



Vickers Nature Preserve

Ellsworth Township

Natural Resources Management Plan

Date of Last Revision

6/8/2020

Mill Creek MetroParks

7574 Columbiana-Canfield Rd.

Canfield, OH 44406



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Mission Statement

The mission of Mill Creek MetroParks is to provide park, recreational, educational, and open space facilities of regional significance. In fulfilling this mission our objectives are:

To be responsive to community needs

Studies and surveys direct the MetroParks to preserve appropriate natural and cultural areas, make improvements to MetroPark facilities, develop additional recreational opportunities, and continue to strengthen activity and public information programming.

To be environmentally sound

Stewardship strategies will be dictated by the intrinsic nature of the land.

To be adaptable

The only certainty in our world is that change is occurring at an increasing rate. To respond, the MetroParks must maintain strong public information and involvement programs and form new kinds of creative liaisons to meet changing needs.

To be economically feasible

The MetroParks has finite resources that are not guaranteed in perpetuity. It must constantly work to broaden its base, especially through new partnerships. Revenue generating programs and facilities must be a key element in the overall funding picture.



Mill Creek MetroParks: Natural Resources Management Plan Guidelines

In accordance with our Mission Statement, the MetroParks strives to protect properties throughout Mahoning County, acquiring and preserving those that exhibit excellent natural features and those that are in the best interest of the public to provide both recreational and educational opportunities.

The MetroParks will manage properties using a facility-based approach incorporating both professional and environmentally sound best management practices. A Natural Resources Management Plan shall be developed for MetroParks' Facilities, and serve as the guiding document when making management decisions. Facility-based Natural Resources Management Plans will identify clear management goals for each property, and provide documentation as to the current habitats, ecosystems, and plant/animal communities present onsite. In addition to documenting current conditions, the Natural Resources Management Plan shall include recommendations detailing future improvement opportunities for the conservation and protection of these natural areas. The Natural Resources Management Plan for each facility shall include, but is not limited to the following topics:

Site Overview

The Natural Resources Management Plan shall examine the historical, cultural, and regional significance of each property, as well as, documenting natural features such as topography, soils, habitat delineations, and hydrology.

Biological Inventory

The Natural Resources Management Plan shall document the current flora and fauna present at the site, with special emphasis on threatened or endangered species. Invasive and/or nuisance species of plants and wildlife will also be documented and appropriate recommendations for management action shall be provided. Any management actions shall be based upon scientific data, collected through on-going monitoring at each site, and will be in agreement with all applicable state and federal regulations, as well as, the management goals set forth for each property.

Current Use

The Natural Resources Management Plan shall identify and document current park infrastructure, maintenance activities, current public use, volunteer involvement, and educational opportunities. As part of the MetroParks' overall Mission, the Natural Resources Management Plan shall identify opportunities to expand public use, recreational activities, volunteer involvement, and educational opportunities.

Lastly, the Natural Resources Management Plan shall be adaptive, and will be continually reviewed and updated as new information is gathered. The plan will reflect changes in the landscape as time progresses, as management goals are met, or as policies change. Any additions or changes to this management plan must reflect a recognized need at the facility based upon sound scientific data.

Facility Overview

The Vickers Nature Preserve consists of 262-acres located on Akron-Canfield Road (Route 224) in Ellsworth Township, Mahoning County Ohio. The property is dominated primarily by deciduous hardwood forests, but offers a diverse range of habitats in the form of grasslands, old fields, wetlands, and open water.

Regional Significance

Located in Ellsworth Township, the Vickers Nature Preserve is a prominent Mill Creek MetroParks facility in the western portion of Mahoning County and provides residents with unique recreational opportunities; most notably the Vickers Nature Preserve is the only property in the Mill Creek MetroParks system that currently permits and promotes equestrian use in the form of trail access and equestrian themed infrastructure (arenas, barns, trailer parking, etc.). In addition to these recreational opportunities, the Vickers Nature Preserve serves as a primary buffer for multiple tributaries to Meander Creek, which feeds Meander Reservoir the drinking water source for over 220,000 residents throughout Mahoning and Trumbull County (7 municipalities, 10 townships).

Management Goals

Listed below are the guiding principles and goals for natural resource management at the Vickers Nature Preserve:

- Balance the Preservation of Natural Areas with Integrated Passive Recreational Opportunities
- Enhance and Promote Biodiversity to the Highest Level Ecologically Possible
- Maintain a Balanced, but Diverse Ecosystem Through Responsible Habitat and Wildlife Management Practices
- Maintain and Restore Native Plant Communities, Including the Control of Invasive/Exotic Species
- Provide and Enhance Nesting and Feeding Opportunities for All Species of Native Wildlife and Highlighting Those of Increased Concern (Rare, Threatened, and Endangered)

Acquisition and Development

Acquired by the MetroParks in 1993, Vickers Nature Preserve consists of three (3) parcels totaling 262-acres. Shortly after acquisition, the MetroParks entered into a lease agreement with the Buckeye Horse Park Association (BHPA). This lease agreement identified 47.576-acres of the southernmost parcel, which would serve as the nucleus for all BHPA equestrian-based activities. Over the course of the twenty-five (25) year lease period, the Buckeye Horse Park Association worked hand-in-hand with the MetroParks to expand the equestrian facilities onsite to include several barns, arenas, special event courses, and an extensive trail network.

With the lease period ending in February of 2019, the MetroParks assumed full management responsibility for the equestrian trails and facilities onsite. The former BHPA lease area will be fully integrated into Vickers Nature Preserve through the Vickers Nature Preserve Master Plan, which began its development in late 2018 and was completed in early 2020. Any development moving forward is to be guided by the Master Plan.

Figure 1. Vickers Nature Preserve: County + Site Map

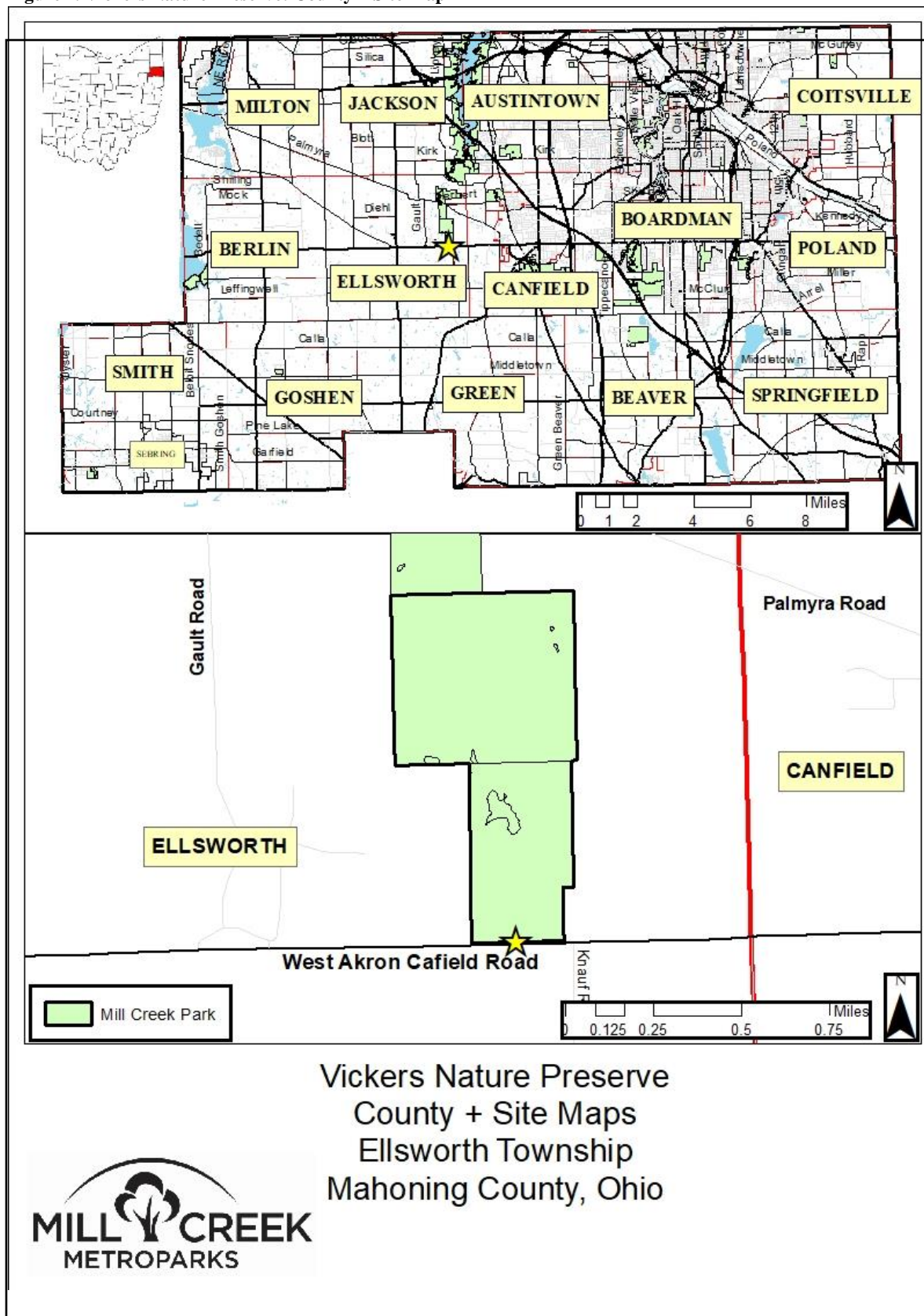
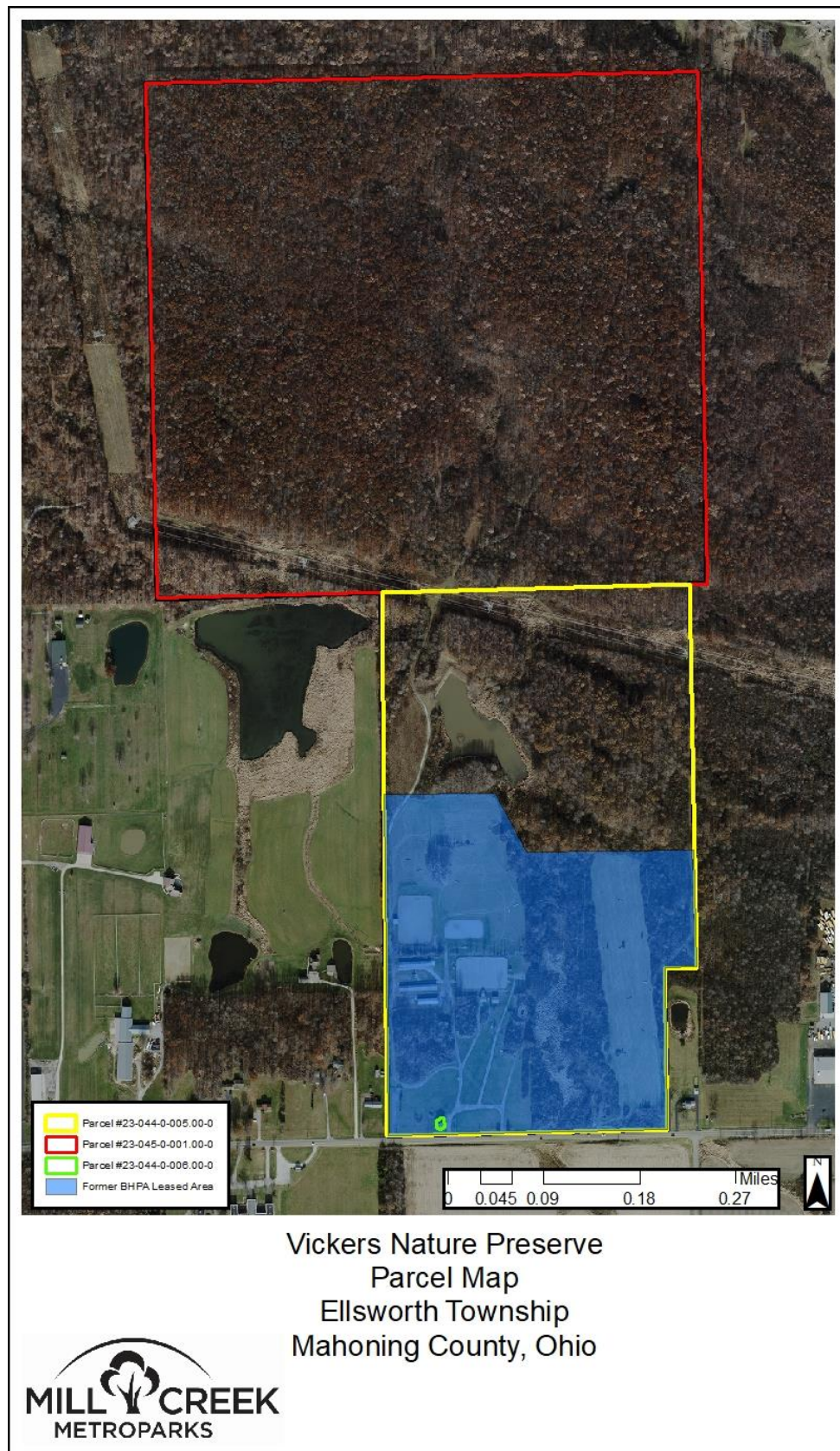


