant beds (aromatic sumac, butterfly milkweed, etc.).
- Develop a trail to the north side of the park in 2020.



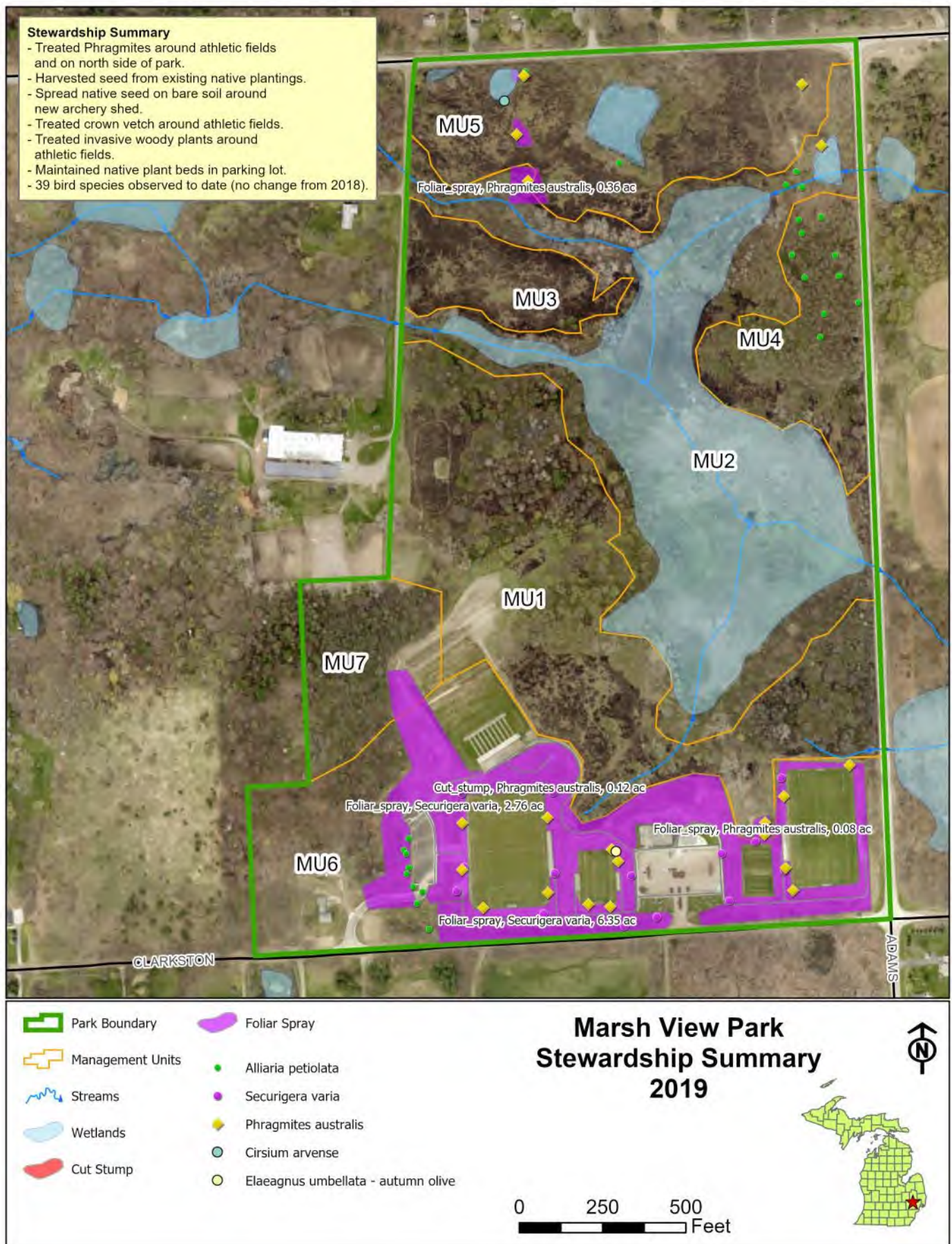
Black locust logs harvested from the northeast corner of Marsh View Park were used for edging the native plant landscaping at Gallagher Creek Park. Photo taken May 2, 2019.



Native plants between the parking lot and Field B on August 6, 2019. About 6 years after planting, these areas are well established. Annual sweeps for invasive plants are necessary to keep them in good shape.

Stewardship Summary

- Treated *Phragmites* around athletic fields and on north side of park.
- Harvested seed from existing native plantings.
- Spread native seed on bare soil around new archery shed.
- Treated crown vetch around athletic fields.
- Treated invasive woody plants around athletic fields.
- Maintained native plant beds in parking lot.
- 39 bird species observed to date (no change from 2018).



MILL CREEK CROSSING

2019

Quick Stats

- 1 acre
- Natural areas include floodplain forest and Paint Creek
- Invasive plants have degraded the site and will require lots of effort to control.

Stewardship Work Completed

1. Grant Vander Laan wrote a management plan for Mill Creek Crossing in 2019.

Monitoring

1. Complete floristic inventory in 2029. Original inventory was completed in 2018.

Future Stewardship Work

1. Control invasive plants as time and resources allow.
2. Watch erosion along Orion Road and the edge of Paint Creek.



Paint Creek borders Mill Creek Crossing on two sides. Photo from December 11, 2019.



Natural communities present at Mill Creek Crossing, as documented in the 2019 management plan.



Mill Creek Crossing is directly across Paint Creek from the fishing access boardwalk on the Paint Creek Trail. Photo taken December 11, 2019.

MILL RACE TRAIL

2019

Stewardship Work Completed

1. Scheduled forestry mowing within 15 feet of each side of the trail. Work was completed in early 2020.
2. Scanned park for garlic mustard, but did not complete control work.

Monitoring

- Photo monitoring was last completed in 2018 and will be completed again in 2021 as scheduled (every 3 years).
- Floristic inventory was last completed in 2018, and is scheduled for the next inventory in 2029.

Future Stewardship Tasks

- Site is small, degraded and isolated from other natural areas, so stewardship work is low priority. Should be managed for user safety and to protect Paint Creek, wetlands, and any sensitive species discovered. Stewardship tasks listed below should work toward these goals if time allows.
- Garlic mustard should be surveyed and pulled annually if time allows.
- Treat invasive shrub sprouts in 2020 to prevent regrowth. Seed in native species.
- Begin systematically cutting invasive shrubs and treating stumps in areas not affected by forestry mowing. Plant wet prairie/wet meadow/savanna mix of native species after shrub removal.
- Remove black locust trees, replace with burr oak or other native tree species.



A few nice patches of wild ginger (*Asarum canadense*) grow along the Mill Race Trail. June 4, 2018.



Southern blue flag iris (*Iris virginica*) along the Mill Race Trail. June 4, 2018.



O'CONNOR NATURE PARK

2019

Stewardship Tasks Completed

1. Mapped and pulled garlic mustard through the park. Pulled **celandine (*Chelidonium majus*)** and oriental bittersweet when scanning for garlic mustard. Monitored the population of Siberian squill expanding from private property to the north of the park.
2. Phragmites throughout the park foliar sprayed (dense patches) or cut-stem treated (if mixed with natives). Treated new patches found in the pipeline easement.
3. Gas Pipeline Construction Project: Consumer's Energy replaced a section of gas pipeline that runs through the northwest part of the park and along its northeastern boundary in summer 2018. As part of that work they cleared all woody vegetation in their easement, including several large diameter trees. In 2019, after the pipeline work was complete, they revegetated the park property with a native seed mix. They also planted wetland plants in a wet spot where a drain tile empties (see left photo below). We coordinated with Consumer's about the species selection for the seed mix and wetland plants.

Quick Stats

- 10 acres
- Acquired in 2008
- Dramatic topography, mature oak woodlands, and intact wetlands provide greenspace for Oakland Township residents.

Monitoring

- Photo monitoring was last completed in 2018, and is scheduled for 2020.
- Complete floristic inventory for the park in 2024 as scheduled. The original floristic inventory was in 2014.

Future Stewardship Tasks

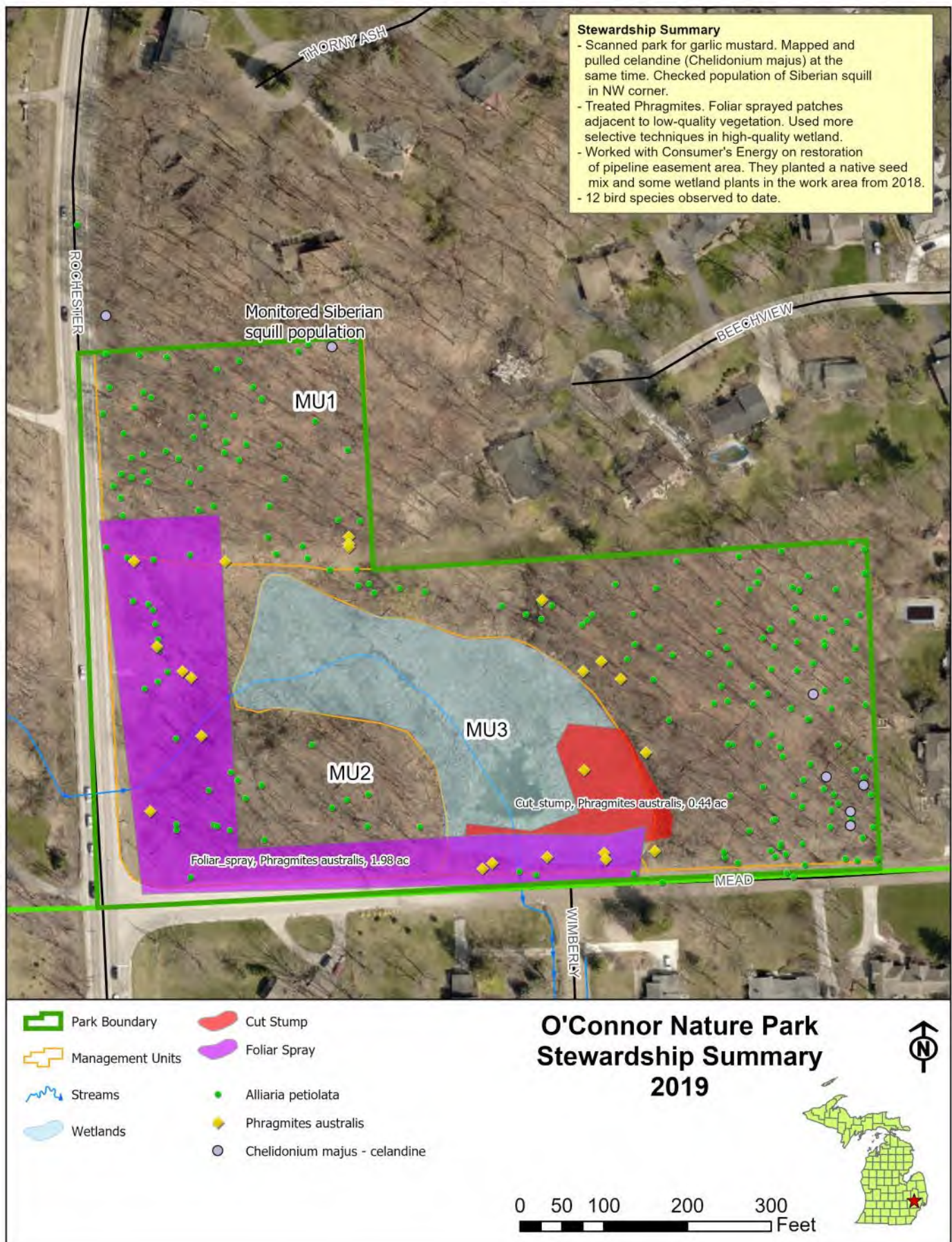
- Monitor the pipeline easement for new invasive species following 2018 construction work.
- Continue to survey and treat garlic mustard and celandine. The dense patch in the northeast corner should be foliar sprayed in early spring.
- Continue to treat Phragmites.
- Control *Vinca minor* in the southwest corner.
- Control invasive woody plants throughout the park biannually.
- Concentrate stewardship on the hillside along Rochester Road to remove callery pear and other invasives. Plant native species on hillside.
- Use prescribed fire occasionally to promote native plant recruitment in wetland and forest.
- High deer densities are degrading the forest.
- Work with neighbors to prevent dumping yard waste in the park.



Consumer's Energy pipeline easement on October 7, 2019 following pipeline replacement work. Consumers installed sod on private property up to the park boundary, and native seed within the park.



Many of the native plants from the pipeline easement survived the first growing season after they were transplanted into the adjacent forest.



PAINT CREEK HERITAGE AREA—FEN

2019

Stewardship Tasks Completed

1. Garlic Mustard has not been identified at this park.
2. Phragmites in the fen was monitored and foliar sprayed where dense or cut stem treatment where sparse.
3. Park neighbor to south had Phragmites on property treated through the Phragmites Outreach Program. Fourth year of treatment for the neighbor to the south.
4. We treated invasive cattails with hand wicking in areas with native vegetation present, and foliar sprayed cattail monocultures. Fen vegetation returning in areas where cattails were treated, but follow-up treatment will be necessary.
5. Controlled a small area of invasive shrubs with cut stump treatment.
6. Treated a small patch of crown vetch in the Paint Creek Trail ROW just north of the fen.
7. Prescribed fire was completed on October 8, 2019. The fire mostly burned the dead cattails that had been treated earlier in the season, with a very patchy burn in all other areas.

