



Mill Creek Wildlife Sanctuary

Beaver Township

Natural Resources Management Plan

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Mill Creek MetroParks

7574 Columbiana Canfield Rd.

Canfield, OH 44406



Table of Contents

Introduction

Mission Statement.....	Page 3
Management Plan Guidelines.....	Page 4
Facility Overview.....	Page 5
Regional Significance.....	Page 5
Facility Management Goals.....	Page 5
Acquisition.....	Page 5-6
County Map.....	Page 7

Site Overview

Topography and Surface Hydrology.....	Page 8
Soils Overview.....	Page 9
Trail and Building Infrastructure.....	Page 10
Oil Well and Holding Tank Infrastructure.....	Page 11
Water Control Infrastructure.....	Page 12
Habitat Delineations.....	Page 13-15
Species List Flora/Fauna.....	Page 16-17
Invasive & Exotic Species.....	Page 17-22

Natural Resources Management

Pond, Wetland, and Stream Management.....	Page 23-25
Forest Management.....	Page 25-27
Field Management.....	Page 27-28

Wildlife and Fisheries Management

Shorebirds & Waterfowl Management.....	Page 28-29
Songbird Management.....	Page 29
Raptor Management.....	Page 29
Bat Management.....	Page 30
Amphibians & Reptile Management.....	Page 30
Nesting Structures.....	Page 31
Fisheries Management.....	Page 32
White-tailed Deer Management.....	Page 32-33
Furbearer Management.....	Page 33-35

Facility Maintenance

Mowing Schedule, General Maintenance, Nest Box Maintenance.....	Page 35
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Volunteer Involvement

Volunteer History and Activities.....	Page 35-36
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Public Access and Education

Current and Future Public Access and Educational Opportunities.....	Page 36
Acknowledgments and References.....	Page 37-38

Appendices

Items A-G.....	Page 39-106
----------------	-------------

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 Mill Creek Wildlife Sanctuary is comprised of 264-acres located on Calla Road, east of New Buffalo Road in Beaver Township Mahoning County, Ohio. The property is bordered by the main stem of Mill Creek to the east and offers a wide variety of wildlife habitats. Originally, the Sanctuary was utilized for livestock farming but due to its frequent flooding and poor drainage, the eastern portion of the site proved to be of little value for cattle. In the 1950's, the Calvin family found a way to take advantage of the site's hydrology by constructing a series of ponds, dikes, and canals to form a fish hatchery. Over the next several decades the hatchery expanded to encompass over 130 acres of the property. The site continued to function as a fish hatchery until its acquisition by the MetroParks in 2004.

Regional Significance

Due to its location along the main stem of Mill Creek, the Sanctuary joins numerous other MetroParks' properties such as Hitchcock Woods, Huntington Woods, Mill Creek Preserve, and Mill Creek Park. In total, these facilities along the "Mill Creek Corridor", combine to preserve over 3,000 acres of land. These facilities and their functions provide critical wildlife habitat and watershed preservation along approximately 11 miles of Mill Creek. The properties directly adjacent to the Sanctuary, consisting of several privately held parcels and the Mahoning County Duck Hunting and Conservation Club, combine to offer another ~375 acres of valuable wildlife habitat. However, with limited access and the availability of diverse habitats the Mill Creek Wildlife Sanctuary offers exceptional opportunities for wildlife, specifically migrating shorebirds and waterfowl to thrive. This low intrusion approach coupled with the unique hydrologic features of the site has made the Sanctuary a very important resting and refueling point for shorebird and waterfowl migrations in the spring and fall.

Management Goals

Listed below are the guiding principles and goals for natural resource management at the Sanctuary:

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

Acquisition

Beginning in 1999, a 9-acre tract of land along Haus Blvd. was preserved through a grant from the Ohio Division of Natural Resources (ODNR) NatureWorks Program. In 2004, a Clean Ohio Conservation Fund grant through the Ohio Public Works Commission (OPWC) with local match funds for the grant being provided by the Mill Creek Park Foundation allowed Mill Creek MetroParks to purchase the remainder of the 249 acres. A life-estate on a 6.1 acre tract south of Calla Road was granted to the Calvin family, from whom the property was purchased.