Figure 2. Vickers Nature Preserve: Parcel Map

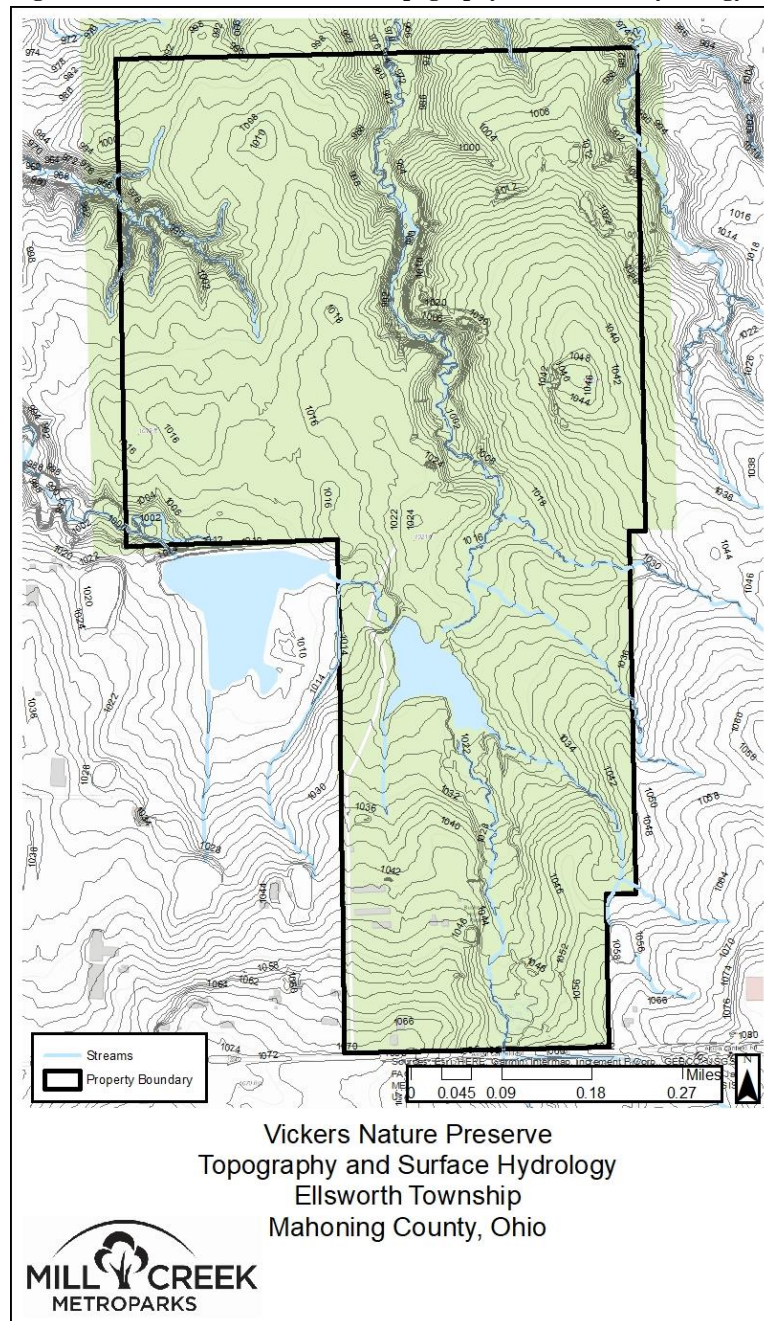


Site Overview

Topography and Surface Hydrology

Topography across the site the majority of the site is rather flat with most of the property hovering around 1000'-1050' in elevation. However, multiple unnamed streams run in deep ravines located in the north-central and northwestern portions of the site. These streams are direct tributaries to Meander Creek, and therefore, are tributaries to Meander Reservoir, the primary drinking water source for over 220,000 residents of Mahoning and Trumbull County.

Figure 3. Vickers Nature Preserve: Topography and Surface Hydrology

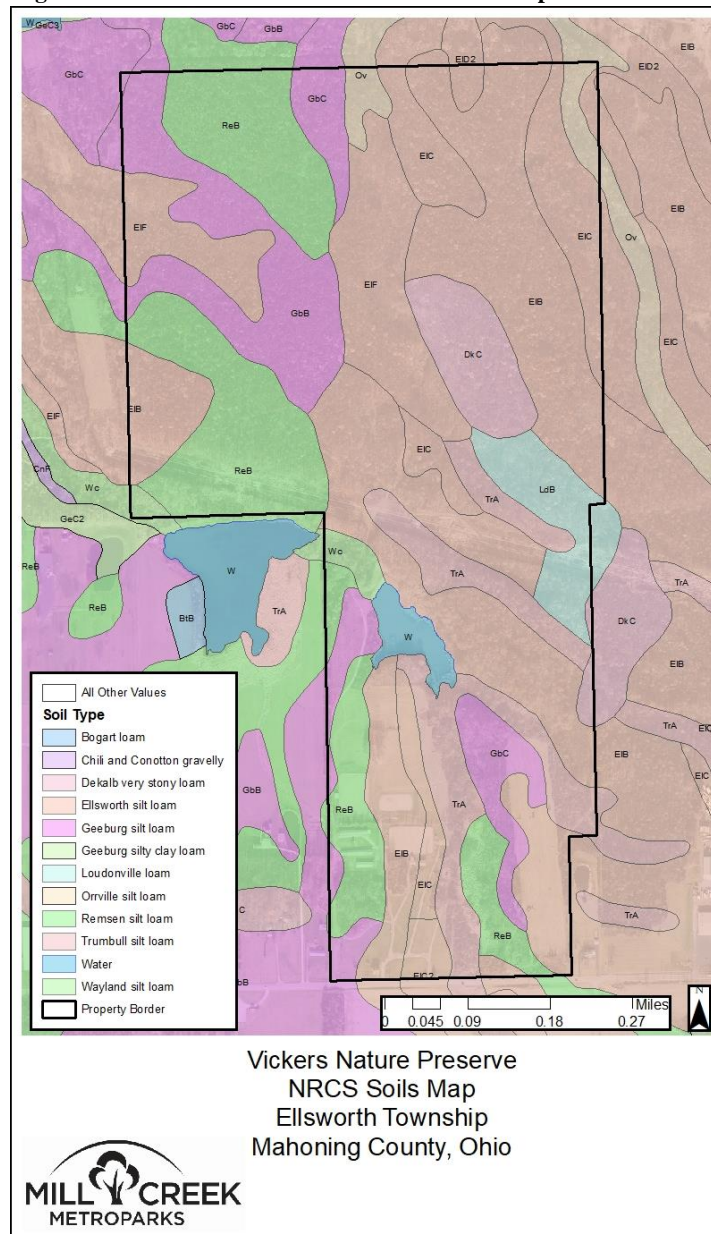


Soils Overview

As shown below in Figure (4), the majority of the Vickers Nature Preserve is largely dominated by hydric soils such as Ellsworth Silt Loam (28.6%), Remsen Silt Loam (20.3%), and Geeburg Silt Loam (11.2%). In general, these dominant soils are moderately – poorly drained, and often times represent areas of low depressions, draws, and drainage ways. Please see Appendix (x) for a complete soils list.

Map Unit Symbol	Soil Type	Acres	Site Percentage
	Ellsworth Silt Loam	69.8	28.6%
ReM	Remsen Silt Loam	49.6	20.3%
GbB	Geeburg Silt Loam	27.2	11.2%

Figure 4. Vickers Nature Preserve: NRCS Soils Map



Infrastructure: Trail and Building

Vickers Nature Preserve is home to an extensive trail system that is open to both hikers and equestrian riders. The main trail system consists of two (2) primary loop trails; the Buckeye Trail (2.2 Miles) follows the outer property boundary, while the Creekside Trail (1.1 Miles) gives users a more rugged experience as it leads them through a steep ravine and across the creek. In 2018, the MetroParks received funds through American Quarter Horse Association (AQHA): Stewards for Trails, Education, and Partnerships (STEP) Program to complete a comprehensive trail-marking project consisting of new trailhead signs, color-coded directional markers, and educational signage. Finalized in 2020, the Vickers Nature Preserve: Master Plan proposes several changes to the existing trail configuration. These changes will consolidate stream crossings, improve navigability, and accentuate interesting landmarks.