Quick Stats

- 0.5 acres
- Acquired in 2008
- Protects the parcel's unique fen wetland and viewshed along the Paint Creek Trail.

Monitoring

- Photo monitoring was last completed in 2018, and is scheduled for 2020.
- Update floristic inventory for the park in 2023 as scheduled. The original floristic inventory was in 2014.

Future Stewardship Tasks

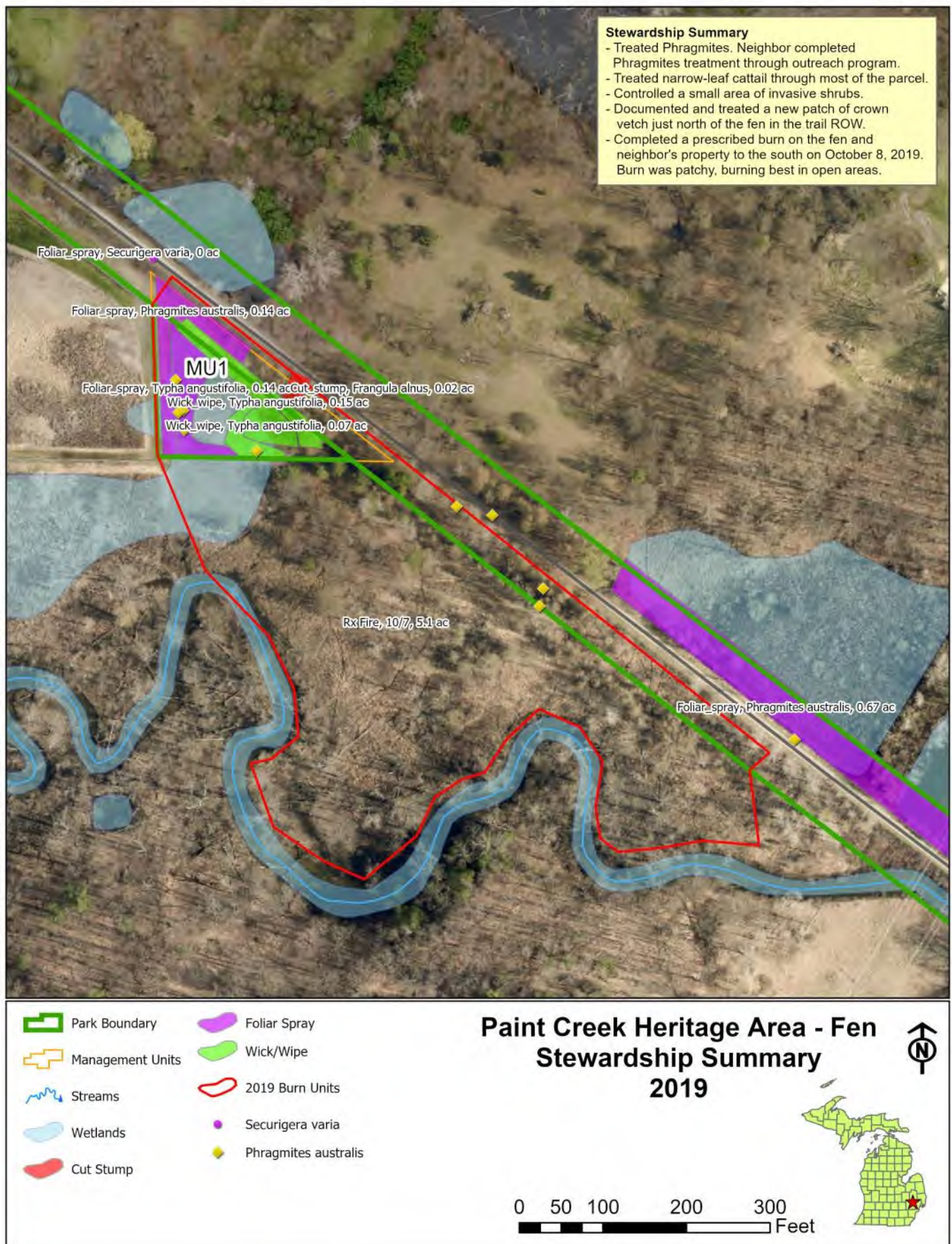
- Control woody plants encroaching on the fen and adjacent upland areas.
- Continue Phragmites and purple loosestrife control. May need to collect beetles to control purple loosestrife.
- Continue to control cattails with hand-wipe where sparse or foliar spray where they are very dense. Start in areas with highest native plant abundance and move to areas more heavily infested with invasive cattails.
- Spread locally collected seed in Phragmites and cattail control areas to assist recovery of native plants.
- Work with neighbor on south and east boundary to manage adjacent fen and upland oak savanna.
- Work with neighbor to end mowing along fence border.



The area of higher quality fen vegetation Paint Creek Heritage Area—Fen on August 8, 2019.



After the prescribed burn at Paint Creek Heritage Area—Fen on October 9, 2019.



PAINT CREEK HERITAGE AREA

WET PRAIRIE

2019

Stewardship Tasks Completed

1. Seed Collection: Collected seed of various prairie and wetland plants with volunteer assistance.
2. Mapped and pulled garlic mustard throughout the park.
3. Continued controlling invasive woody plants in the core prairie area, the surrounding berm, the southern panhandle, and the trail right-of-way that was forestry mowed earlier that year.
4. The forestry mowing area north of the core prairie had vigorous sprouting of invasive shrubs after a hot fire in April 2018 and forestry mowing in fall of that year. We did not want to foliar spray because many native plants were interspersed, and the sprouts were too small to treat with cut stump. We planned to wait until the dormant season to treat with wicking basal bark herbicide application.
5. Hand-pulled spotted knapweed and sweet clover in the open wet prairie area in July and August.
6. Monitored and treated swallow-wort patch and crown vetch patch on the north-east side of the core prairie area.

Quick Stats

- 10 acres
- Acquired in 2003
- Protects the parcel's globally imperiled wet prairie habitat, Paint Creek floodplain, and viewshed along the Paint Creek Trail.

Monitoring

- Identified early buttercup (*Ranunculus fascicularis*) and whorled milkwort (*Polygala verticillata*) as new species for the park.
- Photo monitoring was last completed in 2019, and is scheduled for 2021.
- Complete floristic inventory for the park in 2026 as scheduled. The original floristic inventory was in 2006.
- Conservation Biology class from Oakland University conducted quadrat sampling along transects as part of a class field visit. One student found the whorled milkwort.

Future Stewardship Tasks

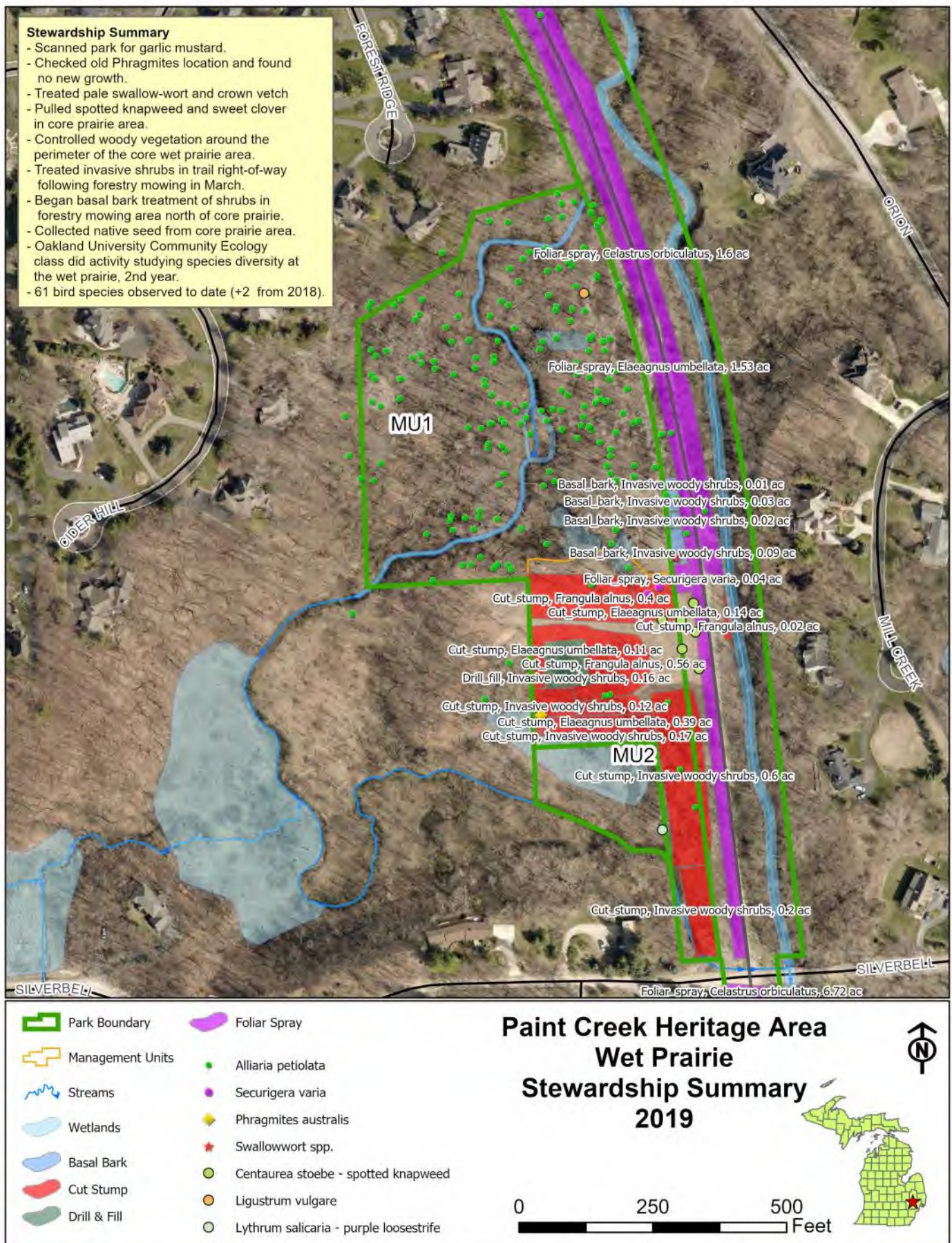
- Continue to survey garlic mustard, spotted knapweed, and sweet clover and hand pull throughout the park.
- Oriental bittersweet should be treated throughout the park.
- Thin tree canopy by drill and fill, girdling, or removal of small to mid-diameter cottonwoods, black locust, and other tree species not typical of oak savanna. Work outward from core prairie.
- Continue invasive woody plant control, focusing on the perimeter of the wet prairie area and areas with pockets of high quality native vegetation. Use basal bark treatment, hand wicking small stems, in high quality areas. Plan for a big project to clear invasive shrubs in the northwest corner by 2022.
- Collect seed of rare species annually and broadcast in adjacent areas after invasive shrub control.
- Design and install interpretive signage to explain unique plants found in the area.



Core prairie area on August 5, 2019.



Forestry mowing area north of the core prairie area showing vigorous invasive shrub resprouting on August 8, 2020.



PAINT CREEK JUNCTION

2019

Stewardship Tasks Completed

1. Treated the patch of swallow-wort found on the adjacent Paint Creek Trail right-of-way in 2018.
2. Scanned adjacent trail right-of-way for garlic mustard.

Monitoring

- Photo monitoring began at this parcel in 2018, and is scheduled for 2020.
- Completed floristic inventory for the park in 2019. We documented 92 species (73 native and 19 non-native), and a Floristic Quality Index of 23.0 (total). Areas of interest included the vernal pool in the northwest corner with *Carex tuckermannii*, the hedgerow on the west boundary with mature oak trees, and a small pocket of wet meadow vegetation in the old field area. See the Supporting Documents for the full report. The inventory should be repeated in 2029 as scheduled.

Future Stewardship Tasks

- Provide input to access development process to enhance ecosystem function, improve wildlife habitat, and to facilitate future natural resource management.
- In 2021, use the botanical inventory, habitat map, and site plans to develop a management plan following completion of the park access improvements.
- Maintain native plantings planned for the access improvements.

Quick Stats

- 5.7 acres
- Acquired in 2003
- Formerly known as Marsh View Connector
- Oakland Township Parks & Recreation was awarded a Michigan Natural Resources Trust Fund grant in 2018 to develop a regional trailhead for the Iron Belle Trail (of which the Paint Creek Trail is part) at this location. Planning started in 2019, with construction in late 2020.



Carex tuckermannii in the vernal pool in the northwest corner of the park. August 16, 2019.



The edge of Orion Road at the Paint Creek Junction park. September 4, 2019.



PAINT CREEK TRAIL—ART PROJECT

2019

Stewardship Tasks Completed

1. Garlic Mustard: No garlic mustard has been identified at the Art Project.
2. Invasive Woody Plants: Area monitored for invasive shrubs. Needs shrub control work in 2020.
3. Seed Collection: No seed collected in 2019, but this is a good location for *Desmodium canadense*.
4. Treated crown vetch near the parking area.
5. Installed predator guards on nest boxes. Volunteers monitored the nest boxes through the nesting season.