Figure (1). Parcel Acquisition Map

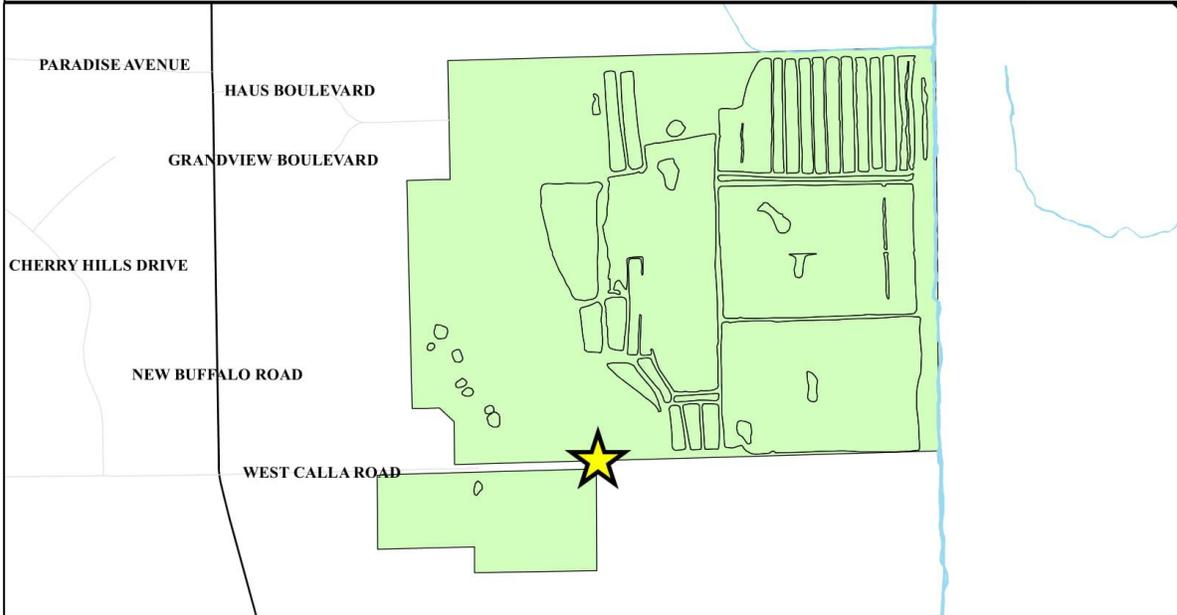
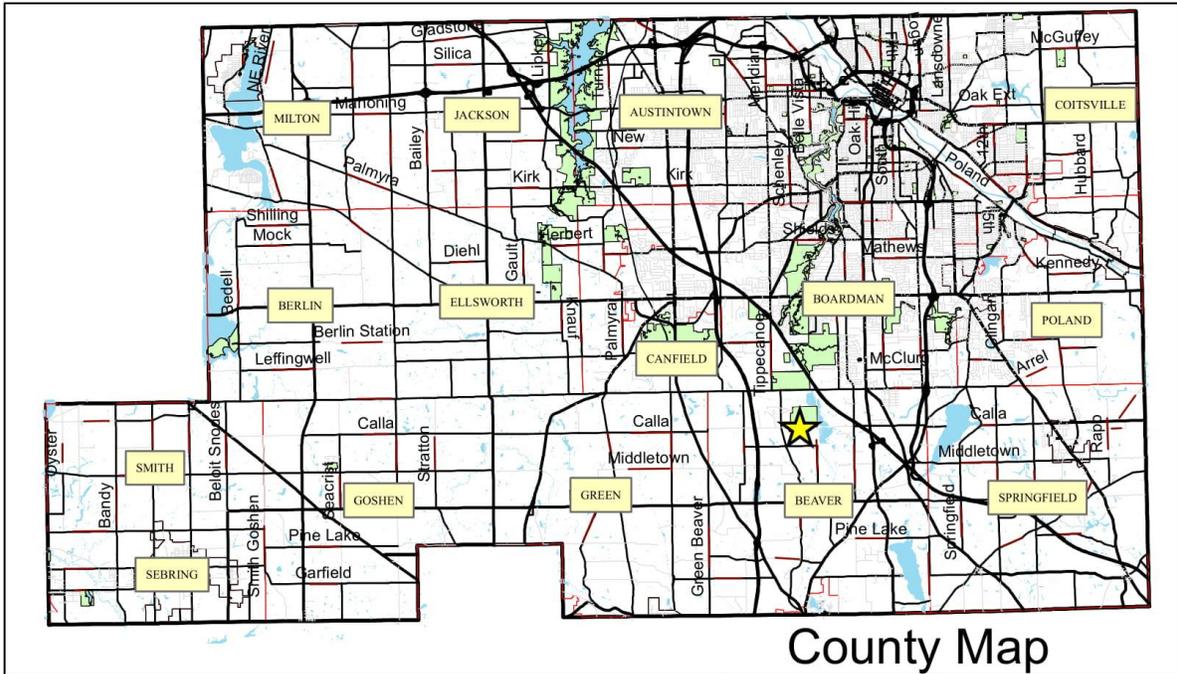


Mill Creek Wildlife Sanctuary
Parcel Acquisition Map
Beaver Township
Mahoning County, Ohio





Mill Creek Wildlife Sanctuary Beaver Township Mahoning County, Ohio

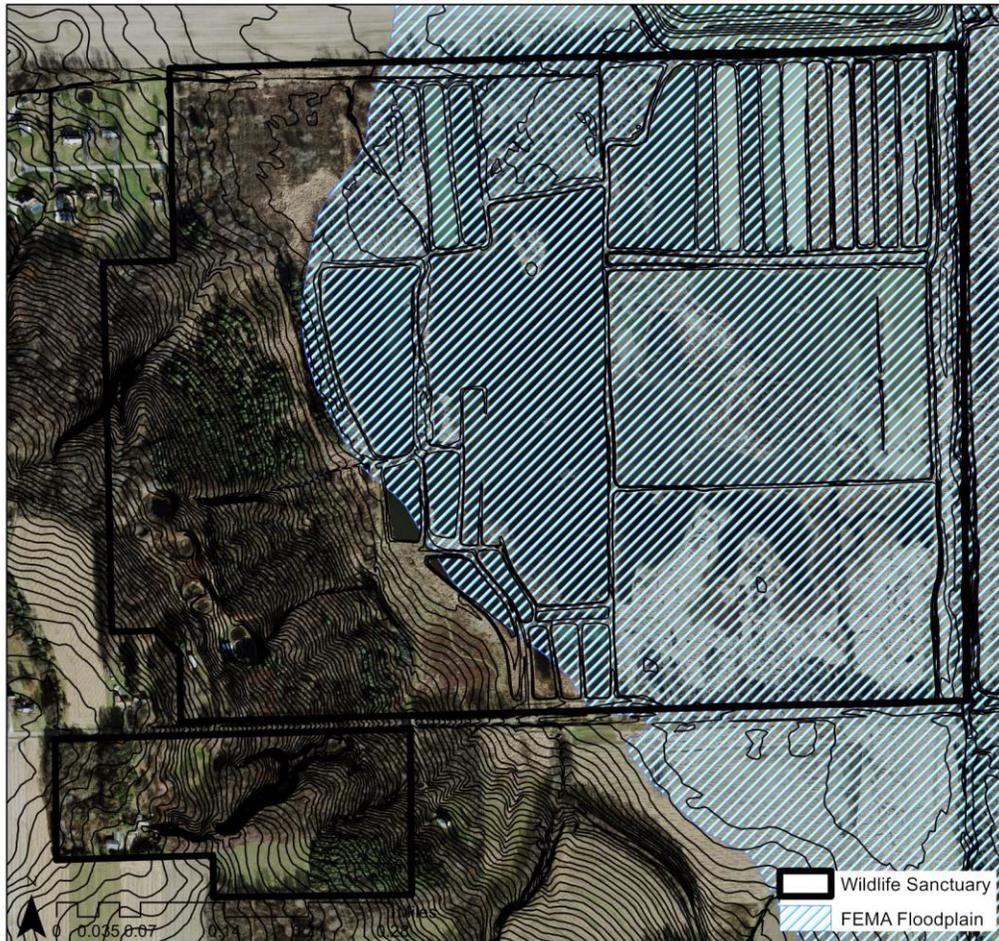


Site Overview

Topography and Surface Hydrology

The majority of the Mill Creek Wildlife Sanctuary lies within the historic floodplain of Mill Creek, and as a result the eastern portion of the site is significantly lower in elevation (1010 feet) when compared to the surrounding area. Conversely, on the western portions of the Sanctuary we can see much higher elevations reaching as high as 1130 feet at the western property border where several steep ravines convey water to the lower ponds seasonally and during times of high flow.