Figure 5. Vickers Nature Preserve: Current Trails Map

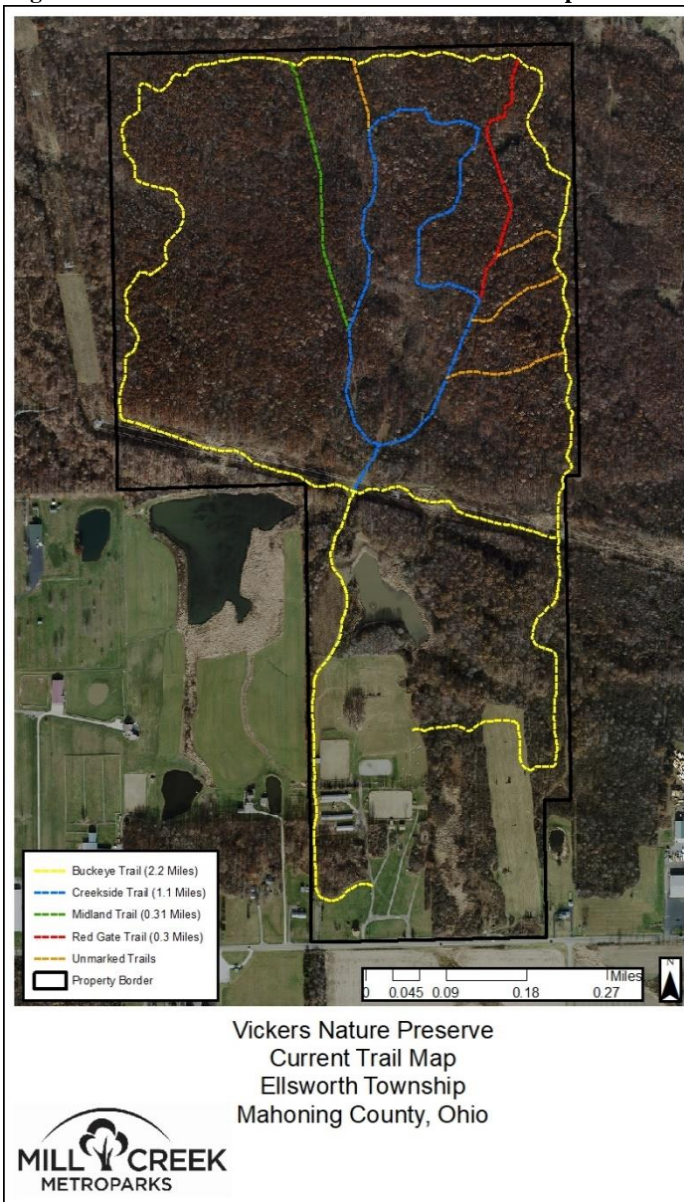
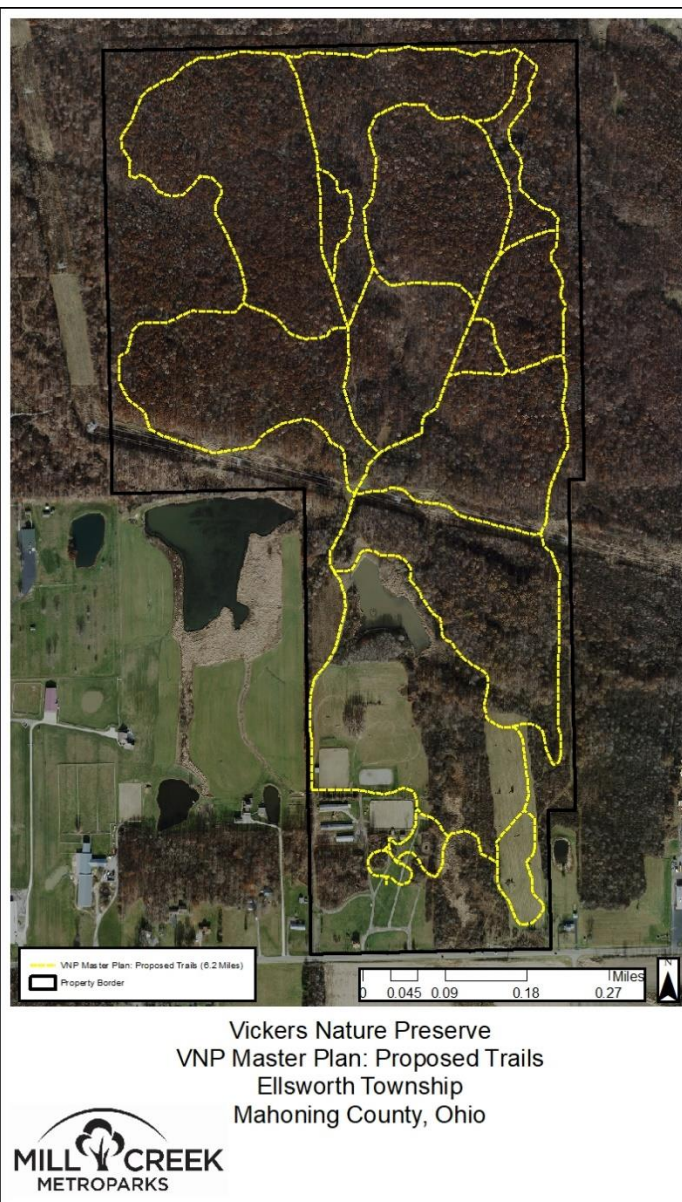


Figure 6. Vickers Nature Preserve: Proposed Trail Map



Infrastructure: Trail and Building Continued

The current building infrastructure at Vickers Nature Preserve is confined to approximately 19-acres of the former BHPA lease area located in the southernmost portion of the property. Current structures include: three (3) barns (A, B, and C), three (3) event arenas, one (1) pavilion, one (1) concession building, one (1) storage shed, one (1) comfort station, and the house belonging to the prior homestead. Future development and usage will be guided by the Vickers Nature Preserve Master Plan, completed in 2020.

Figure 7. Vickers Nature Preserve: Current Building Infrastructure



Infrastructure: Utility Infrastructure and Rights of Way

Several utility rights of way can be found throughout Vickers Nature Preserve; most notably an Ohio Edison right of way for electrical services bisects the property in a northwest – southeast orientation. This right of way is routinely maintained by Ohio Edison, with the control of woody vegetation being the highest priority. Several other easements bisect the property in various directions to allow maintenance to occur on several underground oil and gas transmission lines. These easements are maintained annually (brush cutting) by the responsible party for each respective line (see Figure 8).

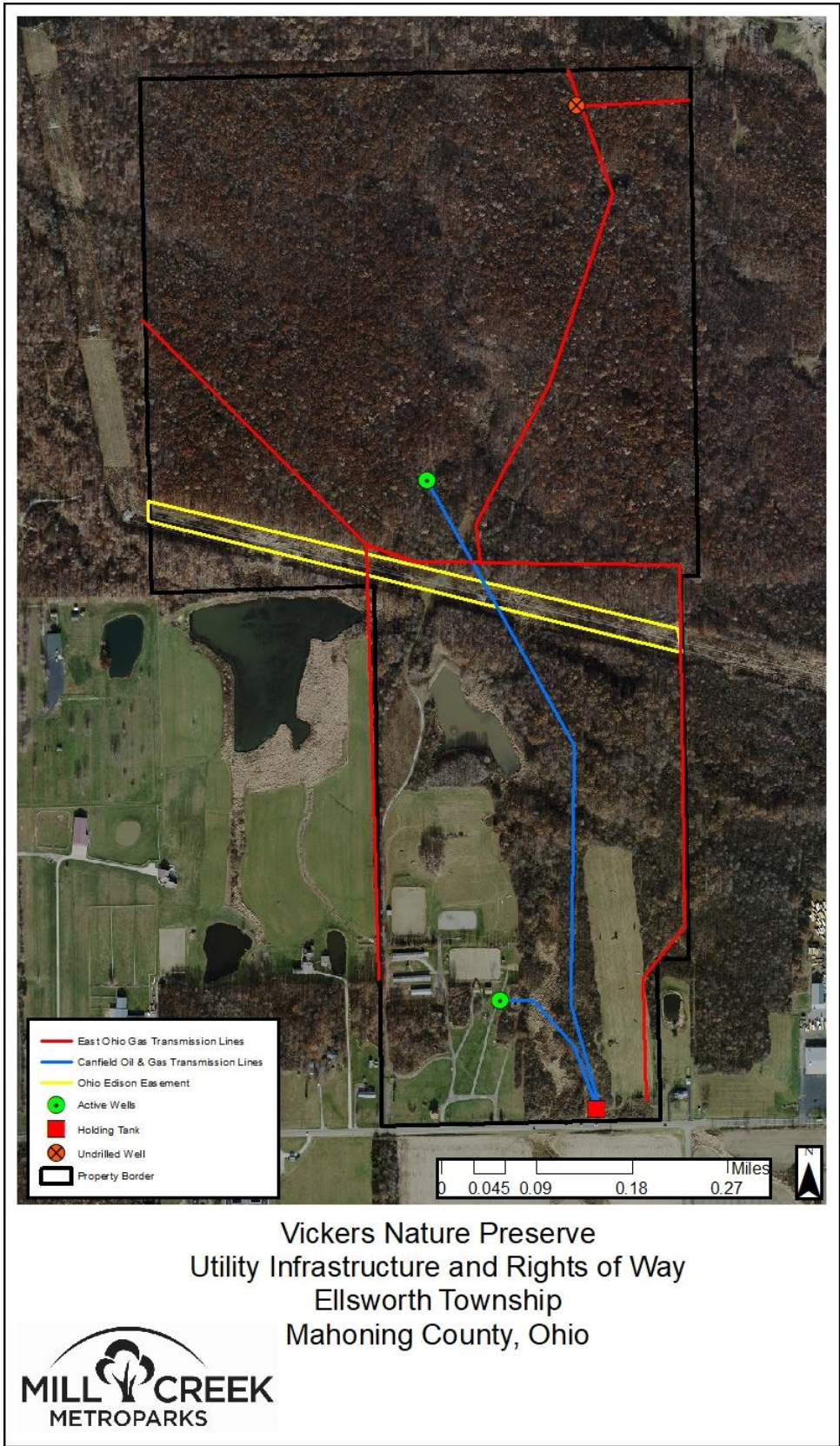
In addition to the transmission lines previously mentioned, the property also has two (2) active wells, one (1) permitted but undrilled well, and one (1) holding tank (all data based on ODNR records). Routine monitoring will be completed annually by the MetroParks Natural Resources Steward in compliance with MetroParks' Oil and Gas Well protocols. Monitoring ensures wells and holding tanks are in good operating order and are in compliance with ODNR regulation. These regulations include but are not limited to:

- Having a Clear and Legible Label
- Having All Compartments, Doors, and Staircases Locked
- Vegetation Within the Immediate Vicinity Should be Maintained
- The Secondary Containment Berm Should be In Good Condition
- No Odors or Visible Leaks Should Be Present
- Wells and Tanks Should be Kept in Good Physical Shape

Table 1. Vickers Nature Preserve: Oil Well Infrastructure

<u>Drouhard, Mary J #1</u> <u>(Well)</u>	<u>Drouhard, Mary J #1/#2</u> <u>(Tank)</u>	<u>Drouhard, Mary J #2</u> <u>(Well)</u>	<u>Drouhard, Mary J #3</u> <u>(Well)</u>
<u>Canfield Oil & Gas</u>	<u>Canfield Oil & Gas</u>	<u>Canfield Oil & Gas</u>	<u>Undrilled</u>
<u>Last Inspection Date</u> <u>10/2019</u>	<u>Last Inspection Date</u> <u>10/2019</u>	<u>Last Inspection Date</u> <u>10/2019</u>	<u>Last Inspection Date</u> <u>10/2019</u>