Quick Stats

- 0.5 acres
- Acquired by the Paint Creek Trailway Commission in 1980.
- Protects the parcel's prairie habitat, Paint Creek floodplain, and viewshed along the Paint Creek Trail.

Monitoring

- Photo monitoring was completed at the Art Project in 2018, and is scheduled for 2021.
- Completed floristic inventory for the park in 2018. The inventory should be repeated in 2028 as scheduled.

Future Stewardship Tasks

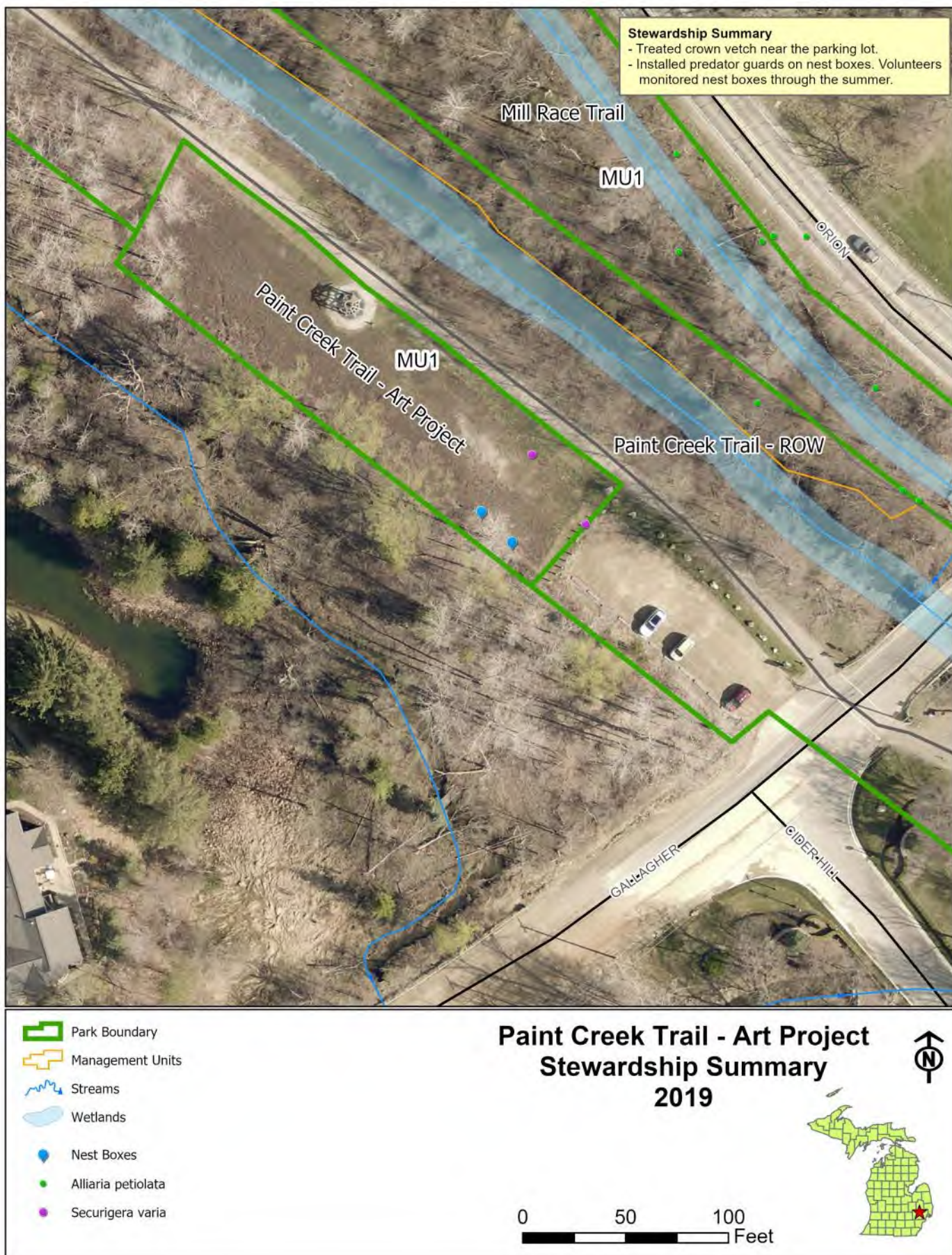
- Continue to control invasive woody plants biannually.
- Interseed area with native plant species to increase diversity and fuel loading.
- Use prescribed fire annually or biennially. Use growing season or fall burns when possible to enhance forb abundance.
- Expand invasive woody plant control to the north along the trail and across the trail adjacent to the creek.
- Install interpretive signage to explain the unique plants found in the area.
- Install markers to prevent mowing the prairie area.
- Continue to work with adjacent private property owners to provide a buffer to the prairie remnant.
- Treat reed canary grass patches to keep from expanding.



Art Project on April 23, 2019.



Nest boxes at the Art Project were refurbished in 2018, and predator guards installed in 2019. April 23, 2019.



PAINT CREEK TRAIL

KAMIN/STOLL EASEMENT

2019

Stewardship Tasks Completed

1. Scanned easement for garlic mustard.
2. Treated known swallow-wort locations along the north side near the trail.
3. Checked old Phragmites locations and found several stems. Mapped and treated them.
4. Treated invasive woody plants in the trail right-of-way in late summer following forestry mowing in March.
5. Pulled spotted knapweed and sweet clover in prairie, savanna, and adjacent Paint Creek Trail right-of-way.
6. Completed a prescribed burn on October 8, 2019. The fire burned well in open areas, but spotty in shaded areas. The Paint Creek floodplain burned very little.

Quick Stats

- 4.25 acres
- Conservation easement approved by township residents in 2008.
- Protects the parcel's prairie, savanna, and Paint Creek floodplain habitats.
- Protects natural views along the Paint Creek Trail.

Monitoring

- Photo monitoring was completed at the Kamin Easement in 2018, and is scheduled for 2020.
- Completed floristic inventory for the park in 2018. The inventory should be repeated in 2026 as scheduled.

Future Stewardship Tasks

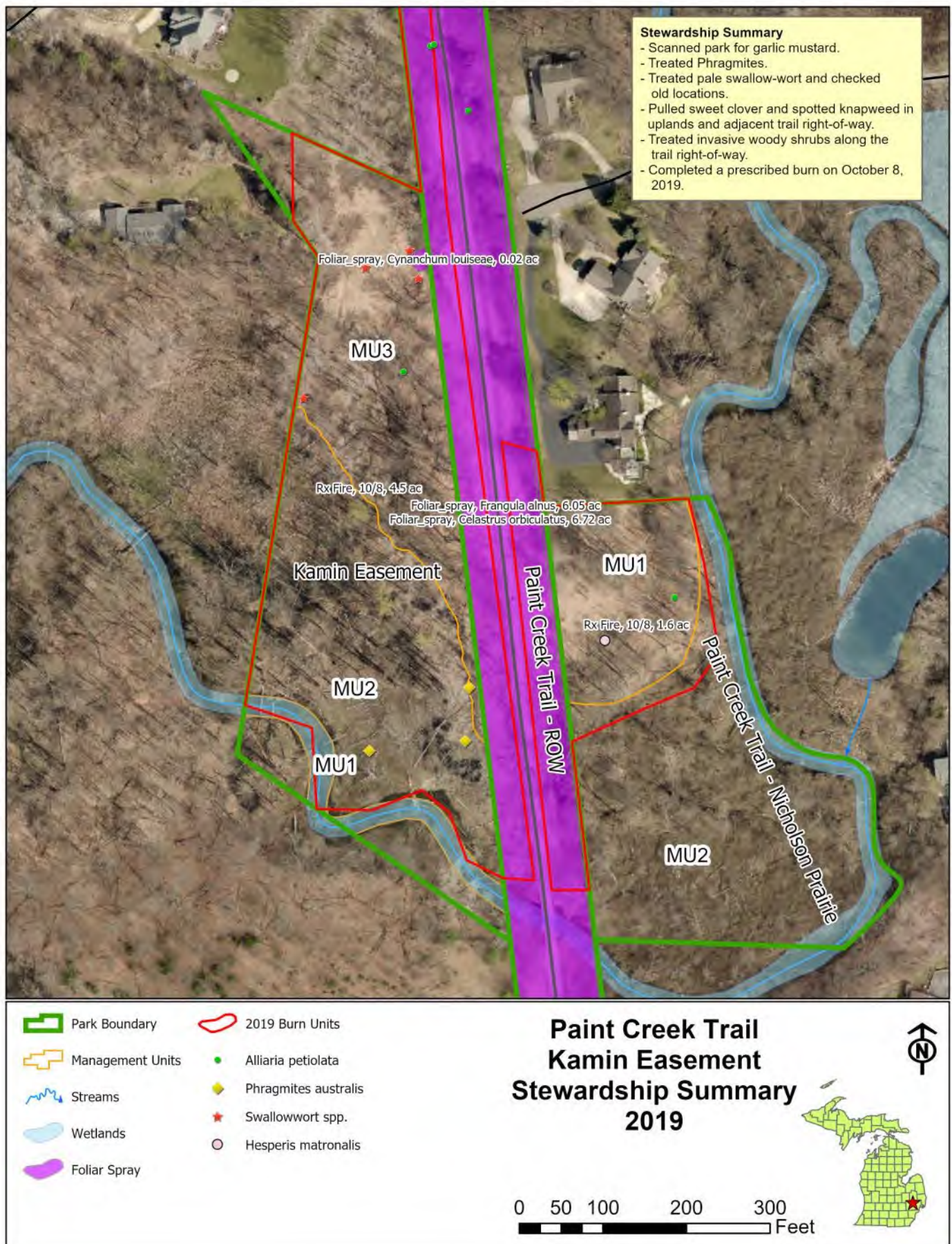
- Continue to control garlic mustard, swallow-wort, and Phragmites.
- Monitor purple coneflower that has escaped from neighbor's landscaping. Control if it begins to spread.
- Thin fire-sensitive trees in the upland areas.
- Control invasive woody plants annually.
- Continue prescribed burning annually, varying season of burn and time between burns. As invasive shrubs are controlled reduce return interval to 3-4 years.



Robin's plantain (*Erigeron pulchellus*) flowers in the oak savanna at the Kamin Easement on June 11, 2019.



We completed a prescribed burn on the Kamin Easement on October 9, 2019.



PAINT CREEK TRAIL

NICHOLSON PRAIRIE

2019

Stewardship Tasks Completed

1. Invasive Woody Plants: No woody plant control done in 2019.
2. Pulled sweet clover in the adjacent Paint Creek Trail right-of-way.
3. Completed a prescribed burn on October 8, 2019. The open areas burned well, with spotty combustion in shaded areas.

Monitoring

- Photo monitoring was completed at the Nicholson Prairie in 2018, and is scheduled for 2020.
- Completed floristic inventory for the park in 2018. The inventory should be repeated in 2026 as scheduled. Consider quantitative vegetation sampling.

Future Stewardship Tasks

- Resume privet removal in the floodplain. Will likely need to use a forestry mower or similar equipment.
- Resume garlic mustard control and dame's rocket control.
- Continue to expand the prairie area by removing woody plants and seeding with locally collected native plant species.
- Reduce the abundance of native warm-season grasses to increase forb abundance. Use late summer and fall prescribed burns when possible.
- Monitor vegetation in the deer exclosures.

Quick Stats

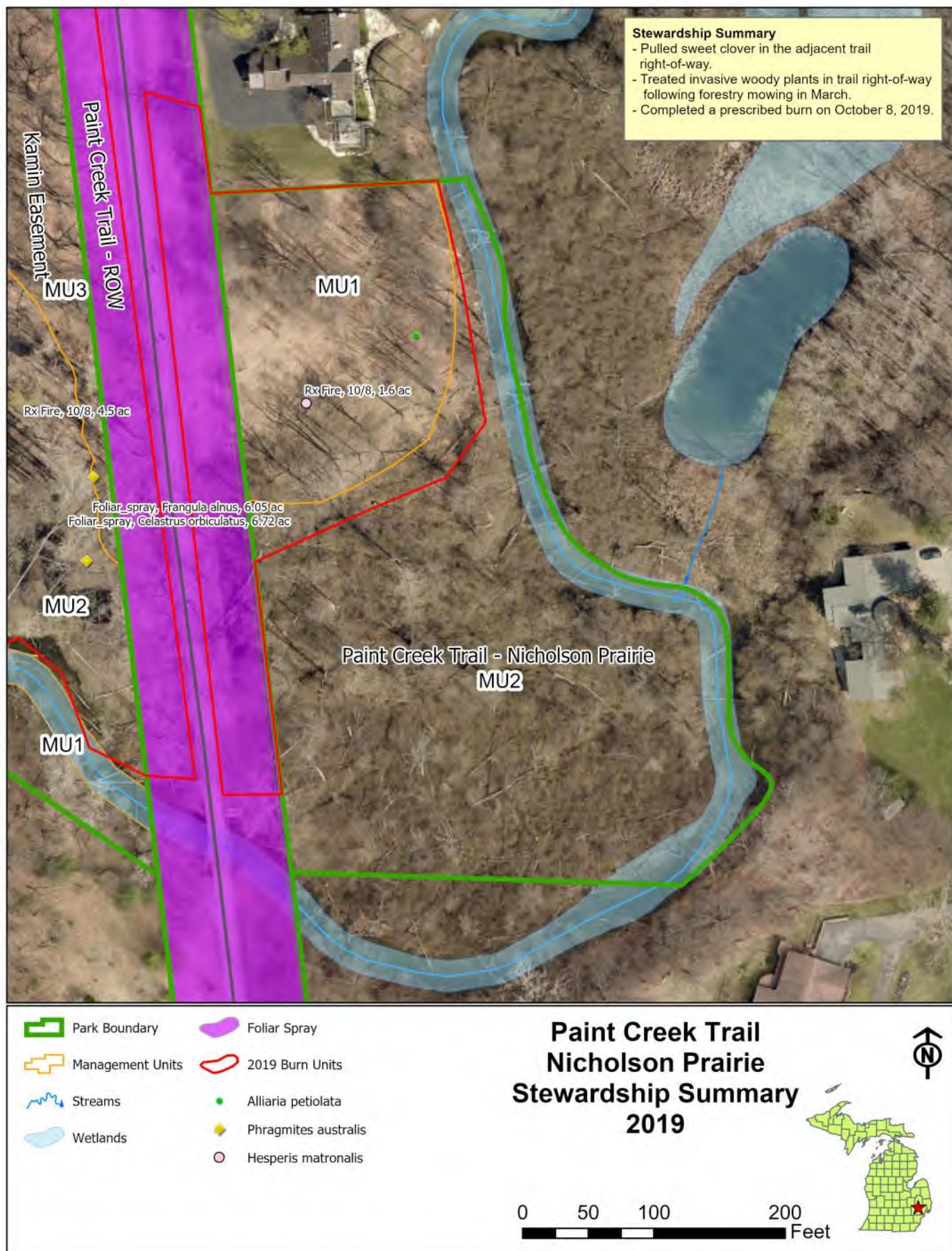
- 3.1 acres
- Acquired by the Paint Creek Trailway Commission in 2002.
- Protects the parcel's prairie habitat, Paint Creek floodplain, and viewshed along the Paint Creek Trail.