Figure (2). Mill Creek Wildlife Sanctuary Topography and Flood Plain Map



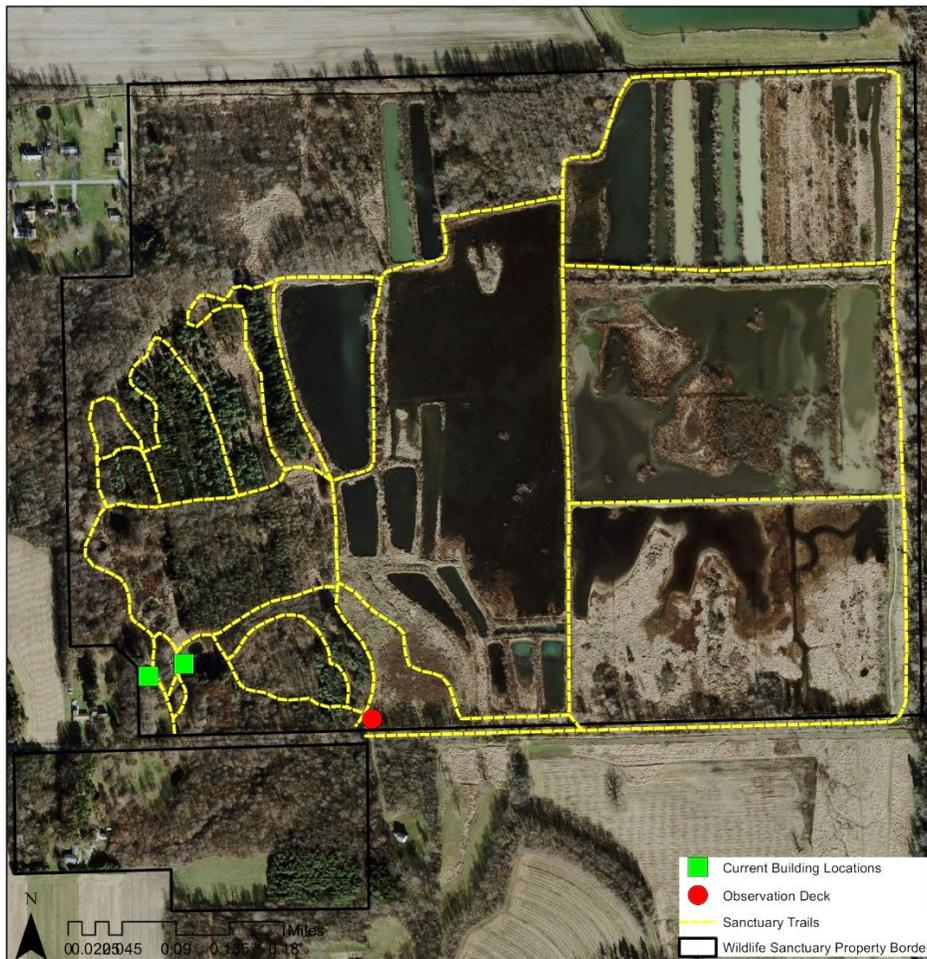
Mill Creek Wildlife Sanctuary
Topography and Floodplain Data
Beaver Township
Mahoning County, Ohio



Infrastructure: Trail and Building

Currently, public access to the Sanctuary is limited to volunteers and naturalist led hikes. A trail system is maintained throughout the entire facility to allow for proper maintenance and said volunteer activities. In 2014 an observation deck was erected near the Calla Road parking lot to provide the public a great vantage point to observe the Sanctuary. The deck allows the public to experience the Sanctuary while minimizing human impacts on the landscape. Also, as remnants of the previous farm and fish hatchery operation a barn and a concrete block building previously used for fish rearing, still remain on the upland portion of the property. Currently, both structures are utilized only as storage locations for various equipment, and provide an added benefit in the form of nesting structure for several species of birds. Please refer to figure (4) for a visual representation of the trail infrastructure located at the Sanctuary.

Figure (4). Mill Creek Wildlife Sanctuary – Trail and Building Infrastructure



Trail and Building Infrastructure
Mill Creek Wildlife Sanctuary
Beaver Township
Mahoning County, OH