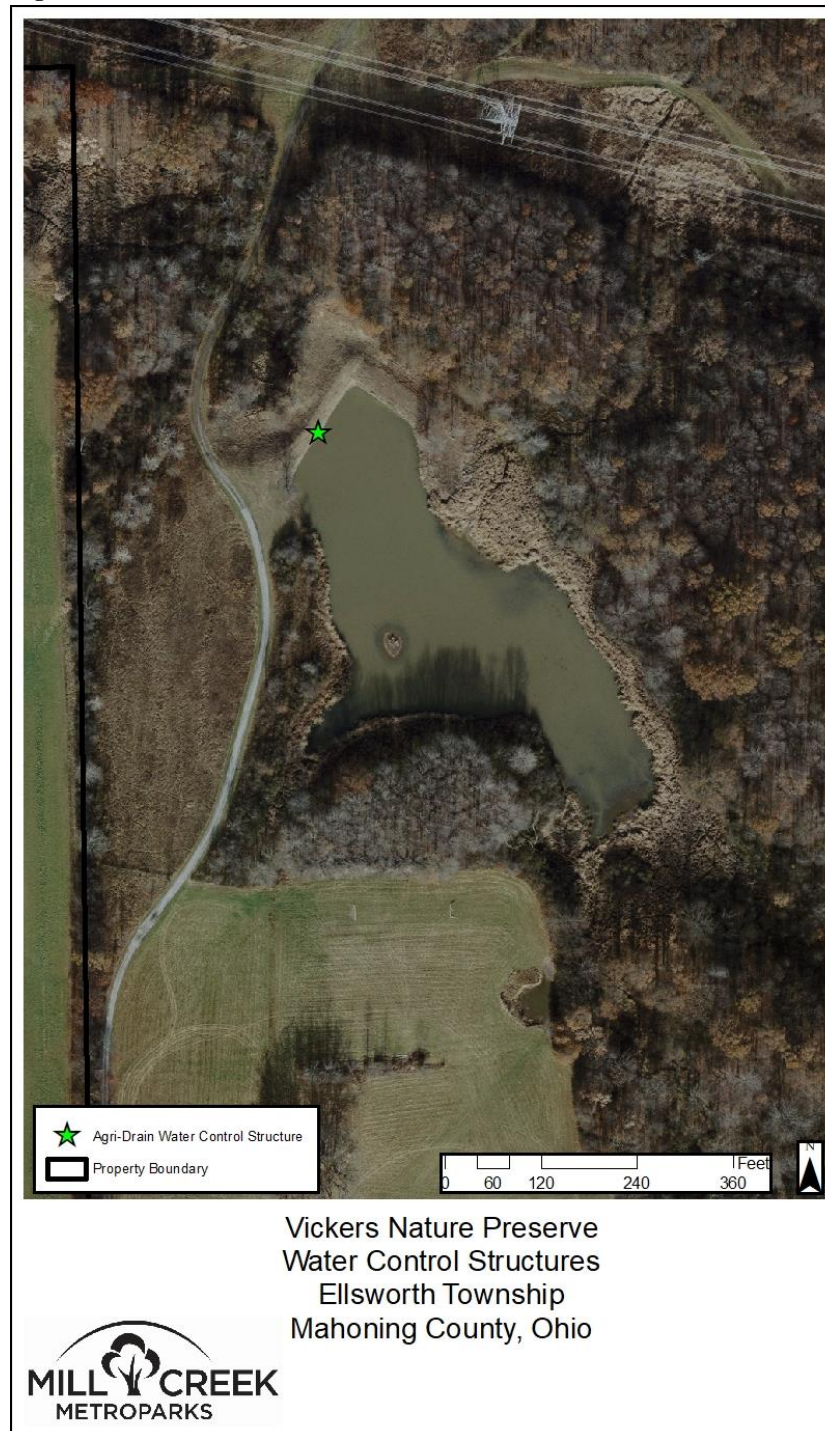
Figure 8. Vickers Nature Preserve: Utility Infrastructure and Rights of Way



Infrastructure: Water Control Structures

One (1) AgriDrain structure is located on the northwest side of the pond, along the earthen dam. This unit is used to fluctuate water levels as desired throughout the year or for specific projects. This unit requires maintenance on an annual basis including vegetation management around the unit and lubricating the stop-log seals once per season.

Figure 9. Vickers Nature Preserve: Water Control Structures



Habitat Delineations and Features

Deciduous Hardwood Forest

Deciduous hardwood forest is by far the dominant habitat type found at Vickers Nature Preserve as it encompasses approximately 198 acres (76%) of the property. Prior to its acquisition by the MetroParks, the property was extensively logged, resulting in a relatively young/new growth forest. However, despite the prior timber harvest the property has retained a healthy level of diversity, displaying a healthy mixture of hardwood species such as maples (*Acer spp.*), oaks (*Quercus spp.*), hickories (*Carya spp.*), and cherries (*Prunus spp.*).

Mixed Emergent Marsh

Several areas of mixed emergent marsh can be found throughout the southern portions of Vickers Nature Preserve, most notably the south-central portion of the property – this habitat type comprises approximately 7 acres (3%) of the total landmass. This area serves as a primary buffer to the main unnamed stream that bisects the property and serves as a tributary to Meander Reservoir.

Open Water

Open water habitat at the Vickers Nature Preserve comprises a small portion (<1%) of the overall acreage and is limited to the approximately 2.5-acre pond and a handful of vernal pools scattered throughout the area. While small in acreage, these areas provide the habitat diversity required to support a wide range of species.

Old Field

Several sizeable areas totaling approximately 24 acres (9%) situated throughout the southern portions of the Vickers Nature Preserve can be categorized as old field habitat. Most have been routinely mowed to accommodate equestrian activity and remain in a state of early succession.

Shrub/Scrub

A few relatively small areas throughout the southern portions of the property totaling approximately 2 acres (<1%) can be described as shrub/scrub habitat. These areas demonstrate intermediate succession and can be found in areas of prior disturbance such as along access roads, around oil and gas wells, and reverted field areas.

The remaining portions of the property are dedicated to the numerous equestrian-based facilities located in the southern portion of the property (please refer to Infrastructure: Trail and Building).

Figure 10. Vickers Nature Preserve: Habitat Delineations

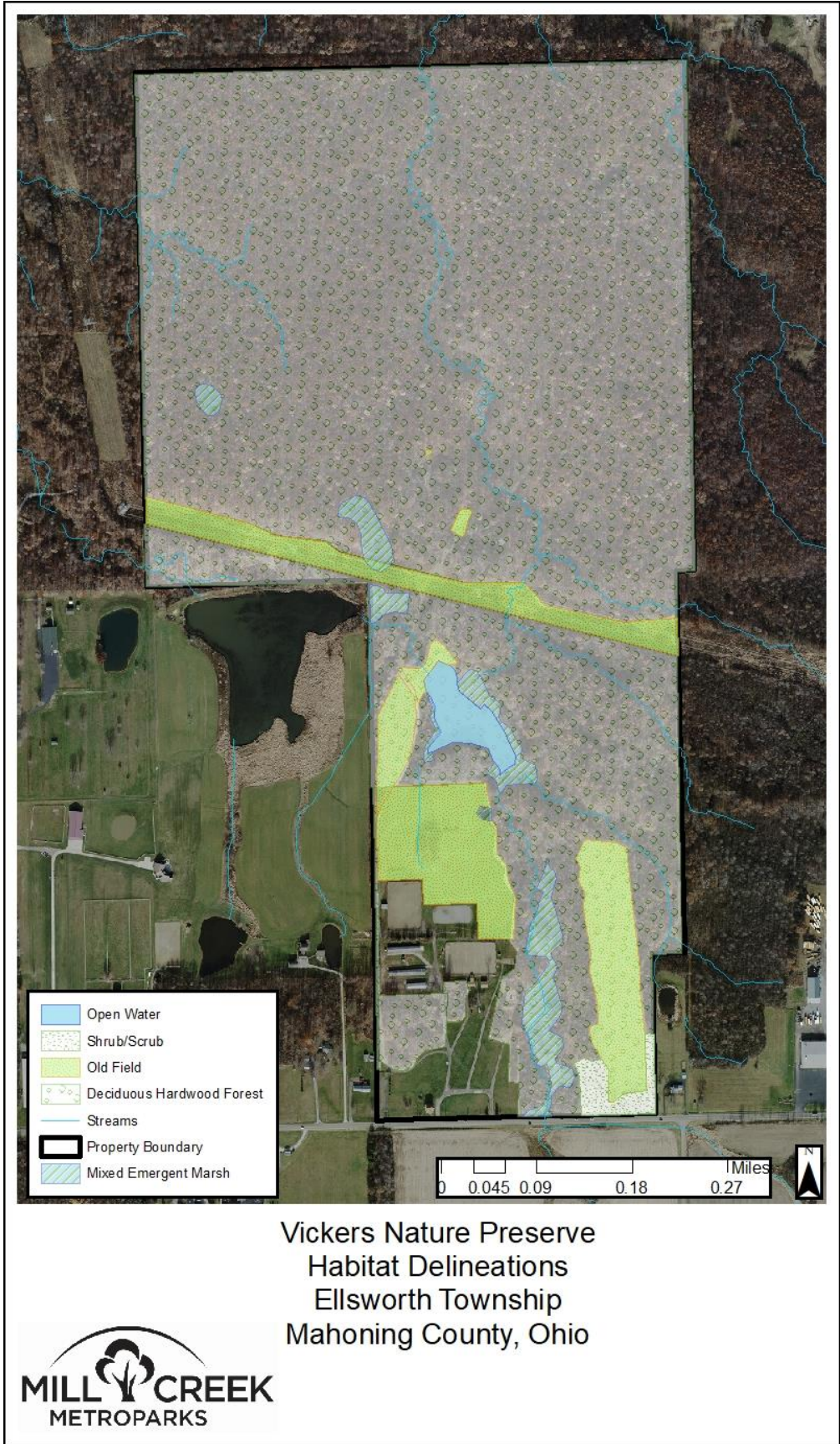
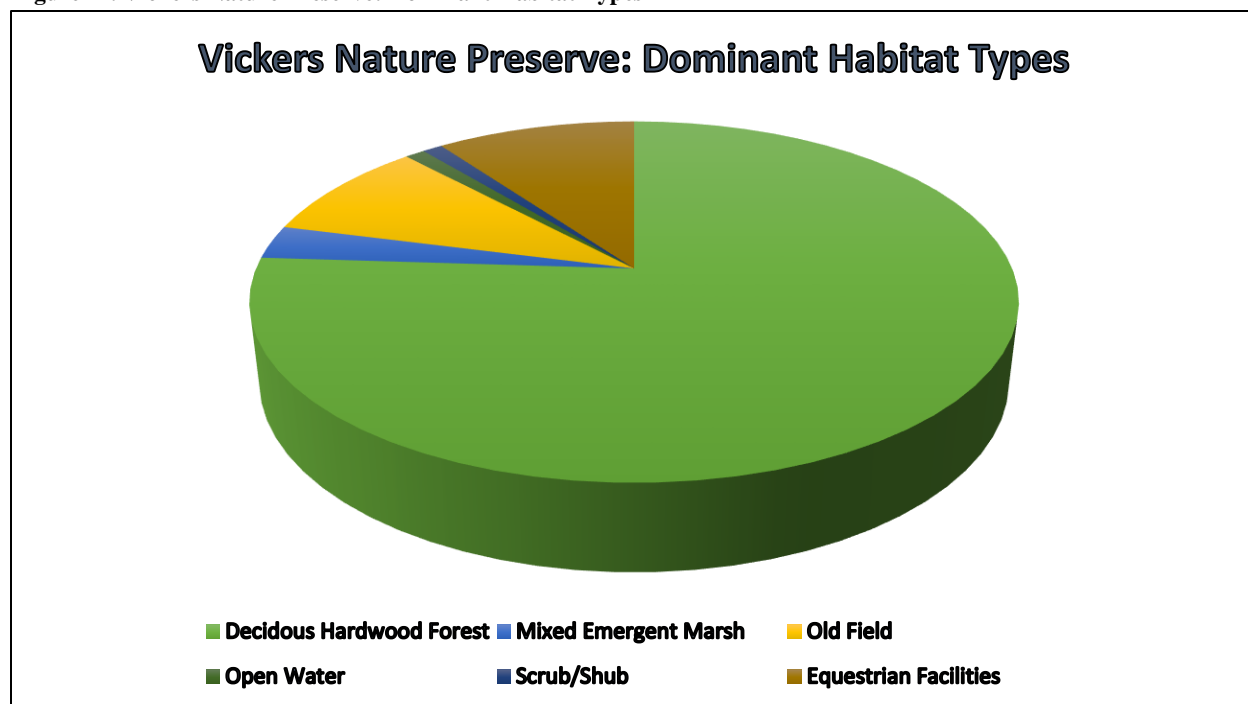


Figure 11. Vickers Nature Preserve: Dominant Habitat Types



Species List Flora and Fauna

Despite never being the subject of a detailed biological inventory, the Vickers Nature Preserve still boasts a healthy species list of flora/fauna found onsite. The species that have been formally documented to this point have primarily been a result of citizen science through applications such as eBird (80 species) or iNaturalist (33 species). Continued volunteer involvement through programs such as these should be encouraged through educational programs and organized events (BioBlitzes) to document additional species and create a more well-rounded and exhaustive list of the flora/fauna found onsite.