Wild lupine (*Lupinus pernnis*) flowering at Nicholson Prairie on June 7, 2019. Note woody vegetation encroachment in the deer enclosure.



The day after the October 8, 2019 prescribed burn at Nicholson Prairie.



PAINT CREEK TRAIL RIGHT-OF-WAY

2019

Stewardship Tasks Completed

1. Forestry mowing was completed between Dutton Road and Gallagher Road within 15 feet of the limestone surface. This chopped up woody vegetation, including invasive shrubs, that were encroaching on the trail. The stewardship crew treated re-sprouts of invasive shrubs in this area in August.
2. Bridge 33.7 replacement: We rescued native plants and installed them in the new native landscaping at Gallagher Creek Park. We also provided input on site restoration when the work was completed.
3. We maintained the native plantings at the Gunn Road crossing.
4. We co-hosted a garlic mustard pull with Six Rivers Land Conservancy and the Paint Creek Trailway. On May 16, 2019, volunteers from FCA pulled garlic mustard at sites from Dutton Road to the Clarkston/Kern crossing.
5. Phragmites: In addition to treating all known patches of Phragmites in park properties and within the Paint Creek Trail right-of-way, Phragmites was controlled at two locations on private property along the Paint Creek Trail through our Phragmites Outreach Program.
6. Treated crown vetch at the Silverbell Road parking lot, Gallagher Road parking lot, near the Paint Creek Heritage Area—Fen, and Adams Road crossing.
7. Documented and treated swallow-wort locations along the Paint Creek Trail.
8. Added predator guards to eight nest boxes along the trail.
9. Prescribed Fire: On October 8, 2019 we burned 1 acre at Nicholson Prairie, 4.5 acres at Kamin Easement, and 5 acres at the Paint Creek Heritage Area—Fen. Part of the fen burn was paid for by the private landowner immediately to the south and east of the fen parcel. We are very thankful for their support of natural areas stewardship!

Quick Stats

From their 2020-2024 Master Plan: “The Paint Creek Trail was the first non-motorized rail-to-trail in the State of Michigan and traverses five different municipalities in Oakland County, Michigan: the City of Rochester, the City of Rochester Hills, the Charter Township of Oakland, the Charter Township of Orion, and the Village of Lake Orion. It consists of 8.9 miles of the former Penn Central Railroad right-of-way connecting the City of Rochester at the trail’s southern terminus to the Village of Lake Orion at the north. Open to the public since 1983, the Paint Creek Trail serves pedestrians, cyclists, equestrians, anglers, nature enthusiasts, and users of all ages and abilities. The Paint Creek Trail is a trail of regional importance and receives over 100,000 visitors annually.”

Monitoring

- Photo monitoring along the trail right-of-way was completed in 2018, and is scheduled for 2021.
- Several high-quality natural areas along the trail should have a floristic inventory completed as time allows by 2030.

Future Stewardship Tasks

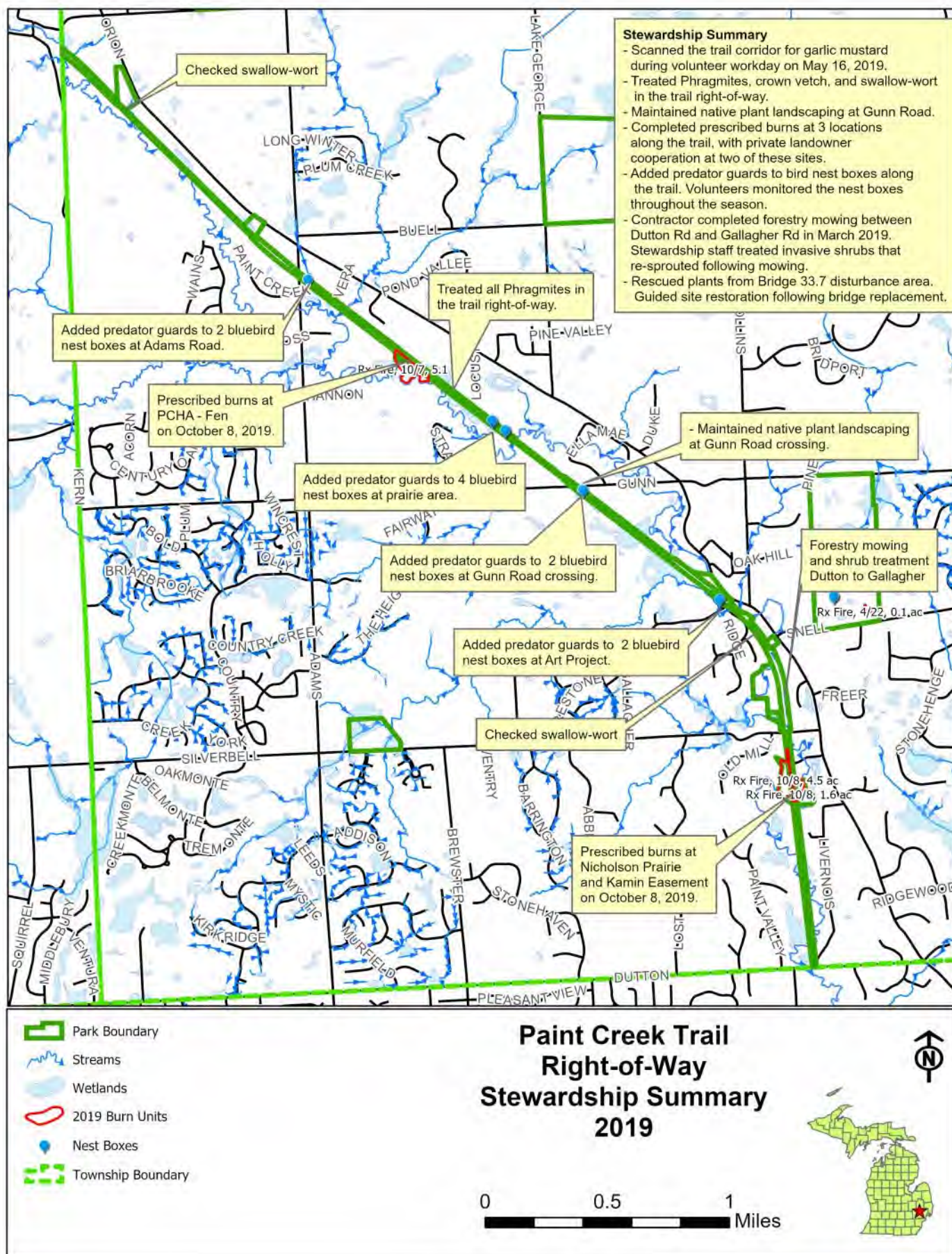
- Control Phragmites along the trail and work with adjacent landowners to control their patches.
- Continue annual mowing of trail shoulders during the dormant season to control woody vegetation.
- Control woody plants on bridge structures and high-quality habitat along the trail.
- Develop management plans for the natural areas along the trail, with botanical inventories of high quality habitat.
- Develop and install interpretive signage in high-quality habitat.



The newly complete replacement for Bridge 33.7 on September 3, 2019.



The Paint Creek Trail north of Dutton Road on May 28, 2019. Forestry mowing was completed in this area in mid-March.



STONY CREEK RAVINE NATURE PARK

2019

Stewardship Tasks Completed

1. Garlic Mustard: Mapped and pulled garlic mustard in the Stony Creek riparian corridor and in the northeast corner of the park, but not other areas of the park
2. Treated all known locations of swallow-wort and crown vetch.
3. Invasive Woody Plants
 - Spread native grass mix in the 9 acre forestry mowing area on the south boundary and began treating invasive shrubs that had re-sprouted after forestry mowing by Quality Tree Service in late 2019. We were not able to complete spot treatment of the entire area.
 - Contractor (Cardno) treated Oriental bittersweet across nearly 25 acres on the east side of the creek to the trail. Phases 4 and 5 of the treatment plan.
4. Completed a prescribed burn on 17 acres between the trail and Stony Creek on April 24, 2019. The burn was fairly complete in most areas except moist, shaded spots.
5. Removed several hunting blinds and lots of trash in expansion property in the fall.
6. Worked with maintenance to install boundary markers and park signs around the east expansion in June.

Quick Stats

- 60 acres acquired in 2008, 208 acres added in 2019.
- Protects the 0.5 miles of the west branch of Stony Creek, and dramatic glacial features.
- 36 acre Six Rivers Land Conservancy conservation easement protects the creek corridor.
- Wetland mitigation banks have restored wetlands in former farm fields in east expansion (protected by EGLE conservation easements).

Monitoring

- We added the 208 acres to the east of this park in late September 2019. We did not have time to treat Phragmites, but we documented locations. Continue to document priority invasive species in 2020.
- Photo monitoring in the 60 acre original park was completed in 2020. Establish new photo points for east expansion in 2020 and get baseline photos. Some photo points will need annual monitoring during active restoration phase.
- Floristic inventory for 60 acre parcel was completed in 2005, and inventory for east expansion in 2015. Survey likely habitat for rare plant species in 2020. Repeat survey of entire park in 2025.
- 72 bird species observed to date (+3 from 2018). Volunteers will survey birds in east expansion in 2020.
- Determine if other biological surveys are needed for herpetofauna, insects, etc.