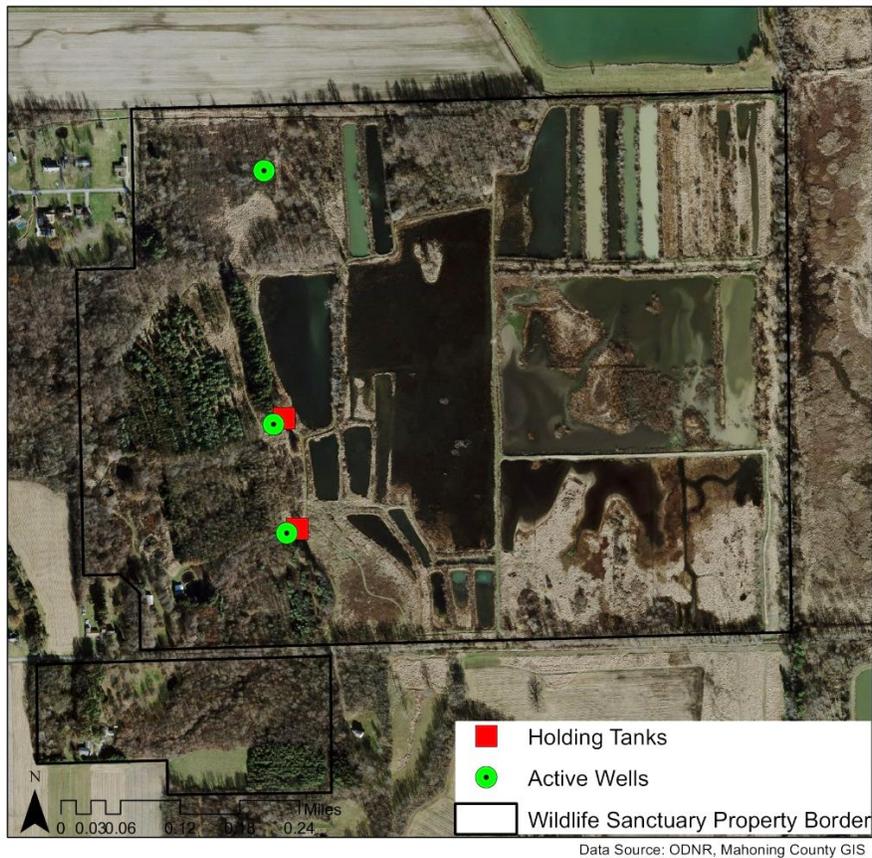


Infrastructure: Oil Wells and Holding Tanks

There are currently three oil wells and two holding tanks located on the property, according to ODNR data all wells are considered active. Routine monitoring will be done by the MetroParks Natural Resources Steward annually in compliance with MetroParks' Oil and Gas Well protocols to ensure 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

Figure (5). Mill Creek Wildlife Sanctuary Gas Well Infrastructure



Oil and Gas Well Infrastructure
Mill Creek Wildlife Sanctuary
Beaver Township
Mahoning County, Ohio



Infrastructure: Water Control Structures

In addition to the several structures previously mentioned, the previous fish hatchery operation left behind an extensive pond infrastructure system in the form of adjustable water control structures. These structures allow the water levels in each pond, as well as the flow from one pond to another, to be manipulated and adjusted as desired. These control structures are a vital tool in achieving the overall management goals of the Sanctuary. Locations of control structures and direction of flow can be seen below in figure (6).

Figure (6). Water Control Infrastructure and Direction of Flow



Water Control Infrastructure and Flow Direction
Mill Creek Wildlife Sanctuary
Beaver Township
Mahoning County, Ohio



Habitat Delineations and Features

The Sanctuary offers a vast and unique arrangement of habitat types such as mixed emergent marsh, open water, deciduous hardwood forests, mixed swamp, a planted pine plantation, and several old fields and scrub brush areas. It is uncommon to find these habitat types in such close proximity to each other – this is the main driving factor behind the rich biodiversity of the site. A description of each habitat type can be found below. Visual representation of each area is displayed in figure (7).

Mixed-Emergent Marsh

Through coordinated water level manipulation, several of the ponds in the eastern portion of the site have been allowed to revert to more of a natural wetland state. These areas now host healthy populations of beneficial emergent vegetation such as **Common Bur-reed** (*Sparganium eurycarpum*), **Broadleaf Arrow-head** (*Sagittaria latifolia*), **Button-Bush** (*Cephalanthus occidentalis*), and **Soft-Stem Bulrush** (*Schoenoplectus tabernaemontani*). Unfortunately, these areas can also be very prone to the colonization of invasive species such as **Reed Canary Grass** (*Phalaris arundinacea*), **Purple Loosestrife** (*Lythrum salicaria*), **Common Reed Grass** (*Phragmites australis*), and **Narrow-leaf Cattail** (*Typha angustifolia*). These man-made marshes coupled with other natural wetlands combine to encompass 102 acres of the site, which totals over 43 percent of the total acreage at the Sanctuary. These areas are not only the dominant habitat type in acreage, but they are largely responsible for the vast biodiversity found at the Sanctuary.

Open Water

Throughout the site, several ponds remain at full capacity throughout the year and operate as open water habitats. These areas total approximately 26 acres (11%) of the Sanctuary. These areas host a unique variety of aquatic algae and plants such as various **Pondweeds** (*Potamogeton spp.*), **Coontail** (*Ceratophyllum demersum*), **American Elodea** (*Elodea canadensis*), **Bladderwort** (*Utricularia spp.*), and **Spatterdock** (*Nuphar advena*).

Riparian Zone

The Sanctuary is bordered to the east by Mill Creek, and to the north by a smaller ditch. Both areas offer valuable riparian habitat consisting of various lowland tree species such as **Willows** (*Salix spp.*), **Ash** (*Fraxinus spp.*), and **Elm** (*Ulmus spp.*). The riparian zone is also home to many beneficial wetland plants such as **Swamp Milkweed** (*Asclepias incarnata*), **Wingstem** (*Verbesina alternifolia*), and **Trumpet-weed** (*Eutrochium purpureum*).

Old Fields

Several areas in the western portion of the site, approximately 17 acres (6%) were once maintained as open pastures for hay and livestock. Since acquisition in 2005 these areas have been allowed to return to a more natural state and demonstrate varying degrees of succession. These areas have been colonized by many beneficial native plants such as **Dogwood** (*Cornus spp.*), **Ironweed** (*Vernonia fasciculata*), **Goldenrod** (*Solidago spp.*), and **Swamp Verbena** (*Verbena hastata*). However, due to their historical disturbances, these areas are highly vulnerable to the colonization of invasive species such as **Reed Canary Grass** (*Phalaris arundinacea*), **Multiflora Rose** (*Rosa multiflora*), **Glossy Buckthorn** (*Rhamnus frangula*), **Canada Thistle** (*Cirsium arvense*), **Common Teasel** (*Dipsacus fullonum*), and **Field Bindweed** (*Convolvulus arvensis*).

Shrub/Scrub Land

In the upland portion of the site several areas of intermediate succession can be found and consist of areas of mixed shrubby vegetation such as **Glossy Buckthorn** (*Rhamnus frangula*), **Multiflora Rose** (*Rosa multiflora*), **Autumn Olive** (*Elaeagnus umbellata*), and various species of **Dogwood** (*Cornus spp.*).