Invasive/Exotic (Non-Native) Species

Invasive and non-native species are one of the greatest threats to native plant and wildlife communities around the country, and the same can be said for the Vickers Nature Preserve. Invasive/non-native species are often very aggressive colonizers that can quickly outcompete native species and alter native ecosystems.

Through its historical habitat alterations and wide array of habitat types the Vickers Nature Preserve offers an excellent opportunity for several invasive/non-native species to not just become established, but also flourish. If left unmanaged, invasive species can quickly form thick monocultures which are of little value to native wildlife species and will destroy the biodiversity of the site.

Listed below in Table (2) are several invasive/non-native species that have been identified at the Vickers Nature Preserve. While some species are more prevalent than others they all pose a significant threat to the overall health and biodiversity of the site. The Ohio Division of Natural Resources (ODNR) assigns a classification to invasive/non-native plant species based upon distribution throughout the state, persistence, and overall threat to the environment.

- Species classified as “Targeted Species” pose the most significant threat as they exhibit state-wide distribution, very invasive tendencies in natural areas, and are generally difficult to control.
- Those species classified as a “Well-established Invasive” pose a moderate to serious threat to the natural areas of Ohio, but distribution may be more regionalized.
- Lastly, species classified as being on the “Watch List” are species of concern in neighboring states, and pose a threat of becoming established in Ohio.

Table 2. Vickers Nature Preserve: Invasive Species List

Scientific Name	Common Name	Category
<i>Allaria petiolata</i>	Garlic Mustard	Targeted Species
<i>Cirsium arvense</i>	Canada Thistle	Well-Established Invasive
<i>Convolvulus arvensis</i>	Field Bindweed	Well-Established Invasive
<i>Dipsacus fullonum (sylvestris)</i>	Common Teasel	Well-Established Invasive
<i>Elaeagnus umbellata</i>	Autumn Olive	Targeted Species
<i>Ligustrum vulgare</i>	Common Privet	Well-Established Invasive
<i>Lonicera japonica</i>	Japanese Honeysuckle	Targeted Species
<i>Phalaris arundinacea</i>	Reed Canary Grass	Targeted Species
<i>Phragmites australis</i>	Common Reed Grass	Targeted Species
<i>Rhamnus frangula</i>	Glossy Buckthorn	Targeted Species
<i>Rosa multiflora</i>	Multiflora Rose	Targeted Species
<i>Typha angustifolia</i>	Narrow-leaved Cattail	Well-Established Invasive
<i>Typha X glauca</i>	Hybrid Cattail	Well-Established Invasive

Species Specific Management for Invasive Species Control

Reed Canary Grass (*Phalaris arundinacea*) is a perennial grass species that thrives in moist environments such as wetlands and pond edges. This species is a very aggressive invasive that propagates both by seed and by rhizomes. Due to topography and habitat features, Reed Canary Grass (*Phalaris arundinacea*) is not very widespread at Vickers Nature Preserve, but significant populations do exist in and around the pond/wetland areas.

Persistent management is necessary to control Reed Canary Grass, as it can be very resilient in the environment. Preferred control methods include:

- **Herbicide Applications** twice per year – once late May/early June and retreatment if necessary early July.
- **Systemic Herbicides** such as glyphosate (Rodeo) is the preferred chemistry to control reed canary grass, however, grass specific herbicides such as Sethoxydim (Poast) can be applied in

non-aquatic sites to limit harm to native broadleaf species. All herbicides should be coupled with an adjuvant such as Cide-Kick II and applied as a foliar spray for optimal performance.

- **Mowing** accessible areas twice per year – late May or early June and again in October.
- **Controlled Burn** – utilizing a controlled burn in an area that is densely populated by Reed Canary Grass can help open the area and promote native seed growth, but should be used in combination with other control methods such as herbicide application.

Successful eradication may require multiple seasons, but once desired results are achieved, the affected areas should be replanted with native species to discourage reintroduction of Reed Canary Grass. Short-term goals should include the eradication and replacement of Reed Canary Grass in small achievable areas. Total eradication facility wide will require a long and diligent effort from staff and volunteers, but is achievable in the long-term.

Narrow Leaved Cattail (*Typha angustifolia*) and **Hybrid Cattail** (*Typha X glauca*) are both examples of an invasive variety of cattail that can spread by both seed and rhizome, and can quickly outcompete native wetland vegetation. Both variations can be found at Vickers Nature Preserve, most notably around the pond and wetland areas.

- **Herbicide Application** in late summer (August) – systemic herbicides such as glyphosate (Rodeo) coupled with a penetrant/sticker adjuvant (Cide-Kick II) applied as a foliar spray to kill both the foliar sections of the plant, as well as, the extensive rhizome systems.
- **Mechanical or Physical removal** should take place following an herbicide application to remove dead material, and allow for native plants to take hold. Unless the entire rhizome system is removed any attempt at removal prior to herbicide treatment will not yield desired results.
- **Water Level Manipulation** – Cattails can thrive in a variety of water depths from 0-3 feet, however, water depths greater than 3 feet can become prohibitive for cattails to grow. If it is possible, water level manipulation can be a successful tool in stopping the spread of cattails into a new area, as well as, control of existing plants if deep enough water levels can be achieved.
- **Seed Head Removal** – Physical removal of the seed head prior to mechanical removal is a valuable practice to reduce the spread of remaining plants. Each seed head can contain tens of thousands of seeds.

As with other invasives, persistent and timely execution of control methods are vital for a successful control. The areas of larger monocultures will require a much more diligent effort to achieve eradication, however, it should be a goal in the long-term – in the short-term, these areas should be contained to avoid further spread.

Common Reed Grass (*Phragmites australis*) is a perennial wetland grass that can reach heights of 10 feet or more. This plant spreads quickly utilizing both seeds and rhizome systems – multiple stems can arise along a single rhizome to create extremely dense monocultures. Phragmites is currently only found in a few locations throughout the wetland portions of the property. Continued monitoring and quick action are key to keep this aggressive plant at a managed level throughout Vickers Nature Preserve. Control methods include:

- **Herbicide Application** – A systemic herbicide such as glyphosate (Rodeo) combined with a non-ionic surfactant (Cide-Kick II) is the preferred chemistry for successfully treating phragmites. In extreme cases other products such as imazapyr (Habitat) can be tank mixed along with glyphosate, however, caution should be used since imazapyr can persist in the soils for long

periods of time and translocate into non-target plants via their root systems. Both Rodeo and Habitat can be used singly or in combination as a foliar spray to successfully control phragmites growth.

- **Removal of Dead Material** via cutting, mowing, or prescribed burn to promote beneficial plant growth

The current infestation level of Common Reed Grass (Phragmites) at the Vickers Nature Preserve is relatively minor due to the limited habitat conditions that are present onsite. The complete eradication of this species from the facility is a very obtainable goal in future years.

Misc. Herbaceous Invasives

A number of less prevalent invasive species are found at the Vickers Nature Preserve such as **Canada Thistle** (*Cirsium arvense*), **Common Teasel** (*Dipsacus fullonum*), **Field Bindweed** (*Convolvulus arvensis*), **Curly Dock** (*Rumex crispus*), etc. These smaller herbaceous invasives can form monocultures if the right opportunities present themselves, but they are generally found scattered across the landscape. These species are most prevalent throughout the open field areas and along the trails and access roads. Control methods for these species generally include:

- **Herbicide Application** – Systemic herbicides such as glyphosate (Rodeo) combined with a non-ionic surfactant (Cide-Kick II) can be used in a foliar spray to spot treat these undesirable species without causing undue harm to non-target species. Under certain conditions such as prairie grass restorations areas broadleaf specific herbicides such as 2, 4-D can be used as a foliar broadcast spray to control many of the smaller herbaceous invasives listed above.
- **Mowing** – Mowing can be an effective tool to control/stunt the growth of many herbaceous invasives, while still allowing native plants to flourish if done at the right time. The optimal time for mowing is late spring with a mowing height of at least 12 inches – most invasives grow more rapidly in spring while natives generally lag behind. Mowing at this time and height allows most natives to go unharmed, while successfully disrupting the lifecycle of many invasives.

Misc. Woody Invasives

There are also a number of invasive species found at the Vickers Nature Preserve that are considered woody shrubs/small trees. Species found in this category include **Glossy Buckthorn** (*Rhamnus frangula*), **Multiflora Rose** (*Rosa multiflora*), **Autumn Olive** (*Elaeagnus umbellata*), **Willow** (*Salix spp.*), **Honeysuckle** (*Lonicera spp.*), and **Common Privet** (*Ligustrum vulgare*). While their habitat preferences and distribution throughout the Vickers Nature Preserve may differ, control methods for many woody species are very similar. Control methods include:

- **Herbicide Application** – The preferred chemistries to control most woody invasives are glyphosate (Rodeo) and triclopyr (Garlon 3a) plus a non-ionic surfactant both chemistries can be effective on their own, but often times are applied as a mixture. Several application methods such as foliar sprays, cut stump treatments, the frill method, or basal bark treatments can be effective on woody plants depending upon the situation and size of tree.
- Treated individuals can be subsequently cut and removed if desired to open canopy space and allow new beneficial vegetation to become established

Figure 11. Vickers Nature Preserve: Invasive Species Distribution



Vickers Nature Preserve
Invasive Species Distribution
Ellsworth Township
Mahoning County, Ohio



Natural Resources Management

Pond, Wetland, and Stream Management

The extensive system of ponds, streams and wetlands located throughout the Vickers Nature Preserve serve as primary buffers for the water entering Meander Reservoir, which supplies drinking water to regions of Mahoning and Trumbull Counties. These systems require active management to preserve their functionality and the overall success of the ecosystem. The following survey methods will be employed where applicable to monitor onsite habitat quality.

- Ohio EPA's ORAM Wetland Scoring System
- Ohio EPA's QEHI Qualitative Habitat Evaluation Index
- Ohio EPA's HHEI Headwater Habitat Evaluation Index

Water Level Fluctuation and Water Control Structure Maintenance

- Routinely inspect all control structures to ensure all drains are free of debris and functioning properly
- All control structures are to be easily accessible – vegetation around each control structure will be kept at a manageable level either by weed-wacking or herbicide application (Rodeo)
- All Agri-drain units require lubrication of the seals and slide rails for continued functionality and ease of use – this will be done annually.

Dam Maintenance and Repair

- The dam (northwest side of pond) will be inspected on an annual basis to assess overall condition; any noticeable damage will be addressed accordingly.
- All woody vegetation shall be cut, treated, and removed from both the top and sides of the dam to protect the structural integrity.
- Herbaceous vegetation shall be maintained on both the top and sides of dam to ensure proper visibility

Potential Pond, Wetland, and Stream Improvement Projects

- The area surrounding the pond and the large wetland area holds significant populations of invasives species, these areas will require continued monitoring into the future and a dedicated effort to manage these harmful species (refer to Invasive/Exotic Species). Increasing the overall quality of the wetland areas onsite will improve their ability to buffer the several tributaries that ultimately flow to Meander Reservoir.
- Improving equestrian stream crossings should continue to be a priority in future years, replacing worn out, eroded natural crossings with viable alternatives such as culverts, spillways, and/or cattle crossings will greatly reduce the risk of erosion and improve overall stream quality.