Future Stewardship Tasks

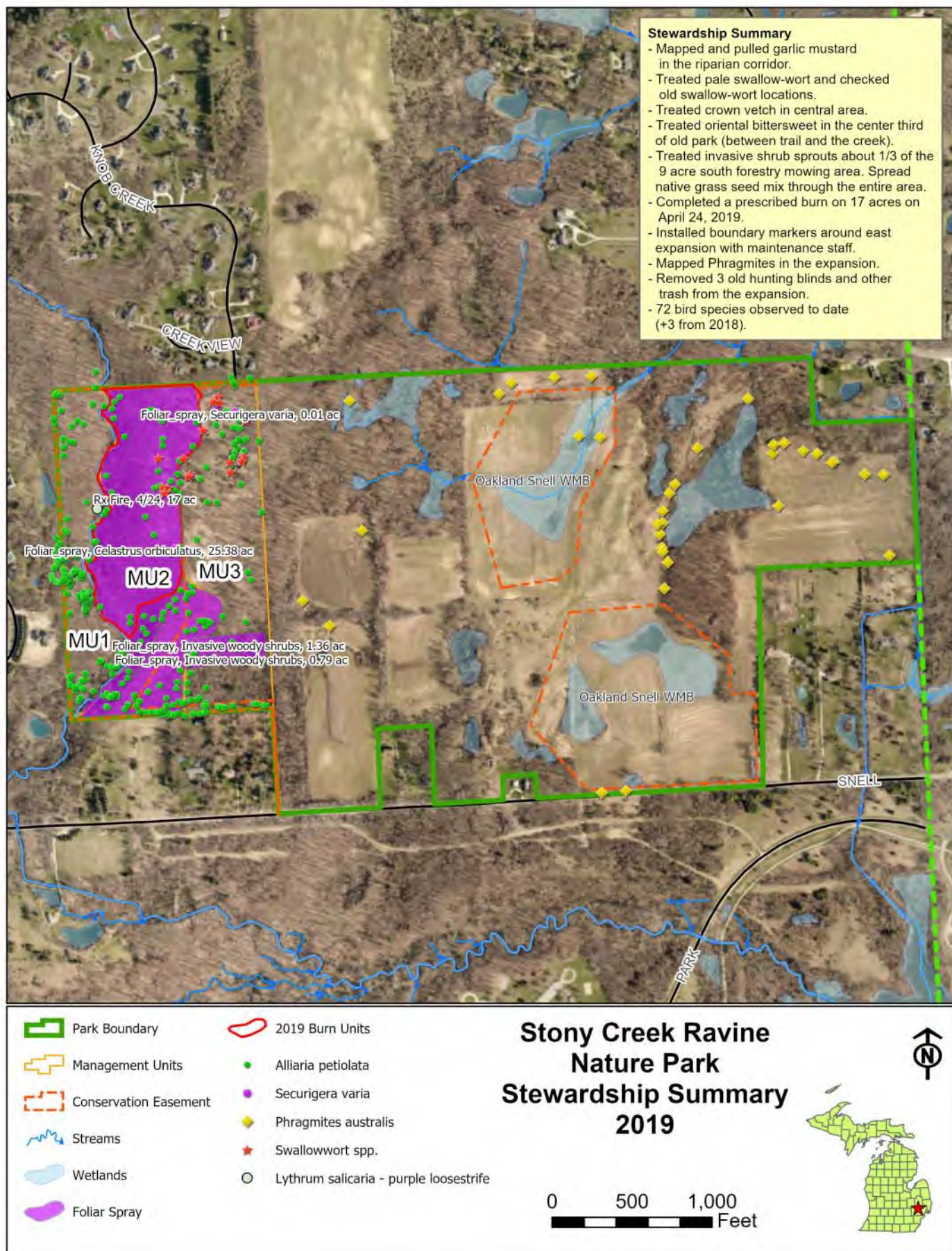
- Continue garlic mustard control in high quality habitats. Focus on the ravine and nice woodlands in east.
- Continue oriental bittersweet control in the stream corridor. Expand bittersweet control to high quality habitats on the east expansion.
- Treat Phragmites, coltsfoot (*Tusilago farfara*), and other high priority invasive plants in the east expansion.
- Implement habitat restoration plans in partnership with the US Fish and Wildlife Service. Farm fields until restoration plans are implemented to keep invasive plants under control and weed pressure low.
- Implement prescribed fire where appropriate to control invasive woody plants.
- High deer densities are degrading the forest. Encourage continuing controlled archery hunt.



The west branch of Stony Creek on May 29, 2019.



Documenting special features in the east expansion with volunteer Cam Mannino on November 10, 2019.



WATERSHED RIDGE PARK

2019

Stewardship Tasks Completed

1. Mapped and pulled garlic mustard throughout the park. Heavily infested areas along Buell Road were not treated.
2. Phragmites was monitored and treated throughout park.
3. Invasive Woody Plants: We treated invasive woody plants in some of the area cleared by Ruffed Grouse Society forestry mower in 2016. We also treated woody plants around the new parking lot.
4. Swallow-wort: Monitored new patch found in 2017 and treated any plants found.
5. Canopy thinning: We monitored success of the thinning treatments done in 2018.

Quick Stats

- 187 acres
- Acquired in 2008
- Watershed divide between Stony Creek and Paint Creek runs through the park.

Monitoring

- Photo monitoring was completed in 2019, and is planned for 2021.
- Floristic inventory for Watershed Ridge Park was completed in 2018. Repeat survey of entire park in 2029.
- 72 bird species have been observed in the park to date (+3 from 2018).

Future Stewardship Tasks

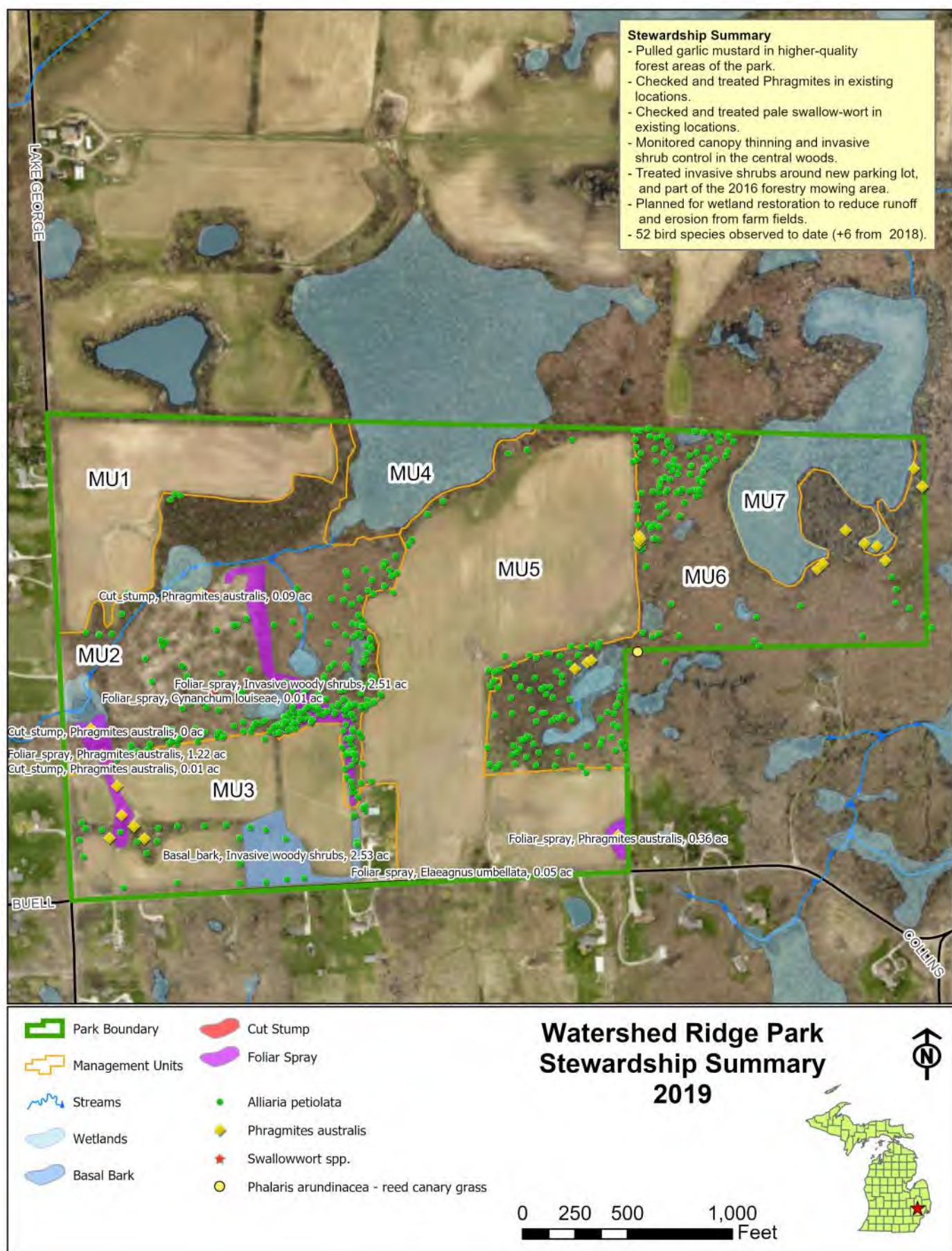
- Garlic mustard in heavily infested southern areas with few natives should be foliar sprayed in early spring. The remainder of the park should be hand-pulled.
- Continue to use forestry mower for initial clearing of invasive shrub thickets on west side of park. PRC staff would then handle follow-up and native plant seeding work. Tentatively schedule area between northwest field and stream for 2021.
- Sweep northeast forest for invasive woody plants bi-annually.
- Work with park development planning process to place facilities and developments in areas that will not affect sensitive habitat. Assess opportunities for restoring native plant communities as the area is developed.
- High deer densities are degrading the forest. Deer control is needed. Exclosures should be used to assess the impact of deer browse and preserve sensitive plant species.
- Continue prescribed burning, particularly in the western oak woodlands and fields.
- Implement wetland restoration in agricultural fields to address erosion and polluted runoff, in partnership with the US Fish and Wildlife Service. Include upland buffer areas. Use a phased approach to address most urgent areas first, and allow adjustment in the farming.



Vernal pool wetland in the central forest on July 13, 2019.



We removed the old Ford Mustang body from the edge of the west farm field. Photo of the loaded scrap trailer from December 5, 2019.



PART III: SUPPORTING DOCUMENTS

2019

Part III contains supporting documents:

- Photo Monitoring Schedule
- Floristic Inventory Summary and Schedule
- Paint Creek Junction Natural Features Summary
- 2019 Seed Collecting Summary
- Natural Areas Stewardship 2020 Field Work Plan

Park	No. Points	Target Frequency	2019	2020	2021	2022	2023	2024	2025
Bear Creek Nature Park	12	Biennially		Planned		Planned		Planned	
Blue Heron Environmental Area	9	Biennially	Yes		Planned		Planned		Planned
Charles Ilsley Park	10	Annually	Yes	Planned	Planned	Planned	Planned	Planned	Planned
Cranberry Lake Park	5	Biennially		Planned		Planned		Planned	
Draper Twin Lake Park	5	Annually	Yes	Planned	Planned	Planned	Planned	Planned	Planned
Gallagher Creek Park	6	Annually	Yes	Planned	Planned	Planned	Planned	Planned	Planned
Kamin Conservation Easement	4	Biennially		Planned		Planned		Planned	
Lost Lake Nature Park	15	Biennially	Yes		Planned		Planned		Planned
Paint Creek Junction	3	Triannually				Planned			Planned
Paint Creek Parcel	0	Every 5 years	Yes					Planned	
Marsh View Park	8	Biennially		Planned		Planned		Planned	
Mill Race Trail	3	Triannually			Planned			Planned	
Mill Creek Crossing	2	Triannually			Planned			Planned	
Nicholson Prairie	3	Biennially		Planned		Planned		Planned	
O'Connor Nature Park	4	Biennially		Planned		Planned		Planned	
Paint Creek Heritage Area - Fen	3	Biennially		Planned		Planned		Planned	
Paint Creek Heritage Area - Wet Prairie	5	Biennially	Yes		Planned		Planned		Planned
Paint Creek Junction	3	Biennially		Planned		Planned		Planned	
Paint Creek Trail - Art Project	3	Triannually			Planned			Planned	
Paint Creek Trail - Right-of-Way	10	Triannually			Planned			Planned	
Stony Creek Ravine Nature Park	6	Biennially	Yes		Planned		Planned		Planned
Watershed Ridge Park	10	Biennially	Yes		Planned		Planned		Planned

Floristic Inventory Schedule

Natural Areas Stewardship, Oakland Township Parks Recreation

Park	Acres	1st Survey Year	2020s Survey Year (Adjusted 10 yr interval)	2030s Survey Year (10 yr interval)
Charles Ilsley Park	120	2001	2020	2030
Draper Twin Lake Park	90	2020	2020	2030
Cranberry Lake Park	213	2001	2021	2031
Lost Lake Nature Park	58	2001	2021	2031
Bear Creek Nature Park	107	2001	2022	2032
Marsh View Park	96	2001	2022	2032
Blue Heron Environmental Area	139	2001	2023	2033
PCHA - Fen	0.5	2014	2023	2033
Gallagher Creek Park	15	2014	2024	2034
O'Connor Nature Park	10	2014	2024	2034
Stony Creek Ravine (208 ac Expansion)	208	2015	2025	2035
Stony Creek Ravine Nature Park (original)	60	2005	2025	2035
Kamin Easement	5	2018	2026	2036
Nicholson Prairie	5	2018	2026	2036
PCHA - Wet Prairie	10	2006	2026	2036
Other Paint Creek Trail ROW habitats	5	2027	2027	2037
Paint Creek Trail - Art Project	0.5	2018	2028	2038
Watershed Ridge Park	170	2018	2028	2038
Mill Creek Crossing	1	2018	2029	2039
Mill Race Trail	2.5	2019	2029	2039
Paint Creek Junction	5.5	2019	2029	2039
Paint Creek Trail Parcel	2.5	2017	2029	2039

Year	No. Parks	Acres
2020	2	210
2021	2	271
2022	2	203
2023	2	139.5
2024	2	25
2025	2	268
2026	3	20
2027	1	5
2028	2	170.5
2029	4	11.5

Paint Creek Junction Natural Communities Summary

September 2019
Ben VanderWeide

Overview

Paint Creek Junction is a 5.69 acre park that lies between Orion Road and the Paint Creek Trail in the northwest corner of the township. The park is composed of two parcels, 10-18-177-007 in the south and 10-18-177-006 in the north.

Natural Communities Overview and Management Recommendations

An old hedgerow runs down the west side of the parcel. Several large oak trees grow in this hedgerow, including red oak, black oak and white oak. The hedgerow is likely a degraded remnant of dry-mesic southern forest. The understory vegetation is mostly native, but with little diversity. This area should be protected to ensure the long-term survival of the large oak trees. Invasive species should be controlled when development or other activity occurs on this parcel, and native species typical of dry-mesic forest added at that time.

On the very north end of the hedgerow the ground slopes down to a vernal pool. The wet-mesic forest around the vernal pool contains bur oak, swamp white oak, and American hazelnut, but is otherwise degraded by invasive shrubs. The vernal pool itself appears to be fairly healthy and contains an interesting sedge that is typically only found in intact wetlands, *Carex tuckermanii*. This is only the second location that this sedge has been documented in our township parks. Any development on this parcel should not impact the watershed of the vernal pool to prevent degradation by sedimentation of sensitive areas for amphibian reproduction. Invasive shrubs should also be removed to improve amphibian reproductive success.