Pine Plantation

In the 1990s an area totaling 34 acres (14%) along the upland slopes was planted with **Eastern White Pine** (*Pinus strobus*), **Norway Spruce** (*Picea abies*), **Black Walnut** (*Juglans nigra*), and **Sweetgum** (*Liquidambar styraciflua*). Through natural recruitment from surrounding woodlots native **Oaks** (*Quercus spp.*), **Black Cherry** (*Prunus serotina*) and **Maples** (*Acer spp.*) are also interspersed throughout the area.

Interestingly, a small grove of **Bald Cypress** (*Taxodium distichum*) can also be found along the western upland slopes.

Mixed Swamp

In the north-central portion of the Sanctuary, an area of mixed swamp can be found. This area totals approximately 18 acres (7%) and offers valuable habitat features in the form of moist/wet forests and vernal pools. Dominant species found here include **Black Cherry** (*Prunus serotina*), **American Beech** (*Fagus grandifolia*), and **Swamp White Oak** (*Quercus bicolor*).

Deciduous Hardwood Forest

Areas of deciduous hardwood forest can be found in the northwest and southwest portions of the Sanctuary. These areas total approximately 25 acres (11%) and offer valuable woodland habitat dominated by **Oaks** (*Quercus spp.*), **Hickories** (*Carya spp.*), **Maples** (*Acer spp.*), **American Beech** (*Fagus grandifolia*), and **Tulip Poplars** (*Liriodendron tulipifera*). These areas also serve as riparian buffers for the several ravines and swales that flow down towards the eastern ponds, and eventually Mill Creek.

Figure (7). Dominant Habitat Types by Percentage

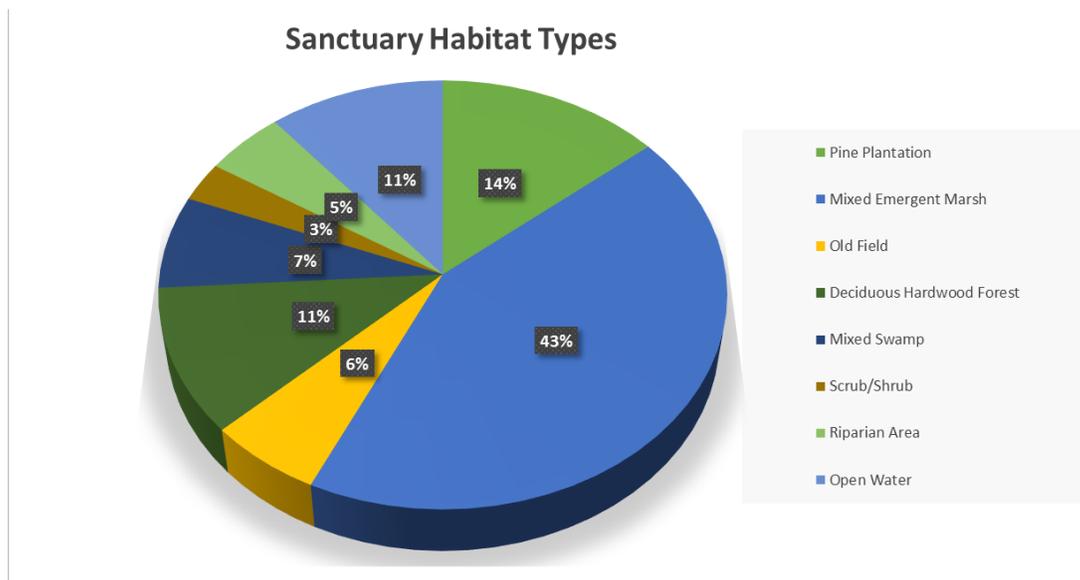


Figure (8). Mill Creek Wildlife Sanctuary – Habitat Delineations



Habitat Delineations
Mill Creek Wildlife Sanctuary
Beaver Township
Mahoning County, Ohio



Species List Flora and Fauna

Through volunteer efforts and a formal survey conducted by the Cleveland Museum of Natural History (CMNH) in 2009 a very detailed species list of flora and fauna found at the Sanctuary exists, including numerous rare species and several county records for plant, animal, and insect species. Please refer to the tables below (Tables 1-5) for rare species and county records found at the Sanctuary, and please refer to Appendix (A) to see the full list of flora/fauna documented.

Table (1). Avian County Records and Rare Species

Scientific Name	Common Name	Status
<i>Egretta thula</i>	Snowy Egret	Endangered
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	Threatened
<i>Nyctanassa violacea</i>	Yellow-crowned Night Heron	Threatened
<i>Ixobrychus exilis</i>	Least Bittern	Threatened
<i>Grus canadensis</i>	Sandhill Crane	Endangered
<i>Pandion haliaetus</i>	Osprey	Threatened
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Threatened
<i>Circus cyaneus</i>	Northern Harrier	Endangered
<i>Accipiter striatus</i>	Sharp-shinned Hawk	Species of Concern
<i>Falco peregrinus</i>	Peregrine Falcon	Threatened
<i>Rallus limicola</i>	Virginia Rail	Species of Concern
<i>Porzana carolina</i>	Sora	Species of Concern
<i>Gallinula chloropus</i>	Common Moorhen	Species of Concern
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker	Endangered
<i>Empidonax minimus</i>	Least Flycatcher	Threatened
<i>Cistothorus palustris</i>	Marsh Wren	Species of Concern
<i>Junco hyemalis</i>	Dark-eyed Junco	Threatened
<i>Dolichonyx oryzivorus</i>	Bobolink	Threatened
<i>Catharus guttatus</i>	Hermit Thrush	Threatened
<i>Protonotaria citrea</i>	Prothonotary Warbler	Species of Concern
<i>Colinus virginianus</i>	Northern Bobwhite	Species of Concern
<i>Sterna hirundo</i>	Common Tern	Endangered