Forest Management

As previously mentioned, the forest age structure at the Vickers Nature Preserve is relatively young due to an extensive timber harvest prior to MetroParks acquisition. Despite this prior disturbance, the forest appears to have rebounded with impressive diversity. However, to optimize biodiversity and ecosystem

health, a dedicated survey effort should take place to document and better understand the current forest structure of Vickers Nature Preserve.

Potential Hardwood Timber Stand Improvement Projects

- Management of woodland invasive species such as **Common Privet** (*Ligustrum vulgare*), **Japanese Honeysuckle** (*Lonicera japonica*), **Glossy Buckthorn** (*Rhamnus frangula*), and **Multiflora Rose** (*Rosa multiflora*) to promote a healthy understory
- Selective cutting of less desirable understory species to open canopy space and promote regeneration of mast producing trees valuable to wildlife
- Removed individuals will be hinge-cut to provide natural browse and horizontal cover for white-tailed deer or used to create brush piles for smaller mammals

Field Management

Several areas within the southern portion of the property can be considered field habitat and have been traditionally maintained in an early successional state, primarily for equestrian use. These areas can be broken down into four (4) distinct areas: the power line area, the east field, the area west of the pond, and the field area north of the equestrian arenas.

- The power line area, totaling ~6.5 acres is a current Ohio Edison right-of-way and is actively maintained as an early successional habitat with regular herbicide treatments targeting all woody vegetation. There is excellent potential for the power line area to be planted with desirable pollinator species, as this is a common practice to reduce maintenance needs and improve habitat within other similar utility rights-of-way.
- The east field, totaling ~7 acres had been maintained as part of the equestrian facilities, where various events were held throughout the year. This location offers an excellent opportunity for a native prairie restoration, but should minimally be maintained with a 3-year mowing rotation to reduce the colonization of woody vegetation.
- The area west of the pond, totaling ~2 acres, represents a healthy example of intermediate succession with diverse woody species beginning to recolonize. This area should be maintained through yearly herbicide application to control invasive species and select for desirable species.
- The field area north of the equestrian arenas, which totals ~ 8 acres, has also been maintained as an early successional habitat through routine mowing for equestrian related activities. This area presents another excellent opportunity for a native prairie restoration, but should be minimally maintained with routine mowing as necessary.

Wildlife and Fisheries Management

The MetroParks' primary objective for the Vickers Nature Preserve is to provide a healthy and stable ecosystem for a wide variety of wildlife to flourish. To achieve healthy biodiversity, species-specific management goals must be established and implemented.

Waterfowl Management

The pond and wetland habitats found throughout the property offer excellent opportunities for waterfowl species to thrive. Increased efforts should be put forth to provide quality feeding and nesting opportunities for a variety of species throughout the year.

Below lists some current and future habitat improvements aimed at waterfowl management.

- The creation and maintenance of nesting boxes for cavity nesters such as the **Wood Duck** (*Aix sponsa*) and **Hooded Merganser** (*Lophodytes cucullatus*).
- The creation and maintenance of nesting baskets for species such as the **Mallard** (*Anas platyrhynchos*), **American Black Duck** (*Anas rubripes*), and **Blue-winged Teal** (*Anas discors*).
- Active monitoring and management of predator species
- Continued survey efforts and annual reporting

See Appendix (A) for current eBird lists

Songbird Management

In addition to the abovementioned waterfowl species the Vickers Nature Preserve is home to a long list of songbird species such as the **Eastern Kingbird** (*Tyrannus tyrannus*), **Red-Winged Blackbird** (*Agelaius phoeniceus*), and **Cedar Waxwing** (*Bombycilla cedrorum*).

Below lists some current and future habitat improvements aimed at songbird management:

- The creation and maintenance of nesting structures for various species such as **Eastern Bluebirds** (*Sialia sialis*), **Tree Swallows** (*Tachycineta bicolor*), **Chimney Swifts** (*Chaetura pelagica*), and **Prothonotary Warblers** (*Protonotaria citrea*).
- Routine (annual) monitoring of nest boxes to clear out old nest debris and remove invasive species
- Habitat improvement through invasive species management and native plant restoration
- Active monitoring and management of predator species
- Increased survey efforts and annual reporting

See Appendix (A) for current eBird lists

Raptor Management

Several species of raptors such as the **Red-Tailed Hawk** (*Buteo jamaicensis*), **Turkey Vultures** (*Cathartes aura*), and **Osprey** (*Pandion haliaetus*) are frequent visitors to the Vickers Nature Preserve, as the mixture of woodland and field habitats provide excellent feeding opportunities. Some current and future habitat improvements to improve raptor habitat at the Vickers Nature Preserve include:

- The creation and maintenance of nesting structures for raptors such as **American Kestrels** (*Falco sparverius*), **Eastern Screech Owls** (*Megascops asio*), **Barred Owls** (*Strix varia*), and **Barn Owls** (*Tyto alba*)
- The creation and maintenance of various perches for raptors to utilize
- Increased survey efforts and annual reporting

See Appendix (A) for current eBird lists

Bat Management

The wetlands and upland field habitats found at the Vickers Nature Preserve offer excellent feeding opportunities for bat species, and it is likely that multiple species of bats such as the **Big Brown Bat** (*Eptesicus fuscus*) are common visitors to the property. Some future management actions to improve habitat for bat species at the Vickers Nature Preserve include:

- The creation and maintenance of nesting structures
- Routine monitoring of existing nesting structures
- Increased survey efforts and annual reporting

Nesting Structures

The addition of artificial (man-made) nesting structures is often a reoccurring theme in wildlife management (as seen above). Nesting structures have been instrumental in the recovery of many wildlife species across the country such as the Eastern Bluebird (*Sialia sialis*) and Wood Duck (*Aix sponsa*) but can benefit a long list of other species. The creation and maintenance of these structures at the Vickers Nature Preserve allows for increased biodiversity and quality nesting habitat for targeted species, both of which directly relate to the management goals for the facility. Please see below for a visual representation of the current nesting structures located throughout the Vickers Nature Preserve.

Figure 12. Vickers Nature Preserve: Nesting Structures



Amphibian and Reptile Management

The Vickers Nature Preserve hosts a wide variety of reptiles and amphibian species such as the **Midland Painted Turtle** (*Chrysemys picta marginata*), **Spring Peeper** (*Pseudacris crucifer*) **Eastern Garter Snake** (*Thamnophis sirtalis*), and **Northern Dusky Salamander** (*Desmognathus fuscus*). Some future management actions could be employed to further enhance the species diversity of amphibian and reptile species throughout the Vickers Nature Preserve such as:

- Installation and maintenance of basking structures for turtle species
- Place untreated plywood in moist areas to attract salamander species to provide survey and educational opportunities
- Place sheets of corrugated metal in areas of high snake density to provide survey and educational opportunities
- Active monitoring and management of predator populations
- Increased survey efforts and annual reporting

Fisheries Management

Numerous fish species are likely naturally occurring within the existing pond present at the Vickers Nature Preserve such as the **Largemouth Bass** (*Micropterus salmoides*) or **Bluegill** (*Lepomis macrochirus*), however, no formal survey effort has taken place. The following survey efforts and habitat improvement projects should be explored and implemented as necessary to improve the overall quality and biodiversity of the open water habitat found at the Vickers Nature Preserve.

- Bathymetric surveys to document water depth and substrate structure
- Electrofishing Surveys
- Net Surveys
- Removal of invasive/non-native species such as **Common Carp** (*Cyprinus carpio*) and **Grass Carp** (*Ctenopharyngodon idella*)
- Treatment of invasive aquatic vegetation such as **Curly Leaf Pondweed** (*Potamogeton crispus*) or **Watermeal** (*Wolffia spp.*)
- Incorporating additional recreational opportunities through catch and release fishing where possible
- Hook and line surveys and/or fishing reports from recreational users
- Strategic stockings as necessary to achieve the desired fish community

Before any stocking program is to be considered or instituted, habitat assessments will be completed to determine the ability of the pond to successfully host a healthy fish population year-round. Habitat assessments will include items such as maximum/average depth and overall habitat quality. For fish communities to successfully overwinter, a maximum depth of 8'-12' is desired – this depth will provide fish adequate refuge during a prolonged freeze and will help protect against winter fish kills. No fish stocking should take place unless these depth requirements are met.

White-tailed Deer Management

The **White-tailed Deer** (*Odocoileus virginianus*) is the only species of ungulate found in Ohio, and is a true conservation success story. Not unlike many other wildlife species, white-tailed deer were pushed nearly to point of extirpation from the state in the early 1900's, but through dedicated conservation measures, including healthy regulated harvests, the population today exceeds 750,000 individuals. White-tailed deer have proved to be increasingly adaptable as they continue to thrive in the ever-changing landscape of today's world. Herd management is key in the continued success of the white-tailed deer, if left unmanaged, populations can quickly exceed the carrying capacity of the environment (10-25 individuals per square mile), especially in urban areas. The Ohio Department of Natural Resources (ODNR) institutes and regulates various hunting seasons throughout the state aimed at managing Ohio's deer herd responsibly, and regulations often vary to achieve the overall management goal of the state.

The population of white-tailed deer at the Vickers Nature Preserve is unknown, as the property has not been the subject of any past survey efforts. Various survey methods will be employed to gain insight into the overall condition of the deer herd present at the Vickers Nature Preserve such as:

- Browse Surveys
- Pellet Counts
- Deer Exclosures
- Spot Light Surveys
- Trail Camera Surveys
- Aerial Surveys

Using multiple survey methods can be time consuming and costly, but will produce an accurate estimate of the overall size and health of the deer herd at the Vickers Nature Preserve. For continued monitoring, survey methods will be continued at regular intervals. Where applicable, habitat improvement projects will be done to improve the availability of quality habitat for deer and other wildlife. With improved habitat opportunities, properties can responsibly support an increased deer population and help lessen ecological conflicts. However, if population levels of white-tailed deer are ultimately deemed to be in excess of the acceptable carrying capacity of the landscape, all viable management options will be explored and implemented as necessary to achieve pre-determined population goals.

Furbearer Management

Vickers Nature Preserve is home to a wide variety of other mammal species such as the **Raccoon** (*Procyon lotor*), **Virginia Opossum** (*Didelphis virginiana*), **Red Fox** (*Vulpes vulpes*), and the **Eastern Coyote** (*Canis latrans*). These animals are present in varying degrees and all play an important part in the overall ecosystem, but at this time do not pose a significant threat to the biodiversity of the site. Constant monitoring/awareness is crucial, and if conditions change one or more of these species may need to be specifically managed in the future. Survey techniques employed for species of more concern can provide valuable information for these species as well.

- Spotlight Surveys
- Trail Camera Surveys
- Winter Track Surveys

Facility Maintenance

Vickers Nature Preserve is considered one of the seven (7) regional facilities managed through the MetroParks Farm; therefore, all maintenance responsibilities fall upon the Farm Maintenance Manager and the Farm Maintenance Staff. The maintenance requirements of Vickers Nature Preserve differ from other regional facilities due to the existing infrastructure and the recreational and rental opportunities connected to the equestrian facilities onsite.