The southern part of the park contains an ephemeral stream that drains from the road right-of-way and a wetland to the northeast of Orion Road. The gravel and cutting in the stream channel indicate that this stream has large flashy flows during the spring and after large rain events. The area surrounding the stream channel is degraded by invasive shrubs, including common buckthorn, glossy buckthorn, privet, multiflora rose, and autumn olive. The groundlayer vegetation is also degraded, with dame's rocket, garlic mustard, and disturbance adapted native species like *Geum canadense*. A few scattered individuals of great blue lobelia (*Lobelia siphilitica*) grow along the stream. Despite being degraded, this wetland with perennial cover helps filter and infiltrate stormwater. Future restoration efforts should reduce invasive shrub abundance and increase native plant cover. The water coming out of the culvert at Orion Road should be slowed down and spread out to prevent cutting and erosion.

Most of the park is shrubby old field. Rough-leaf dogwood is abundant in the more open areas, and is being replaced by glossy buckthorn in more shaded spots. Scattered trees occur throughout the old field, including red maple, bur oak, elms, ash, and cottonwood. Common forbs include Canada goldenrod and calico aster. A few areas in the old field contain interesting wetland vegetation, indicating some groundwater influence. In particular the southwest corner of the park contains an area near the hedgerow with mountain mint, pendulous bulrush, tall meadow rue, fringed loosestrife, and Riddell's goldenrod (*Solidago riddellii*). This area should be protected during development activities if at all possible. In the old field area invasive species should be managed and native plant diversity improved in conjunction with development work.



Figure 1: Large oak trees line the old hedgerow along the western boundary of the park



Figure 2: Vernal pool in the north corner of the parcel that contains *Carex tuckermanii*



Figure 3: *Carex tuckermanii* in the vernal pool in the north corner of the parcel



Figure 4: Rough-leaf dogwood and glossy buckthorn are abundant in the more shrubby areas of the old fields. Canada goldenrod and other typical old field species occupy the open areas.







Figure 7: Culvert at Orion Road that feeds the ephemeral stream



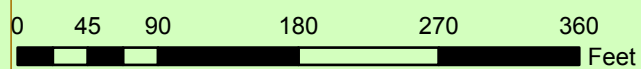
Figure 8: Great blue lobelia, *Lobelia siphilitica*, along the stream channel



Key to Features

-  Park Boundary
-  Trails
-  Wetlands, Ponds, Lakes
-  Streams and Rivers

Oakland Township Parks and Recreation Paint Creek Junction Natural Communities



2017 Aerial Photo

Last Update: 4/4/2019

Paint Creek Junction - old field
9/3/2019

Paint Creek Junction

Oakland Township, Oakland County, Michigan

FQA DB Region: Michigan

FQA DB Publication Year: 2014

FQA DB Description: Reznicek, A.A., M.R. Penskar, B.S. Walters, and B.S. Slaughter. 2014. Michigan Floristic Quality Assessment Database. Herbarium, University of Michigan, Ann Arbor, MI and Michigan Natural Features Inventory, Michigan State University, Lansing, MI. <http://michiganflora.net>

Practitioner: Benjamin VanderWeide

Latitude: 42.763434

Longitude: -83.211162

Weather Notes: Partly cloudy, 80 F

Duration Notes: Visited site 1.5 hours on 16 Aug 2019 and 1 hour on 3 Sept 2019

Community Type Notes: Central area of parcel is shrubby old field - mesic

Other Notes:

Conservatism-Based Metrics:

Total Mean C:	2.4
Native Mean C:	3
Total FQI:	23
Native FQI:	25.6
Adjusted FQI:	26.7
% C value 0:	25
% C value 1-3:	45.7
% C value 4-6:	26.1
% C value 7-10:	3.3
Native Tree Mean C:	3.5
Native Shrub Mean C:	2.5
Native Herbaceous Mean C:	2.9

Species Richness:

Total Species:	92	
Native Species:	73	79.30%
Non-native Species:	19	20.70%

Species Wetness:

Mean Wetness:	1.1
Native Mean Wetness:	0.8

Physiognomy Metrics:

Tree:	21	22.80%
Shrub:	18	19.60%
Vine:	6	6.50%
Forb:	38	41.30%
Grass:	2	2.20%
Sedge:	4	4.30%
Rush:	1	1.10%
Fern:	2	2.20%
Bryophyte:	0	0%

Duration Metrics:

Annual:	2	2.20%
Perennial:	83	90.20%
Biennial:	7	7.60%
Native Annual:	2	2.20%
Native Perennial:	67	72.80%
Native Biennial:	4	4.30%

Species:

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Acer negundo	Sapindaceae	ACENEG	native	0	0	tree	perennial	box-elder
Acer rubrum	Sapindaceae	ACERUB	native	1	0	tree	perennial	red maple
Acer saccharinum	Sapindaceae	ACESAI	native	2	-3	tree	perennial	silver maple
Achillea millefolium	Asteraceae	ACHMIL	native	1	3	forb	perennial	yarrow
Agrimonia gryposepala	Rosaceae	AGRGRY	native	2	3	forb	perennial	tall agrimony

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Agrimonia parviflora	Rosaceae	AGRPAR	native	4	0	forb	perennial	swamp agrimony
Alliaria petiolata	Brassicaceae	ALLPET	non-native	0	3	forb	biennial	garlic mustard
Asclepias syriaca	Apocynaceae	ASCSYR	native	1	5	forb	perennial	common milkweed
Berberis thunbergii	Berberidaceae	BERTHU	non-native	0	3	shrub	perennial	japanese barberry
Carex blanda	Cyperaceae	CXBLAN	native	1	0	sedge	perennial	sedge
Carex pensylvanica	Cyperaceae	CXPENS	native	4	5	sedge	perennial	sedge
Carex rosea; c. convoluta	Cyperaceae	CXROSE	native	2	5	sedge	perennial	curly-styled wood sedge
Carya ovata	Juglandaceae	CAROVA	native	5	3	tree	perennial	shagbark hickory
Catalpa speciosa	Bignoniaceae	CATSPE	non-native	0	3	tree	perennial	northern catalpa
Celastrus orbiculatus	Celastraceae	CELOB	non-native	0	5	vine	perennial	oriental bittersweet
Circaea canadensis; c. lutetian	Onagraceae	CIRCAN	native	2	3	forb	perennial	enchanters-nightshade
Cirsium vulgare	Asteraceae	CIRVUL	non-native	0	3	forb	biennial	bull thistle
Clematis virginiana	Ranunculaceae	CLEVIR	native	4	0	vine	perennial	virgins bower
Cornus foemina	Cornaceae	CORFOE	native	1	0	shrub	perennial	gray dogwood
Cornus sericea; c. stolonifera	Cornaceae	CORSER	native	2	-3	shrub	perennial	red-osier
Daucus carota	Apiaceae	DAUCAR	non-native	0	5	forb	biennial	queen-annes-lace
Elaeagnus umbellata	Elaeagnaceae	ELAUMB	non-native	0	3	shrub	perennial	autumn-olive
Erigeron annuus	Asteraceae	ERIANN	native	0	3	forb	biennial	daisy fleabane
Euthamia graminifolia	Asteraceae	EUTGRA	native	3	0	forb	perennial	grass-leaved goldenrod
Fragaria virginiana	Rosaceae	FRAVIR	native	2	3	forb	perennial	wild strawberry
Frangula alnus; rhamnus frang	Rhamnaceae	FRAALN	non-native	0	0	shrub	perennial	glossy buckthorn
Fraxinus americana	Oleaceae	FRAAME	native	5	3	tree	perennial	white ash
Fraxinus pennsylvanica	Oleaceae	FRAPEN	native	2	-3	tree	perennial	red ash
Geum canadense	Rosaceae	GEUCAN	native	1	0	forb	perennial	white avens
Hackelia virginiana	Boraginaceae	HACVIR	native	1	3	forb	biennial	beggars lice
Hesperis matronalis	Brassicaceae	HESMAT	non-native	0	3	forb	perennial	dames rocket
Impatiens capensis	Balsaminaceae	IMPCAP	native	2	-3	forb	annual	spotted touch-me-not
Juncus canadensis	Juncaceae	JUNCAN	native	6	-5	rush	perennial	canadian rush
Juniperus virginiana	Cupressaceae	JUNVIR	native	3	3	tree	perennial	red-cedar
Lactuca biennis	Asteraceae	LACBIE	native	2	0	forb	biennial	tall blue lettuce
Ligustrum vulgare	Oleaceae	LIGVUL	non-native	0	3	shrub	perennial	common privet
Lonicera tatarica	Caprifoliaceae	LONTAT	non-native	0	3	shrub	perennial	tartarian honeysuckle
Lonicera Å—bella	Caprifoliaceae	LONBEL	non-native	0	3	shrub	perennial	hybrid honeysuckle

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
<i>Lysimachia ciliata</i>	Myrsinaceae	LYSCIL	native	4	-3	forb	perennial	fringed loosestrife
<i>Lythrum salicaria</i>	Lythraceae	LYTSAL	non-native	0	-5	forb	perennial	purple loosestrife
<i>Oenothera biennis</i>	Onagraceae	OENBIE	native	2	3	forb	biennial	common evening-primrose
<i>Onoclea sensibilis</i>	Onocleaceae	ONosen	native	2	-3	fern	perennial	sensitive fern
<i>Ostrya virginiana</i>	Betulaceae	OSTVIR	native	5	3	tree	perennial	ironwood; hop-hornbeam
<i>Parthenocissus quinquefolia</i>	Vitaceae	PARQUI	native	5	3	vine	perennial	virginia creeper
<i>Phalaris arundinacea</i>	Poaceae	PHAARU	native	0	-3	grass	perennial	reed canary grass
<i>Physocarpus opulifolius</i>	Rosaceae	PHYOPU	native	4	-3	shrub	perennial	ninebark
<i>Phytolacca americana</i>	Phytolaccaceae	PHYAME	native	2	3	forb	perennial	pokeweed
<i>Poa pratensis</i>	Poaceae	POAPRA	non-native	0	3	grass	perennial	kentucky bluegrass
<i>Polypodium virginianum</i>	Polypodiaceae	POLVIR	native	8	5	fern	perennial	common polypody
<i>Populus deltoides</i>	Salicaceae	POPDEL	native	1	0	tree	perennial	cottonwood
<i>Potentilla simplex</i>	Rosaceae	POTSIM	native	2	3	forb	perennial	old-field cinquefoil
<i>Prenanthes alba</i>	Asteraceae	PREALB	native	5	3	forb	perennial	white lettuce
<i>Prunella vulgaris</i>	Lamiaceae	PRUVUL	native	0	0	forb	perennial	self-heal
<i>Prunus serotina</i>	Rosaceae	PRUSER	native	2	3	tree	perennial	wild black cherry
<i>Prunus virginiana</i>	Rosaceae	PRUVIR	native	2	3	shrub	perennial	choke cherry
<i>Pycnanthemum virginianum</i>	Lamiaceae	PYCVIR	native	5	-3	forb	perennial	common mountain mint
<i>Pyrus calleryana</i>	Rosaceae	PYRCAL	non-native	0	5	tree	perennial	callery pear
<i>Quercus alba</i>	Fagaceae	QUEALB	native	5	3	tree	perennial	white oak
<i>Quercus bicolor</i>	Fagaceae	QUEBIC	native	8	-3	tree	perennial	swamp white oak
<i>Quercus macrocarpa</i>	Fagaceae	QUEMAC	native	5	3	tree	perennial	bur oak
<i>Quercus rubra</i>	Fagaceae	QUERUB	native	5	3	tree	perennial	red oak
<i>Quercus velutina</i>	Fagaceae	QUEVEL	native	6	5	tree	perennial	black oak
<i>Rhamnus cathartica</i>	Rhamnaceae	RHACAT	non-native	0	0	tree	perennial	common buckthorn
<i>Rhus typhina</i>	Anacardiaceae	RHUTYP	native	2	3	shrub	perennial	staghorn sumac
<i>Rosa carolina</i>	Rosaceae	ROSCAR	native	4	3	shrub	perennial	pasture rose
<i>Rosa multiflora</i>	Rosaceae	ROSMUL	non-native	0	3	shrub	perennial	multiflora rose
<i>Rubus allegheniensis</i>	Rosaceae	RUBALL	native	1	3	shrub	perennial	common blackberry
<i>Rubus occidentalis</i>	Rosaceae	RUBOCC	native	1	5	shrub	perennial	black raspberry
<i>Rubus strigosus</i>	Rosaceae	RUBSTR	native	2	0	shrub	perennial	wild red raspberry
<i>Rudbeckia fulgida</i>	Asteraceae	RUDFUL	native	9	-5	forb	perennial	black-eyed susan
<i>Saponaria officinalis</i>	Caryophyllaceae	SAPOFF	non-native	0	3	forb	perennial	bouncing bet