Table (2). Botanical County Records and Rare Species

Scientific Name	Common Name	Status
<i>Carex hirtifolia</i>	Hairy Wood Sedge	County Record
<i>Carex intumescense</i>	Bladder Sedge	County Record
<i>Carex jamesii</i>	James's Sedge	County Record
<i>Potamogeton diversifolius</i>	Common Snailseed Pondweed	County Record
<i>Callitriche palustris</i>	Vernal Water-Starwort	Threatened
<i>Fraxinus profunda</i>	Pumpkin Ash	County Record

Table (3). Beetles (Order Coleoptera) County Records

Scientific Name	Common Name	Status
<i>Cicindela duodecimguttata</i>	Twelve-spotted Tiger Beetle	County Record
<i>Cicindela repanda</i>	Bronzed Tiger Beetle	County Record
<i>Cicindela sexguttata</i>	Six-spotted Tiger Beetle	County Record

Table (4). Dragonfly and Damselfly (Order Odonata) County Records

Scientific Name	Common Name	Status
<i>Epiaeschna heros</i>	Swamp Darner	County Record
<i>Rhionaeschna mutata</i>	Spatterdock Darner	County Record
<i>Gomphus lividus</i>	Ashy Clubtail	County Record
<i>Celithemis elisa</i>	Calico Pennant	County Record
<i>Libellula incest</i>	Slaty Skimmer	County Record
<i>Libellula semifasciata</i>	Painted Skimmer	County Record
<i>Sympetrum obtrusum</i>	White-faced Meadowhawk	County Record
<i>Tramea carolina</i>	Carolina Saddlebags	Sight Record

Table (5). Butterfly and Moth (Order Lepidoptera) County Records

Scientific Name	Common Name	Status
<i>Strymon melinus</i>	Gray Hairstreak	County Record
<i>Atryone logan</i>	Delaware Skipper	County Record
<i>Poanes zabulon</i>	Zabulon Skipper	County Record

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 Sanctuary. Invasive/non-native species are often very aggressive colonizers that can quickly outcompete native species and alter native ecosystems. The presence and proliferation of invasive/non-native species is perhaps the greatest threat to preserving native ecosystems within the Sanctuary.

Through its historical habitat alterations and wide array of habitat types the Sanctuary offers an excellent opportunity for a number of invasive/non-native species to not just become established, but 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 (6) are several invasive/non-native species that have been identified at the Sanctuary. While some species are more prevalent than others they all pose a significant threat to the overall health and biodiversity of the Sanctuary. 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 (6). Invasive Plant Species Found at the Mill Creek Wildlife Sanctuary

Scientific Name	Common Name	Classification
<i>Allaria petiolata</i>	Garlic Mustard	Targeted Species
<i>Celastrus orbiculatus</i>	Eurasian Bittersweet	Well-Established Invasive
<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 umbellate</i>	Autumn Olive	Targeted Species
<i>Epilobium hirsutum</i>	Hairy Willow Herb	Well-Established Invasive
<i>Ligustrum vulgare</i>	Common Privet	Well-Established Invasive
<i>Lonicera japonica</i>	Japanese Honeysuckle	Targeted Species
<i>Lythrum salicaria</i>	Purple Loosestrife	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 canina</i>	Dog Rose	Watch List
<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
<i>Typha latifolia</i>	Broadleaf Cattail	Native, but can become Invasive
<i>Nuphar advena</i>	Spatterdock	Native, but can become Invasive
<i>Vitis (spp.)</i>	Wild Grape Vine	Native, but can become Invasive
<i>Salix(spp.)</i>	Willow Species	Native, but can become Invasive

Table (7). Non-Native/Invasive Wildlife Species

Scientific Name	Common Name	Classification
<i>Cyprinus carpio</i>	Common Carp	Non-Native/Invasive
<i>Sturnus vulgaris</i>	European Starling	Non-Native/Invasive
<i>Passer domesticus</i>	House Sparrow	Non-Native/Invasive
<i>Troglodytes aedon</i>	House Wren	Native, but can become Invasive

Please refer to figure (8) for a visual representation of the invasive species present at the Sanctuary.

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. This aggressive nature has allowed reed canary grass to thrive at the Sanctuary and has become one of the most dominant plant species found throughout the site. Large monocultures of reed canary grass are present along the length of the eastern property border, as well as, the wetland areas in the north central portions of the site. Reed canary grass is also intermixed throughout the majority of the wetland and pond areas, the upland fields, and along every dike and trail in the facility.

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 of cattail can be found bordering several ponds at the Sanctuary and have formed large monocultures in the southwest portions of pond #3, as well as, the wetland areas in the north central portions of the site. The infestations are relatively contained at this point, but pose a significant risk of spreading if left unchecked. Several control methods are available and can be effective when utilized correctly.

- **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. As a short-term management goal, narrow-leaf and hybrid cattail should be eradicated from all smaller ponds, canals, and wetlands. 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.

Purple Loosestrife (*Lythrum salicaria*) is a flowering perennial plant that boasts tall magenta colored flowers late July-early September. This species spreads quickly across wetland sites via seeds (100,000 per plant) and a thick rhizome system. The Sanctuary offers ideal habitat for purple loosestrife to thrive, but due to a concentrated effort to eradicate purple loosestrife over the years, population levels are relatively low when compared to surrounding sites. Populations can still be found scattered throughout several of the wetland areas in the eastern portion of the site, most notably pond #2. Control methods for this species are as follows:

- **Herbicide Application** – Systemic herbicides such as glyphosate (Rodeo) and triclopyr (Garlon 3a) can be applied as a foliar spray to successfully control purple loosestrife in the late summer (late July-early September). Selective broadleaf herbicides such as 2, 4-D can be applied to avoid harm to surround grass species. Multiple applications should be made per year to retreat missed individuals or plants that may bloom later in the season.
- **Seed Head Removal** – As mentioned above, each seed head can contain up to 100,000 seeds – the removal of these seed heads pre or post treatment can help reduce the spread of plants in future years.
- **Biological Control** – Several species of weevils and leaf eating beetles have shown promise in controlling purple loosestrife. *Hylobius transversovittatus* lay their eggs in the stem/upper root system and once hatched the young feed upon the root system causing stress and eventually death to the plant, while *Galerucella californiensis*, *G. pusilla*, and *Nanophyes marmoratus* naturally feed on purple loosestrife flowers which stresses the plant, and can successfully control populations. Complete eradication is not likely, but the introduction of one or more of these biological control agents, coupled with herbicide treatments and/or seed head removal can be an extremely effective management plan.