Routine facility maintenance activities include:

- Mowing (Recreational/Rental Areas) – bi-monthly or as needed
- Arena Maintenance – bi-monthly or as needed
- Barn Maintenance (Stalls/Manure) – as needed
- Mowing (Trails) – approximately every six (6) weeks
- Trail Maintenance – annually or as needed
- Mowing (Dam) – tops and sides as necessary
- Dam Inspection – late winter or early spring
- Water Control Structure Maintenance – as needed
- Blue Bird Box Clean Out – annually (late fall)

Volunteer Involvement

Vickers Nature Preserve has a very rich history of volunteer involvement throughout the years, most notably the Buckeye Horse Park Association, which has helped shape the facility into its current state. Continued efforts from dedicated volunteers will be vital in the overall management of Vickers Nature Preserve in the future. The list below showcases some past, present, and future volunteer activities that would benefit the facility.

Volunteer Activities

- **Trail Improvement** – Volunteers have historically provided MetroParks Staff with frequent updates as to current trail conditions, insight from the hikers and equestrian riders that frequent these trails is valuable when identifying and prioritizing future trail improvements projects.
- **Invasive Species Management** – Invasive species are an ever-present threat to all of the MetroParks facilities, including Vickers Nature Preserve. The treatment and/or removal of these species through volunteer efforts would benefit not just the Vickers Nature Preserve, but the MetroParks as a whole.
- **Habitat Improvement** – Volunteers could become involved in various habitat improvement projects as different opportunities present themselves. Activities such as nesting box monitoring/clean out, native seed collection and native plantings are a few examples of possible projects.
- **Public Outreach and Education** – Volunteer led hikes, educational programs, and special events are commonplace throughout the MetroParks covering a wide array of topics and would be a welcome addition at Vickers Nature Preserve.

Public Access and Education

The Vickers Nature Preserve is open to the public in all aspects, and is the only property in the MetroParks system to currently allow equestrian use. As previously mentioned, all trails are currently designated as multi-use trails that are to be shared by equestrian riders and hikers. In addition to the extensive trail network, the equestrian facilities onsite (arenas, barns, etc.) are also open to the public year-round (if not rented).

Vickers Nature Preserve is a popular site for many educational programs held by MCMP Naturalist Staff. Past educational programming at Vickers Nature Preserve has included events such as “The Wild Women of Mill Creek: Wildflower Workout”, “Voices of the Night”, and the “Scenic Ramble”.

Management Plan Updates

This management plan is fluid, and should be continually updated as new information is gathered. The plan should reflect changes in the landscape as time progresses, management goals are met, or as policies change. Any additions or changes to this management plan must reflect a recognized need at the facility based upon scientific data and must be approved through the MCMP Planning & Operations Department.

This management plan should be reviewed regularly, and updated every 3-5 years at a minimum. Items that should be routinely reexamined include:

- Updated Biological Inventory
- Updated Invasive Species Distribution
- Updated Infrastructure
- Changes to Facility Management Goals
- Changes to Public Use/Facility Maintenance Needs

Acknowledgements

Drafting & Review

MCMP Planning and Operations Department

MCMP Education and Naturalist Staff

MCMP Natural Resources Citizen Advisory Committee

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Appendix (A). eBird Field Checklist

Vickers Nature Preserve

Mahoning, Ohio, US

80 species (+3 other taxa) - Year-round, All Years

<p><u>Kinglets</u></p> <ul style="list-style-type: none"> • Golden-crowned Kinglet • Ruby-crowned Kinglet <p><u>Nuthatches</u></p> <ul style="list-style-type: none"> • White-breasted Nuthatch <p><u>Treecreepers</u></p> <ul style="list-style-type: none"> • Brown Creeper <p><u>Wrens</u></p> <ul style="list-style-type: none"> • House Wren • Carolina Wren <p><u>Starlings and Mynas</u></p> <ul style="list-style-type: none"> • European Starling <p><u>Catbirds, Mockingbirds, and Thrashers</u></p> <ul style="list-style-type: none"> • Gray Catbird • Northern Mockingbird <p><u>Thrushes</u></p> <ul style="list-style-type: none"> • Eastern Bluebird • Wood Thrush • American Robin <p><u>Waxwings</u></p> <ul style="list-style-type: none"> • Cedar Waxwing <p><u>Hérons, Ibis, and Allies</u></p> <ul style="list-style-type: none"> • Great Blue Heron • Green Heron <p><u>Vultures, Hawks, and Allies</u></p> <ul style="list-style-type: none"> • Turkey Vulture • Osprey • Red-shouldered Hawk • Red-tailed Hawk <p><u>Blackbirds</u></p> <ul style="list-style-type: none"> • Eastern Meadowlark • Baltimore Oriole • Red-winged Blackbird • Brown-headed Cowbird • Common Grackle <p><u>Wood-Warblers</u></p> <ul style="list-style-type: none"> • Blue-winged Warbler • Common Yellowthroat • Magnolia Warbler • Yellow Warbler • Yellow-rumped Warbler • warbler sp. (Parulidae sp.) 	<p><u>Old World Sparrows</u></p> <ul style="list-style-type: none"> • House Sparrow <p><u>Finches, Euphonias, and Allies</u></p> <ul style="list-style-type: none"> • House Finch • American Goldfinch <p><u>New World Sparrows</u></p> <ul style="list-style-type: none"> • Chipping Sparrow • Field Sparrow • American Tree Sparrow • Fox Sparrow • Dark-eyed Junco • Song Sparrow • Swamp Sparrow • Eastern Towhee • sparrow sp <p><u>Waterfowl</u></p> <ul style="list-style-type: none"> • Canada Goose • Wood Duck • Blue-winged Teal • Gadwall • Mallard • Ring-necked Duck • Bufflehead • duck sp. <p><u>Grouse, Quail, and Allies</u></p> <ul style="list-style-type: none"> • Wild Turkey <p><u>Pigeons and Doves</u></p> <ul style="list-style-type: none"> • Rock Pigeon • Mourning Dove <p><u>Cuckoos</u></p> <ul style="list-style-type: none"> • Yellow-billed Cuckoo <p><u>Swifts</u></p> <ul style="list-style-type: none"> • Chimney Swift <p><u>Shorebirds</u></p> <ul style="list-style-type: none"> • Killdeer • Solitary Sandpiper <p><u>Cardinals, Grosbeaks, and Allies</u></p> <ul style="list-style-type: none"> • Scarlet Tanager • Northern Cardinal • Rose-breasted Grosbeak • Indigo Bunting
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

























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



























Appendix (B) – iNaturalist Checklist
















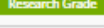



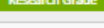







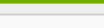







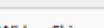



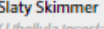



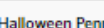



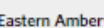







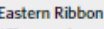




Vickers Nature Preserve

Mahoning County, Ohio

43 Observations (33 Species) – Year- Round, All Years

Vickers Nature Preserve					
43 OBSERVATIONS					
33 SPECIES					
31 IDENTIFIERS					
8 OBSERVERS					
Map Grid List					
Media	Name	User	Observed	Place	Added
	Northern Red Oak (<i>Quercus rubra</i>)	 keithkutsko	Oct 15, 2019 12:22 AM EDT	📍 Canfield, OH 44406, USA	Oct 16, 2019 12:25 AM EDT
	Pignut Hickory (<i>Carya glabra</i>)	 keithkutsko	Oct 15, 2019 11:53 PM EDT	📍 Canfield, OH 44406, USA	Oct 15, 2019 11:54 PM EDT
	Familiar Bluet (<i>Enallagma civile</i>)	 lewarren	Jun 23, 2019 2:56 PM EDT	📍 Vickers Nature Preserve	Oct 3, 2019 11:27 AM EDT
	Orange Bluet (<i>Enallagma signatum</i>)	 lewarren	Jun 23, 2019 2:29 PM EDT	📍 Vickers Nature Preserve	Oct 3, 2019 10:58 AM EDT
	Wood Asters (<i>Genus Eurybia</i>)	 spector	Aug 30, 2019 4:35 PM EDT	📍 N Palmyra Rd, Canfield, OH, US	Aug 30, 2019 6:56 PM EDT
	Oudemansiella furfurac...	 spector	Aug 30, 2019 4:24 PM EDT	📍 Canfield, OH, US	Aug 30, 2019 6:56 PM EDT
	Flat-top White Aster (<i>Doellingeria umbellata</i>)	 spector	Aug 30, 2019 4:19 PM EDT	📍 Canfield, OH, US	Aug 30, 2019 6:55 PM EDT
	Swamp White Oak (<i>Quercus bicolor</i>)	 spector	Aug 30, 2019 4:15 PM EDT	📍 Canfield, OH, US	Aug 30, 2019 6:55 PM EDT
	Spotted Cucumber Beetle (<i>Diabrotica undecimpunctata</i>)	 spector	Aug 30, 2019 4:14 PM EDT	📍 Canfield, OH, US	Aug 30, 2019 6:54 PM EDT
	Bull Thistle (<i>Cirsium vulgare</i>)	 spector	Aug 30, 2019 4:14 PM EDT	📍 Canfield, OH, US	Aug 30, 2019 6:53 PM EDT
	Water Horehounds (<i>Genus Lycopus</i>)	 spector	Aug 30, 2019 4:12 PM EDT	📍 Canfield, OH, US	Aug 30, 2019 6:51 PM EDT
	Tickseed Beggar-Ticks (<i>Bidens aristosa</i>)	 spector	Aug 30, 2019 4:00 PM EDT	📍 Akron Canfield Rd, Canfield, OH, US	Aug 30, 2019 6:45 PM EDT
	Cardinal Flower (<i>Lobelia cardinalis</i>)	 mikayla16	Aug 12, 2019 11:34 AM EDT	📍 44406, Canfield, OH, US	Aug 12, 2019 11:36 AM EDT

	Eastern Amberwing (<i>Perithemis tenera</i>)	 raynaturalist	Jul 28, 2019 4:10 PM EDT	📍 Mahoning County, OH, USA	Jul 28, 2019 9:22 PM EDT
	Red-spotted Purple (<i>Limenitis arthemis astyanax</i>)	 raynaturalist	Jul 28, 2019 4:05 PM EDT	📍 Mahoning County, OH, USA	Jul 28, 2019 9:22 PM EDT
	Eastern Pondhawk (<i>Erythemis simplicicollis</i>)	 raynaturalist	Jul 28, 2019 4:01 PM EDT	📍 Mahoning County, OH, USA	Jul 28, 2019 9:19 PM EDT
	Meadowhawks (Genus <i>Sympetrum</i>)	 raynaturalist	Jul 28, 2019 3:59 PM EDT	📍 Mahoning County, OH, USA	Jul 28, 2019 9:18 PM EDT
	Slaty Skimmer (<i>Libellula incesta</i>)	 raynaturalist	Jul 28, 2019 3:50 PM EDT	📍 Mahoning County, OH, USA	Jul 28, 2019 9:17 PM EDT
	Reptiles (Class Reptilia)	 raynaturalist	Jul 28, 2019 3:49 PM EDT	📍 Mahoning County, OH, USA	Jul 28, 2019 9:16 PM EDT
	Eastern Pondhawk (<i>Erythemis simplicicollis</i>)	 raynaturalist	Jul 28, 2019 3:47 PM EDT	📍 Mahoning County, OH, USA	Jul 28, 2019 9:15 PM EDT
	Cardinal Flower (<i>Lobelia cardinalis</i>)	 raynaturalist	Jul 28, 2019 3:46 PM EDT	📍 Mahoning County, OH, USA	Jul 28, 2019 9:14 PM EDT
	Pond and Box Turtles (Family Emydidae)	 raynaturalist	Jul 28, 2019 3:42 PM EDT	📍 Mahoning County, OH, USA	Jul 28, 2019 9:13 PM EDT
	Common Whitetail (<i>Plathemis lydia</i>)	 raynaturalist	Jul 28, 2019 3:38 PM EDT	📍 Mahoning County, OH, USA	Jul 28, 2019 9:12 PM EDT
	Darners (Family Aeshnidae)	 bellafesta	Jun 28, 2019 10:54 AM EDT	📍 Mahoning County, US-OH, US	Jun 28, 2019 11:44 PM EDT
	Slaty Skimmer (<i>Libellula incesta</i>)	 bellafesta	Jun 28, 2019 10:28 AM EDT	📍 Mahoning County, US-OH, US	Jun 28, 2019 11:42 PM EDT
	Eastern Amberwing (<i>Perithemis tenera</i>)	 bellafesta	Jun 28, 2019 10:45 AM EDT	📍 Mahoning County, US-OH, US	Jun 28, 2019 11:37 PM EDT
	Widow Skimmer (<i>Libellula luctuosa</i>)	 bellafesta	Jun 28, 2019 11:16 AM EDT	📍 Mahoning County, US-OH, US	Jun 28, 2019 11:30 PM EDT