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Scirpus pendulus	Cyperaceae	SCIPEN	native	3	-5	sedge	perennial	bulrush
Sicyos angulatus	Cucurbitaceae	SICANG	native	2	-3	vine	annual	bur-cucumber
Solidago altissima	Asteraceae	SOLALT	native	1	3	forb	perennial	tall goldenrod
Solidago canadensis	Asteraceae	SOLCAN	native	1	3	forb	perennial	canada goldenrod
Solidago riddellii	Asteraceae	SOLRID	native	6	-5	forb	perennial	riddells goldenrod
Solidago rigida	Asteraceae	SOLRIG	native	5	3	forb	perennial	stiff goldenrod
Solidago speciosa	Asteraceae	SOLSPE	native	5	5	forb	perennial	showy goldenrod
Symphotrichum ericoides; as	Asteraceae	SYMERI	native	3	3	forb	perennial	heath aster
Symphotrichum laeve; aster l	Asteraceae	SYMLAE	native	5	3	forb	perennial	smooth aster
Symphotrichum lateriflorum;	Asteraceae	SYMLAT	native	2	0	forb	perennial	calico aster
Symphotrichum novae-anglia	Asteraceae	SYMNOV	native	3	-3	forb	perennial	new england aster
Thalictrum dasycarpum	Ranunculaceae	THADAS	native	3	-3	forb	perennial	purple meadow-rue
Tilia americana	Malvaceae	TILAME	native	5	3	tree	perennial	basswood
Toxicodendron radicans	Anacardiaceae	TOXRAD	native	2	0	vine	perennial	poison-ivy
Ulmus americana	Ulmaceae	ULMAME	native	1	-3	tree	perennial	american elm
Ulmus rubra	Ulmaceae	ULMRUB	native	2	0	tree	perennial	slippery elm
Urtica dioica	Urticaceae	URTDIO	native	1	0	forb	perennial	stinging nettle
Verbena urticifolia	Verbenaceae	VERURT	native	4	0	forb	perennial	white vervain
Viburnum dentatum	Adoxaceae	VIBDEN	native	6	0	shrub	perennial	arrow-wood
Viburnum opulus	Adoxaceae	VIBOPU	non-native	0	-3	shrub	perennial	european highbush-cranberry
Vitis riparia	Vitaceae	VITRIP	native	3	0	vine	perennial	river-bank grape

Paint Creek Junction - wetlands
9/3/2019

Paint Creek Junction

Oakland Township, Oakland County, Michigan

FQA DB Region: Michigan

FQA DB Publication Year: 2014

FQA DB Description: Reznicek, A.A., M.R. Penskar, B.S. Walters, and B.S. Slaughter. 2014. Michigan Floristic Quality Assessment Database. Herbarium, University of Michigan, Ann Arbor, MI and Michigan Natural Features Inventory, Michigan State University, Lansing, MI. <http://michiganflora.net>

Practitioner: Benjamin VanderWeide

Latitude: 42.763434

Longitude: -83.211162

Weather Notes: partly sunny, 80 F

Duration Notes: 1 hour on 3 Sept 2019

Community Type Notes: Shrubby wetland with ephemeral stream and vernal pool

Other Notes:

Conservatism-Based Metrics:	
Total Mean C:	2
Native Mean C:	2.7
Total FQI:	16.4
Native FQI:	18.7
Adjusted FQI:	22.9
% C value 0:	34.3
% C value 1-3:	40.3
% C value 4-6:	23.9
% C value 7-10:	1.5
Native Tree Mean C:	2.9
Native Shrub Mean C:	2.8
Native Herbaceous Mean C:	2.7

Species Richness:

Total Species:	67	
----------------	----	--

Native Species:	48	71.60%
Non-native Species:	19	28.40%

Species Wetness:

Mean Wetness:	-0.2
Native Mean Wetness:	-1

Physiognomy Metrics:

Tree:	12	17.90%
Shrub:	13	19.40%
Vine:	7	10.40%
Forb:	28	41.80%
Grass:	3	4.50%
Sedge:	3	4.50%
Rush:	0	0%
Fern:	1	1.50%
Bryophyte:	0	0%

Duration Metrics:

Annual:	6	9%
Perennial:	56	83.60%
Biennial:	5	7.50%
Native Annual:	6	9%
Native Perennial:	40	59.70%
Native Biennial:	2	3%

Species:

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Acer negundo	Sapindaceae	ACENEG	native	0	0	tree	perennial	box-elder
Acer platanoides	Sapindaceae	ACEPLA	non-native	0	5	tree	perennial	norway maple
Acer saccharinum	Sapindaceae	ACESAI	native	2	-3	tree	perennial	silver maple
Agrimonia gryposepala	Rosaceae	AGRGRY	native	2	3	forb	perennial	tall agrimony
Agrostis stolonifera	Poaceae	AGRSTO	non-native	0	-3	grass	perennial	creeping bent
Alisma subcordatum; a. plantago-	Alismataceae	ALISUB	native	1	-5	forb	perennial	southern water-plantain

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Alliaria petiolata	Brassicaceae	ALLPET	non-native	0	3	forb	biennial	garlic mustard
Barbarea vulgaris	Brassicaceae	BARVUL	non-native	0	0	forb	biennial	yellow rocket
Bidens comosa	Asteraceae	BIDCOM	native	5	-3	forb	annual	swamp tickseed
Bidens frondosa	Asteraceae	BIDFRO	native	1	-3	forb	annual	common beggar-ticks
Carex lupulina	Cyperaceae	CXLUPA	native	4	-5	sedge	perennial	sedge
Carex retrorsa	Cyperaceae	CXRETS	native	3	-5	sedge	perennial	sedge
Carex tuckermanii	Cyperaceae	CXTUCK	native	8	-5	sedge	perennial	sedge
Celastrus orbiculatus	Celastraceae	CELORB	non-native	0	5	vine	perennial	oriental bittersweet
Circaea canadensis; c. lutetiana	Onagraceae	CIRCAN	native	2	3	forb	perennial	enchanters-nightshade
Clematis virginiana	Ranunculaceae	CLEVIR	native	4	0	vine	perennial	virgins bower
Cornus alternifolia	Cornaceae	CORALT	native	5	3	tree	perennial	alternate-leaved dogwood
Cornus amomum	Cornaceae	CORAMO	native	2	-3	shrub	perennial	silky dogwood
Cornus foemina	Cornaceae	CORFOE	native	1	0	shrub	perennial	gray dogwood
Corylus americana	Betulaceae	CORAMA	native	5	3	shrub	perennial	hazelnut
Daucus carota	Apiaceae	DAUCAR	non-native	0	5	forb	biennial	queen-annes-lace
Elaeagnus umbellata	Elaeagnaceae	ELAUMB	non-native	0	3	shrub	perennial	autumn-olive
Epilobium ciliatum	Onagraceae	EPICIL	native	3	-3	forb	perennial	willow-herb
Epilobium hirsutum	Onagraceae	EPIHIR	non-native	0	-3	forb	perennial	great hairy willow-herb
Frangula alnus; rhamnus frangula	Rhamnaceae	FRAALN	non-native	0	0	shrub	perennial	glossy buckthorn
Fraxinus americana	Oleaceae	FRAAME	native	5	3	tree	perennial	white ash
Geum canadense	Rosaceae	GEUCAN	native	1	0	forb	perennial	white avens
Glyceria striata	Poaceae	GLYSTR	native	4	-5	grass	perennial	fowl manna grass
Hackelia virginiana	Boraginaceae	HACVIR	native	1	3	forb	biennial	beggars lice
Hesperis matronalis	Brassicaceae	HESMAT	non-native	0	3	forb	perennial	dames rocket
Impatiens capensis	Balsaminaceae	IMPCAP	native	2	-3	forb	annual	spotted touch-me-not
Lactuca biennis	Asteraceae	LACBIE	native	2	0	forb	biennial	tall blue lettuce
Ligustrum vulgare	Oleaceae	LIGVUL	non-native	0	3	shrub	perennial	common privet
Lobelia siphilitica	Campanulaceae	LOBSIP	native	4	-3	forb	perennial	great blue lobelia
Lonicera morrowii	Caprifoliaceae	LONMOR	non-native	0	3	shrub	perennial	morrow honeysuckle
Lonicera tatarica	Caprifoliaceae	LONTAT	non-native	0	3	shrub	perennial	tartarian honeysuckle
Lysimachia ciliata	Myrsinaceae	LYSCIL	native	4	-3	forb	perennial	fringed loosestrife
Malus prunifolia	Rosaceae	MALPRU	non-native	0	5	tree	perennial	crabapple
Onoclea sensibilis	Onocleaceae	ONOSEN	native	2	-3	fern	perennial	sensitive fern

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Oxalis stricta; o. fontana	Oxalidaceae	OXASTR	native	0	3	forb	perennial	yellow wood-sorrel
Parthenocissus quinquefolia	Vitaceae	PARQUI	native	5	3	vine	perennial	virginia creeper
Persicaria virginiana; polygonum	Polygonaceae	PERVIR	native	4	0	forb	perennial	jumpseed
Phalaris arundinacea	Poaceae	PHAARU	native	0	-3	grass	perennial	reed canary grass
Pilea pumila	Urticaceae	PILPUM	native	5	-3	forb	annual	clearweed
Populus deltoides	Salicaceae	POPDEL	native	1	0	tree	perennial	cottonwood
Prunella vulgaris	Lamiaceae	PRUVUL	native	0	0	forb	perennial	self-heal
Prunus serotina	Rosaceae	PRUSER	native	2	3	tree	perennial	wild black cherry
Quercus rubra	Fagaceae	QUERUB	native	5	3	tree	perennial	red oak
Ranunculus sceleratus	Ranunculaceae	RANSCE	native	1	-5	forb	annual	cursed crowfoot
Rhamnus cathartica	Rhamnaceae	RHACAT	non-native	0	0	tree	perennial	common buckthorn
Ribes americanum	Grossulariaceae	RIBAME	native	6	-3	shrub	perennial	wild black currant
Rosa multiflora	Rosaceae	ROSMUL	non-native	0	3	shrub	perennial	multiflora rose
Rubus allegheniensis	Rosaceae	RUBALL	native	1	3	shrub	perennial	common blackberry
Rubus strigosus	Rosaceae	RUBSTR	native	2	0	shrub	perennial	wild red raspberry
Salix nigra	Salicaceae	SALNIG	native	5	-5	tree	perennial	black willow
Saponaria officinalis	Caryophyllaceae	SAPOFF	non-native	0	3	forb	perennial	bouncing bet
Sicyos angulatus	Cucurbitaceae	SICANG	native	2	-3	vine	annual	bur-cucumber
Solanum dulcamara	Solanaceae	SOLDUL	non-native	0	0	vine	perennial	bittersweet nightshade
Solidago canadensis	Asteraceae	SOLCAN	native	1	3	forb	perennial	canada goldenrod
Symphyotrichum lateriflorum; ast	Asteraceae	SYMLAT	native	2	0	forb	perennial	calico aster
Symphyotrichum novae-angliae; a	Asteraceae	SYMNOV	native	3	-3	forb	perennial	new england aster
Thalictrum dasycarpum	Ranunculaceae	THADAS	native	3	-3	forb	perennial	purple meadow-rue
Toxicodendron radicans	Anacardiaceae	TOXRAD	native	2	0	vine	perennial	poison-ivy
Ulmus americana	Ulmaceae	ULMAME	native	1	-3	tree	perennial	american elm
Verbena urticifolia	Verbenaceae	VERURT	native	4	0	forb	perennial	white vervain
Viburnum opulus	Adoxaceae	VIBOPU	non-native	0	-3	shrub	perennial	european highbush-cranberry
Vitis riparia	Vitaceae	VITRIP	native	3	0	vine	perennial	river-bank grape

Seed Collecting 2019

Scientific Name	Common Name	Collection Date	Collector	Grams
<i>Achillea millefolium</i>	Yarrow	10/17/2019	OT Stewardship	156
<i>Agastache nepetoides</i>	Yellow giant hyssop	10/24/2019	OT Stewardship	136
<i>Ageratina altissima</i>	White snakeroot	10/25/2019	BV, GV	16
<i>Alisma plantago-aquatica</i>	Common water-plantain	10/24/2019	OT Stewardship	173
<i>Allium cernuum</i>	Nodding wild onion	10/25/2019	OT Stewardship	45
<i>Asclepias incarnata</i>	Swamp milkweed	10/25/2019	OT Stewardship	9
<i>Asclepias syriaca</i>	Common milkweed	10/25/2019	OT Stewardship	13
<i>Asclepias tuberosa</i>	Butterfly milkweed	10/30/2019	OT Stewardship/Dawn	105
<i>Aureolaria flava</i>	Yellow False Foxglove	10/24/2019	OT Stewardship	68
<i>Bidens cernua</i>	Nodding beggarticks	10/24/2019	OT Stewardship	186
<i>Cirsium discolor</i>	Pasture thistle	10/25/2019	OT Stewardship	58
<i>Coreopsis tripteris</i>	Tall coreopsis	10/25/2019	OT Stewardship	41
<i>Mimulus ringens</i>	Monkey-flower	10/24/2019	OT Stewardship	337
<i>Doellingeria umbellata</i>	Parasol whitetop	10/17/2019	OT Stewardship	777
<i>Elymus canadensis</i>	Canada wildrye	10/17/2019	OT Stewardship	1310
<i>Elymus hystrix</i>	Bottlebrush grass	10/30/2019	OT Stewardship	85
<i>Elymus virginicus</i>	Virginia wildrye	10/17/2019	OT Stewardship	81
<i>Eutrochium maculatum</i>	Joe-pye weed	10/25/2019	OT Stewardship	49
<i>Heliopsis helianthoides</i>	False sunflower	10/24/2019	OT Stewardship	37