Control methods should be repeated as necessary on an annual basis, until desired results are achieved. As mentioned above, population levels of purple loosestrife at the Sanctuary are moderate to low and are currently confined to just a few areas in the facility. A strong effort should take place in the short-term to keep the infestation contained to known locations, and through persistent efforts in the years to come complete eradication from the facility can be a reality.

Common Reed Grass (*Phragmites australis*) is a perennial wetland grass that 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 Sanctuary due to diligent efforts in the past to eradicate this plant and keep it at bay despite its very aggressive nature. Continued monitoring and quick action are key to keep this aggressive plant at a managed level throughout the Sanctuary. 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 Sanctuary is relatively minor considering the ideal habitat conditions that are present onsite. The complete eradication of this species from the facility is a very obtainable goal in future years.

Spatterdock (*Nuphar advena*) also referred to as yellow water lily or yellow cow-lily is a **native** perennial aquatic plant that thrives in shallow wetlands and marshes. Spatterdock is a native plant, but can spread quickly through its extensive rhizome system and become invasive under the right conditions. At the Sanctuary, pond #4 is an excellent example of how spatterdock can become invasive if left unmanaged. At this time spatterdock occupies nearly 95% of the formerly open water areas of pond #4. Control methods include:

- **Herbicide Application** – Systemic herbicides such as glyphosate (Rodeo), triclopyr (Renovate), or 2, 4-D (Navigate) plus a non-ionic surfactant (Cide-Kick II) are all approved for aquatic use and can be applied as a foliar spray to successfully control spatterdock growth singly, or in combination.
- Unless the entire rhizome system is removed, any physical or mechanical cutting will not be successful
- Water level manipulation has not shown to be an effective control method for spatterdock

Misc. Herbaceous Invasives

A number of less prevalent invasive species are found at the Sanctuary 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 dikes and trails. 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 Sanctuary that are considered woody shrubs/small trees. Species found in this category include **Glossy Buckthorn** (*Rhamnus frangula*), **Multiflora Rose** (*Rosa multiflora*), **Dog Rose** (*Rosa canina*), **Autumn Olive** (*Elaeagnus umbellata*), **Willow** (*Salix spp.*), **Honeysuckle** (*Lonicera spp.*), and **Common Privet** (*Ligustrum vulgare*). While their habitat preferences and distribution throughout the Sanctuary 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 (9). Mill Creek Wildlife Sanctuary Invasive Species Distribution



Current Invasive Species Distribution
Mill Creek Wildlife Sanctuary
Beaver Township
Mahoning County, OH



Natural Resources Management

Pond, Wetland, and Stream Management

Over 130 acres of the Sanctuary is comprised of an intricate system of ponds, wetlands, small streams, ditches and canals which are the driving force behind much of the biodiversity of the site. These areas must be actively managed to preserve the functionality and success of the Sanctuary. 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

Please refer back to figure (5) for pond numbers and locations.

Water Level Fluctuation

A key feature of the Sanctuary is the ability to individually manipulate water levels in the eastern basins to achieve a desired water level. Based upon the time of year, precipitation levels, and the desired management goal water levels are adjusted to create varying habitat types such as mudflats, emergent marsh, and open water. Water level fluctuation can also be a valuable tool in controlling invasive species when the right situation presents itself.

Listed below is a general timeline and directions concerning the annual water level manipulations at the Sanctuary to create shorebird and waterfowl habitat.

- Beginning in April, slowly drain pond # 3 to create mudflat habitat for the spring shorebird migration using the southeast drain, exiting into Mill Creek; continue the gradual drawdown through April, May, and early June. Close pond #3 mid-June and re-saturate the basin in preparation for the mid-July drawdown using water from pond #4.
- In mid-late July begin to slowly drain ponds #2 and #3 in a staggered pattern to create mudflat habitat for the fall migration of shorebirds. First, begin to drawdown pond #2 using the northeast drain, exiting into pond #1 (pond #1 will also need to be opened to accommodate the volume drained from #2). Allow pond #2 to drain completely, as time goes on the exposed mudflat habitat will begin to dry out (pace largely depends upon weather) – at this time close pond #2 and use water from pond #3 (northwest drain) to re-saturate pond #2 – this will create mudflat habitat in pond #3. As the mudflat quality in pond #3 begins to decline, reopen the northeast drain of pond #2 exposing fresh, re-saturated mudflats. If the time of season and conditions allow, pond #3 can be rejuvenated using water from pond #4 as needed to extend the drawdown rotation to the end of October.
- Close all drains in November to allow ponds to refill over winter and create waterfowl habitat for the fall/spring migrations.
- Routine monitoring during the lowering process is essential to ensure water levels are lowering at the proper pace to achieve the desired goal.

For the location of each control structure and the direction of flow please refer back to figure (6).

Water Control Structure Maintenance

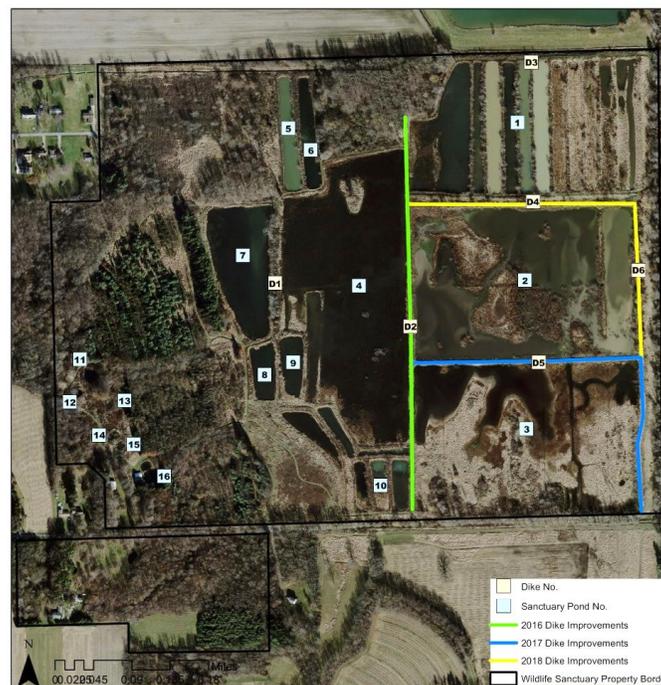
- Routinely inspect all control structures to ensure all drains are free of debris and functioning properly