	Skimming Bluet (<i>Enallagma geminatum</i>)	 lewarren	Jun 23, 2019 2:23 PM EDT	 Vickers Nature Preserve	Jun 24, 2019 3:53 PM EDT
					
	Lancet Clubtail (<i>Phanogomphus exilis</i>)	 lewarren	Jun 23, 2019 2:27 PM EDT	 Vickers Nature Preserve	Jun 24, 2019 11:51 AM EDT
					
	Unicorn Clubtail (<i>Argomphus villosipes</i>)	 lewarren	Jun 23, 2019 2:15 PM EDT	 Vickers Nature Preserve	Jun 24, 2019 10:43 AM EDT
					
	Common Whitetail (<i>Plathemis lydia</i>)	 lewarren	Jun 23, 2019 2:32 PM EDT	 Vickers Nature Preserve	Jun 23, 2019 7:58 PM EDT
					
	Fragile Forktail (<i>Ischnura posita</i>)	 lewarren	Jun 23, 2019 2:18 PM EDT	 Vickers Nature Preserve	Jun 23, 2019 7:45 PM EDT
					
	Eastern Forktail (<i>Ischnura verticalis</i>)	 lewarren	Jun 23, 2019 2:15 PM EDT	 Vickers Nature Preserve	Jun 23, 2019 7:33 PM EDT
					
	Spangled Skimmer (<i>Libellula cyanea</i>)	 lewarren	Jun 23, 2019 2:07 PM EDT	 Vickers Nature Preserve	Jun 23, 2019 7:21 PM EDT
					
	Blue Dasher (<i>Pachydiplax longipennis</i>)	 lewarren	Jul 20, 2018 12:19 PM EDT	 Vickers Nature Preserve	Jul 20, 2018 5:41 PM EDT
					
	Eastern Pondhawk (<i>Erythemis simplicicollis</i>)	 lewarren	Jul 20, 2018 12:03 PM EDT	 Vickers Nature Preserve	Jul 20, 2018 5:24 PM EDT
					
	Widow Skimmer (<i>Libellula luctuosa</i>)	 lewarren	Jul 20, 2018 12:21 PM EDT	 Vickers Nature Preserve	Jul 20, 2018 5:08 PM EDT
					
	Slaty Skimmer (<i>Libellula incesta</i>)	 lewarren	Jul 20, 2018 12:23 PM EDT	 Vickers Nature Preserve	Jul 20, 2018 4:52 PM EDT
					
	Halloween Pennant (<i>Celithemis eponina</i>)	 lewarren	Jul 20, 2018 12:10 PM EDT	 Vickers Nature Preserve	Jul 20, 2018 4:44 PM EDT
					
	Eastern Amberwing (<i>Perithemis tenera</i>)	 lewarren	Jul 20, 2018 12:09 PM EDT	 Vickers Nature Preserve	Jul 20, 2018 3:58 PM EDT
					
	Common Boneset (<i>Eupatorium perfoliatum</i>)	 millcreekmetroparks	Sep 2, 2017 9:35 AM EDT	 Mahoning County, OH, USA	Sep 7, 2017 12:02 PM EDT
					
	Eastern Ribbon Snake (<i>Thamnophis saurita</i>)	 millcreekmetroparks	Apr 26, 2017 8:32 PM EDT	 Mahoning County, OH, USA	May 1, 2017 11:41 AM EDT
					

Appendix (C) – Complete Soils List

Vickers Nature Preserve

Mahoning County, Ohio

Mahoning County, Ohio (OH099)				
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI	Hydric Soil Classification
DkC	Dekalb very stony loam, 2 to 12 percent slopes	10.1	4.0%	No
EIB	Ellsworth silt loam, 2 to 6 percent slopes	75.0	29.7%	Yes
EIC	Ellsworth silt loam, 6 to 12 percent slopes	19.5	7.7%	No
EIC2	Ellsworth silt loam, 6 to 12 percent slopes, eroded	1.9	0.8%	Np
EID2	Ellsworth silt loam, 12 to 18 percent slopes, eroded	1.6	0.6%	No
EIF	Ellsworth silt loam, 25 to 70 percent slopes	23.3	9.2%	No
GbB	Geeburg silt loam, 2 to 6 percent slopes	24.7	9.8%	No
GbC	Geeburg silt loam, 6 to 12 percent slopes	10.2	4.0%	No
LdB	Loudonville loam, 2 to 6 percent slopes	8.6	3.4%	No
Ov	Orrville silt loam	3.9	1.5%	Yes
ReB	Remsen silt loam, 2 to 6 percent slopes	46.4	18.4%	Yes
TrA	Trumbull silt loam, 0 to 2 percent slopes	21.5	8.5%	Yes
W	Water	3.4	1.4%	N/A
Wc	Wayland silt loam	2.4	0.9%	Yes

Appendix (D). Ohio's Invasive Plant Species

OHIO'S INVASIVE PLANT SPECIES

The majority of invasive plant species in Ohio's natural areas are non-native. Of the more than 700 non-native plant species in Ohio, approximately 60 species threaten natural areas. The following three categories separate the species by their invasiveness in Ohio.

TARGETED SPECIES: These species have a state-wide distribution, are the most invasive in Ohio's natural areas, and are the most difficult to control. These species were chosen as the focus for the Division's Ohio EPA Environmental Education grant in 1999-2000.

WELL-ESTABLISHED INVASIVES: The distribution and invasiveness of these species are state-wide or regional within Ohio. These species pose moderate to serious threats to natural areas in Ohio.

WATCH LIST: These species are very invasive in natural areas in neighboring states and are a potential threat in Ohio. The current distribution of these species may be limited, but should be monitored.

TARGETED SPECIES

<u>Common Name</u>	<u>Scientific Name</u>
Autumn-olive	<i>Elaeagnus umbellata</i>
Buckthorn, glossy	<i>Rhamnus frangula</i>
Buckthorn, European or common	<i>Rhamnus cathartica</i>
Common reed grass *	<i>Phragmites australis</i>
Garlic mustard	<i>Alliaria petiolata</i>
Honeysuckle, amur	<i>Lonicera maackii</i>
Honeysuckle, Japanese	<i>Lonicera japonica</i>
Honeysuckle, Morrow	<i>Lonicera morrowii</i>
Honeysuckle, Tatarian	<i>Lonicera tatarica</i>
Japanese knotweed	<i>Polygonum cuspidatum</i>
Multiflora rose	<i>Rosa multiflora</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Reed canary grass *	<i>Phalaris arundinacea</i>

*these species may have native and non-native strains

WELL-ESTABLISHED INVASIVES

<u>Common Name</u>	<u>Scientific Name</u>
Air-potato	<i>Dioscorea batatas</i>
Asian bittersweet	<i>Celastrus orbiculatus</i>
Bouncing bet	<i>Saponaria officinalis</i>
Canada thistle	<i>Cirsium arvense</i>
Cattail, hybrid	<i>Typha x glauca</i>
Cattail, narrow-leaved	<i>Typha angustifolia</i>
Celandine, lesser	<i>Ranunculus ficaria</i>
Crown-vetch	<i>Coronilla varia</i>
Curly pondweed	<i>Potamogeton crispus</i>
Dame's rocket	<i>Hesperis matronalis</i>
Day-lily	<i>Emerocallis fulva</i>
European cranberry-bush	<i>Viburnum opulus var. opulus</i>

WELL-ESTABLISHED INVASIVES CONT.

Common Name

Eurasian water-milfoil
Field bindweed
Flowering-rush
Japanese barberry
Johnson grass
Meadow fescue
Moneywort
Lesser naiad
Periwinkle or myrtle
Poison hemlock
Privet, common
Quack grass
Queen Anne's lace
Russian-olive
Smooth brome
Sweet-clover, white
Sweet-clover, yellow
Teasel, common
Teasel, cut-leaved
Tree-of-heaven
Water-cress
Willow-herb, hairy
Willow herb, small-flowered hairy
Winged euonymus
Wintercreeper
Yellow flag

Scientific Name

Myriophyllum spicatum
Convolvulus arvensis
Butomus umbellatus
Berberis thunbergii
Sorghum halepense
Festuca pratensis
Lysimachia nummularia
Najas minor
Vinca minor
Conium maculatum
Ligustrum vulgare
Agropyron repens
Daucus carota
Elaeagnus angustifolia
Bromus inermis
Melilotus alba
Melilotus officinalis
Dipsacus fullonum (sylvestris)
Dipsacus laciniatus
Ailanthus altissima
Rorippa nasturtium-aquaticum
Epilobium hirsutum
Epilobium parviflorum
Euonymus alatus
Euonymus fortunei
Iris pseudacorus

WATCH LIST

Common Name

Black swallow-wort
Chinese silvergrass
Dog rose
Giant knotwood
Honeysuckle, showy pink
Kudzu
Leafy spurge
Mile-a-minute vine
Nepalgrass
Nodding thistle
Porcelain-berry
Privet, border
Spotted knapweed
Star-of-Bethlehem

Scientific Name

Vincetoxicum nigrum
Miscanthus sinensis
Rosa canina
Polygonum sachalinense
Lonicera Xbella
Pueraria lobata
Euphorbia esula
Polygonum perfoliatum
Microstegium vimineum
Carduus nutans
Ampleopsis brevipedunculata
Ligustrum obtusifolium
Centaurea maculosa
Onithagalum umbellatum

FOR MORE INFORMATION CONTACT:

Ohio Division of Natural Areas and Preserves
2045 Morse Road, Bldg. F-1
Columbus, Ohio 43229
(614) 265-6453

The Nature Conservancy
6375 Riverside Drive, Suite 50
Dublin, Ohio 43017
(614) 717-2770



April 2000

Appendix (E). Mill Creek MetroParks Oil & Gas Well Inspection Form



Mill Creek MetroParks Oil & Gas Well Inspection Form

General Information

Inspection Date: _____ Inspector: _____
 Well Name: _____ Park Property: _____
 Well Owner: _____ County: _____
 Emergency Contact #: _____ Township: _____

Facility Type

Check One	Notes
Well Head: <input type="checkbox"/>	
Storage Tank: <input type="checkbox"/>	
Flowback Tank: <input type="checkbox"/>	
Metering Well: <input type="checkbox"/>	

Inspection

	Yes	No	N/A	Notes
Oil/Gas Odors Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Visible Leaks Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Audible Leaks Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Stains/Sheens Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Vegetation Maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Paint in Good Condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Excessive Rust/Corrosion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Safety

	Yes	No	N/A	Notes
Access Road Gated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Stairs Locked/Chained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Signage Present/Legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Containers Locked? (Doors/Cabinets/Lids)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Follow Up Required?

Yes ☐ No ☐