Scientific Name	Common Name	Collection Date	Collector	Grams
<i>Heracleum maximum</i>	Cow parsnip	10/24/2019	OT Stewardship	94
<i>Hibiscus moscheutos</i>	Swamp mallow	10/25/2019	OT Stewardship	5
<i>Monarda fistulosa</i>	Bee balm	10/12/2019	OT Stewardship	606
<i>Oenothera biennis</i>	Evening primrose	10/24/2019	OT Stewardship	127
<i>Oligoneuron rigidum</i>	Stiff Goldenrod	10/24/19, 10/17/19	OT Stewardship	114
<i>Pedicularis lanceolata</i>	Swamp betony	10/24/2019	OT Stewardship	25
<i>Penstemon digitalis</i>	Foxglove beardtongue	10/24/2019	OT Stewardship	757
<i>Penthorum sedoides</i>	Ditch stone crop	10/24/2019	OT Stewardship	1099
<i>Pycnanthemum virginianum</i>	Mountain mint	10/25/2019	OT Stewardship	28
<i>Ratibida pinnata</i>	Yellow coneflower	10/17/2019	OT Stewardship	1029
<i>Rudbeckia fulgida</i>	Black-eyed susan	11/10/2019	OT Stewardship	14
<i>Rudbeckia hirta</i>	Black-eyed susan	10/24/2019	OT Stewardship	847
<i>Silphium terebinthinaceum</i>	Prairie dock	10/25/2019	OT Stewardship	21
<i>Solidago riddellii</i>	Riddell's Goldenrod	11/10/19, 10/25/19	OT Stewardship	600
<i>Solidago rigida</i>	Siff-leaved goldenrod	10/24/2019	OT Stewardship	361
<i>Sorghastrum nutans</i>	Indiangrass	10/17/2019	OT Stewardship	879
<i>Verbena hastata</i>	Blue vervain	10/25/2019	OT Stewardship	32
<i>Veronicastrum virginicum</i>	Culver's root	10/18/2019	BV	35

2020 Field Work Plan

Natural Areas Stewardship Oakland Township Parks & Recreation



January and February

1. Canopy thinning
 - a. Paint Creek Heritage Area – Wet Prairie: Remove whole trees, girdle, or drill-and-fill all trees within the core prairie area. Girdle or drill-and-fill fire-sensitive trees like red maple, elm, cottonwood, and big-tooth aspen on the berm around the prairie.
 - b. Lost Lake Nature Park: In the core oak woodland on the hill, girdle or drill-and-fill fire sensitive trees that are greater than 50 feet from any trails. Remove whole trees if working near trails so that we don't leave standing dead hazard trees.
 2. Prepare for prescribed burns
 - a. Flag perimeters of all contractor burn units.
 - b. Charles Ilsley Park – mow breaks around prairie burn units in the northeast corner.
 - c. Draper Twin Lake park – mow breaks around the 20 acre prairie in the northeast corner.
 - d. Watershed Ridge Park – cut brush that has grown in the burn break in the northeast corner where the stream runs out of the large marsh.
 3. Mowing and Brush Hogging
 - a. Brush hog forestry mowing area at Bear Creek Nature Park, Draper Twin Lake Park, Charles Ilsley Park, and Stony Creek Ravine Nature Park to prepare for spot treatment of invasive shrubs in the summer.
 - b. Mow the center and west prairie plantings at Charles Ilsley Park.
 - c. Mow Phragmites in Stony Creek Ravine expansion to prepare for fall treatment.
 - d. Manage contractors completing forestry mowing in parks (Marsh View Park overlook, Draper Twin Lake Park, Bear Creek Nature Park, Mill Race Trail) and along the Paint Creek Trail from Gallagher Road to Orion Township.
 4. Invasive Shrub Control
 - a. Complete basal bark treatment of shrub sprouts at Paint Creek Heritage Area – Wet Prairie
 - b. Cut stump treatment of callery pear at Bear Creek Nature Park if forestry mowing is not completed
 5. Spread seed in forestry mowing areas after work is completed, and in other restoration areas depending on seed available.
-

March and April

1. Prescribed burns
 - a. Implement prescribed burns with the volunteer crew at Draper Twin Lake Park, Bear Creek Nature Park, Paint Creek Trail – Art Project, Gunn Road crossing bridle trail.

- b. Implement prescribed burns with contractor at Charles Ilsley Park, Watershed Ridge Park, Lost Lake Nature Park, Paint Creek Heritage Area – Wet Prairie, and units along the Paint Creek Trail.
 - c. Spread seed in burn units after burns are complete.
 - 2. Garlic mustard
 - a. Foliar spray garlic mustard in low-quality areas with broadleaf herbicide before native species emerge.
 - b. Begin hand pulling garlic mustard when plants are starting to bolt and easy to see. Scan all parks except Draper Twin Lake Park, Marsh View Park, Mill Creek Crossing, Paint Creek Junction, Paint Creek Trail Parcel, and low-quality areas of Stony Creek Ravine Nature Park.
 - c. Pick up trash in conjunction with garlic mustard scan
 - 3. Vernal pool monitoring – complete first visit in early April.
 - 4. Finish brush hogging and mowing that were not completed in the winter.
 - 5. Native plant landscaping
 - a. Clean up native plant beds in late April after days are getting consistently warmer (allow native bees to emerge).
 - b. Order plants needed to supplement at BCNP, MVP, GCP.
-

May

- 1. Garlic mustard
 - a. Continue hand pulling garlic mustard when plants are starting to bolt and easy to see. Scan all parks except Draper Twin Lake Park, Marsh View Park, Mill Creek Crossing, Paint Creek Junction, Paint Creek Trail Parcel, and low-quality areas of Stony Creek Ravine Nature Park.
 - b. Volunteer workdays
 - c. Pick up trash in conjunction with garlic mustard scan.
- 2. Reed canary grass
 - a. Foliar spray reed canary grass in fields at Bear Creek Nature Park. Scan prairie plantings at Gallagher Creek Park, Draper Twin Lake Park, and Charles Ilsley Park, spraying any reed canary grass found.
 - b. Plan for aggressive native sedges that can be planted in treatment areas to prevent re-establishment.
- 3. Native plant landscaping
 - a. Begin bi-weekly weeding of native plant landscaping. Focus on new landscaping at Gallagher Creek Park that is still establishing and has a large weed seedbank.
 - b. Pick up and install plants needed to supplement existing plantings.
- 4. New habitat restoration projects at Blue Heron Environmental Area, Stony Creek Ravine Nature Park, and Watershed Ridge Park.
 - a. Complete first herbicide application for site preparation.
 - b. Determine where invasive shrub removal will be necessary.
- 5. Floristic Inventory
 - a. Complete first visit to Charles Ilsley Park and Draper Twin Lake Park in late May or early June. Document spring ephemerals, trees, shrubs, and early sedges.
 - b. Conduct meander survey in late May or early June through high-quality natural areas at Stony Creek Ravine expansion to look for threatened, endangered, and species of special concern.

June

1. Complete any remaining garlic mustard control by mid-June
2. Monitor and treat swallow-wort, crown vetch, wild parsnip, teasel. Document any new locations in ArcGIS Collector and treat.

Park	Swallow-wort	Crown Vetch	Wild Parsnip	Teasel
BCNP	X	X		X
BHEA				
CIP	X	X		X
CLP	X			
DTLP	X	X		
GCP		X	X	X
Kamin	X			
LLNP	X	X		
MCC				
MRT				
MVP		X		X
OCNP				
PCJ	X		X	X
PCHA-Fen				
PCHA-Wet Prairie	X	X		
PCT-ROW	X	X		
SCRNP	X	X		X
WRP	X			

3. Floristic Inventory – complete first visit if not completed in May
4. Native plant landscaping
 - a. Continue bi-weekly weeding of native plant landscaping. Focus on new landscaping at Gallagher Creek Park that is still establishing and has a large weed seedbank.
5. Invasive cattails – treat at Paint Creek Heritage Area – Fen.

July and August

1. Invasive shrub control
 - a. Scan and spot treat invasive shrubs in forestry mowing areas at Watershed Ridge Park, Draper Twin Lake Park (plus prairie), Bear Creek Nature Park (plus area by marsh), Stony Creek Ravine Nature Park, and Charles Ilsley Park (plus prairie).
 - b. Spot treat invasive shrubs along Paint Creek Trail right-of-way (Dutton all the way to Orion Township).
 - c. Hand wick basal bark treatment of small invasive shrubs at Paint Creek Heritage Area- Wet Prairie at Paint Creek Trail – Art Project.
 - d. Cut stump treatment of invasive shrubs at Paint Creek Heritage Area – Fen

- e. Treat oriental bittersweet at Stony Creek Ravine Nature Park where contractors had worked in previous years.
 - f. Hand pull small invasive shrub seedlings at Lost Lake Nature Park high quality habitat on days not appropriate for herbicide application.
 - g. Document and treat black alder at Gallagher Creek Park.
 - 2. Sweet clover – hand pull or cut sweet clover at full bloom along the Paint Creek Trail, in prairie plantings, and in other parks as time allows
 - 3. Spotted knapweed
 - a. Hand pull at Paint Creek Heritage Area – Wet Prairie
 - b. Spot mow in prairie plantings
 - 4. New habitat restoration projects at Blue Heron Environmental Area, Stony Creek Ravine Nature Park, and Watershed Ridge Park.
 - a. Complete second herbicide application for site preparation.
 - b. Complete invasive shrub removal
 - c. Wetland earthmoving will happen before September 30 after winter wheat is harvested
 - 5. Floristic Inventory
 - a. Complete second visit at Charles Ilsley Park and Draper Twin Lake Park in mid to late June to document sedges and early flowering plants.
 - b. Scan high-quality habitat at Stony Creek Ravine Expansion
 - 6. Photo monitoring – complete in late August to early September.
 - 7. Native plant landscaping
 - a. Continue bi-weekly weeding of native plant landscaping. Focus on new landscaping at Gallagher Creek Park that is still establishing and has a large weed seedbank.
-

September

- 1. Phragmites – complete treatment at all parks
 - 2. New habitat restoration projects at Blue Heron Environmental Area, Stony Creek Ravine Nature Park, and Watershed Ridge Park.
 - a. Complete third herbicide application for site preparation in late September or early October.
 - b. Contractor completes wetland restoration earthmoving by September 30. Sow cover crop on bare soils that might erode.
 - 3. Invasive Shrub Control – continue work on projects listed for July/August
 - 4. Native plant landscaping
 - a. Continue bi-weekly weeding of native plant landscaping. Focus on new landscaping at Gallagher Creek Park that is still establishing and has a large weed seedbank.
 - b. Install any supplemental plants needed.
 - 5. Floristic Inventory
 - a. Complete third visit at Charles Ilsley Park and Draper Twin Lake Park to document asters and other fall-blooming plants.
 - b. Scan high-quality habitat at Stony Creek Ravine Expansion
 - 6. Crown vetch – check patches and re-treat any areas with new growth.
-

October

1. Seed collection – collect wherever desirable native seed is present
 2. Phragmites – finish any treatment in first week of October
 3. Invasive shrub control – switch to only cut stump and basal bark methods as leaves change color. Continue working on projects outlined in July/August.
 4. Trash cleanup
 - a. Draper Twin Lake Park – various farm dumps on east and west sides. Will need a dumpster for aggregate and one for normal/construction waste trash.
 - b. Stony Creek Ravine Nature Park – various farm dumps throughout the new expansion
 - c. Charles Ilsley Park – clean up scrap metal on west side (car frame, manure spreader, rolls of fencing)
-

November

1. Seed collection – finish collecting any late species.
 2. Begin or continue trash removal outlined in October.
 3. Complete prescribed burns as conditions allow. Locations depend on areas completed in spring and site priorities (burn prairie areas if not done in the spring).
 4. New habitat restoration projects at Blue Heron Environmental Area, Stony Creek Ravine Nature Park, and Watershed Ridge Park.
 - a. Install seed in wetland and upland areas after soils are below 50 F
 5. Continue invasive shrub control with cut stump and basal bark.
 - a. Paint Creek Heritage Area – Wet Prairie. Scan the core prairie area and open areas to the north and south along the trail, then begin working north into the forested area.
 - b. Bear Creek Nature Park – continue working around the marsh in the northeast corner. Burn brush piles as conditions allow.
 - c. Lost Lake Nature Park – begin working on glossy buckthorn around Lost Lake, and in wetland in the SE corner between Green Lake and Tamarack Lake.
-

December

1. Seed cleaning – host workday to clean locally collected seed
2. Plant seed in restoration areas (locations depend on species collected and sites ready for seed)
3. Continue invasive shrub control outlined in November.
4. Complete trash removal for the year before soils freeze.
5. Mowing and Brush Hogging
 - a. Brush hog forestry mowing areas. Locations depend on work accomplished during the summer and projected need for 2021.
 - b. Manage contractors completing forestry mowing in parks. Work can begin when soils freeze, or at least dry and firm.