- 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
- Older tip-pipe style control structures will continue to be replaced annually with Agri-drain inline control structures where applicable and as budget allows

Dike Maintenance and Repair

- Thorough inspections of each dike are to be completed on an annual basis (Late Winter or Early Spring) when visibility is highest to identify possible damage that may need addressed.
- Any damage reported will be addressed accordingly as part of an annual dike improvement project
- Dike tops are to be mowed approximately every 6 weeks (See Facility Maintenance), and sides are to be mowed as deemed necessary
- Dike tops and sides will be spot treated with the appropriate herbicide twice per season to keep invasive/woody species from becoming established on the dikes
- Annual brush cutting and tree clearing will continue indefinitely until all dikes can be mowed and maintained –felled trees are to be piled along the banks of ponds to provide nesting and security cover for various species of wildlife

Figure (10). Sanctuary Dike Locations and Current & Past Brush Cutting Improvements



Dike Improvements
 Mill Creek Wildlife Sanctuary
 Beaver Township
 Mahoning County, OH



Pond and Wetland Habitat Improvement

The ponds located onsite, primarily the larger eastern basins are home to a wide variety of invasive species. Listed below as potential habitat improvement projects, are a handful of the more concerning areas, but the routine monitoring and subsequent treatment of invasive species throughout all pond and wetland areas is crucial to achieving the overall goals of the Sanctuary.

Potential Habitat Improvement Projects

Location #1 – Willows in Pond 2

Over the years, a large stand of willow trees (*Salix spp.*) has become established in the center of pond #2. This stand presents a unique problem as the area is difficult to access, the trees are very densely distributed, and some trees are approaching the 30'+ height mark. The recommended course of action begins with a foliar herbicide application to effectively manage smaller individuals and those that are easily accessible on foot or by vehicle (Argo UTV). Secondly, the larger and more difficult to access individuals should be treated on foot using the frill method or basal bark applications. Following successful treatment, trees should be removed via chainsaw and disposed of or used as aquatic habitat structures. While this project will be a time intensive and costly endeavor, a successful project would create ~9 additional acres of mudflat areas for shorebirds and waterfowl to enjoy.

Location #2 – Spatterdock in Pond 4

As mentioned above, spatterdock (*Nuphar advena*) is a native plant, but has created an unhealthy monoculture that spans nearly the entire 26 acres of pond #4. A reoccurring annual project should be undertaken to control spatterdock levels and regain open water areas in pond 4, creating additional opportunities for waterfowl. Herbicide applications applied annually to pre-determined treatment zones will keep spatterdock at a managed level.

Location #3 –Cattail in Pond 3

Both narrow leaf cattail (*Typha angustifolia*) and hybrid cattail (*Typha x glauca*) have combined to form a large stand in the southwest corner of pond #3. This area should be addressed to avoid future spread across the remaining portions of the wetland. An initial herbicide application should be undertaken to control the current distribution, with optional cutting and removal, followed by water level manipulation to control regrowth if possible.

Location #4 – Purple Loosestrife in Pond 1, 2, 3, and 4

The current distribution of purple loosestrife (*Lythrum salicaria*) at the Sanctuary consists of ponds 1, 2, 3, and 4. Thorough herbicide treatments in these areas are crucial to keep this plant contained at a manageable level. Other cultural control methods such as seed-head removal and beetle introductions should be explored as well.

Forest Management

The majority of the north-central, western, and southwestern portions of the Sanctuary are comprised of forested landscapes that offer contrasting habitat types when compared to the wetland dominated eastern portions of the site. Three distinct sub-categories of forested habitats can be observed throughout the Sanctuary – Deciduous Hardwoods, Mixed Swamp, and Pine Plantation. Each of these will be examined separately and managed to optimize the value to wildlife and overall bio-diversity.

Deciduous Hardwood Forest

The areas characterized as deciduous hardwood forest can be found along much of the western and southwestern property boundaries. A wide range of mature trees can be found in these areas such as various mast producing **Oaks** (*Quercus spp.*), **Hickories** (*Carya spp.*), and **American Beech** (*Fagus grandifolia*) as well as various other species such as **Maples** (*Acer spp.*), **Black Cherry** (*Prunus serotina*), or **Tulip Poplars** (*Liriodendron tulipifera*).

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

Mixed Swamp

The area of mixed swamp found in the north-central portion of the Sanctuary offers unique habitat features in the form of moist/flooded timber and vernal pools. These habitat features create excellent opportunities for many species of salamanders, frogs, toads, and turtles. A few actions that should be considered to maximize the potential of this area are as follows:

Potential Habitat Improvement Projects

- Creation and Manipulation of vernal pools to provide additional wildlife habitat
- 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

Pine Plantation

Previously utilized as a hay field, the pine plantation was created in the 1990s to reforest the site and provide valuable wildlife habitat. As previously mentioned, the dominate trees found are **White Pine** (*Pinus strobus*), **Black Walnut** (*Juglans nigra*), **Sweetgum** (*Liquidambar styraciflua*), and **Black Cherry** (*Prunus serotina*). Below lists some potential habitat improvement projects that should be considered to improve the biodiversity within the pine plantation.

Potential Pine Plantation Timber Stand Improvement Projects

- Remove pines that have died or are in poor condition to open canopy and allow for natural recruitment
- Select for only beneficial recruitment from outside woodlots (Oaks, Hickories, Beech) – remove species less 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
- 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

- **Reed Canary Grass** (*Phalaris arundinacea*) be managed in the several open areas found within the pine plantation and subsequently replaced with vegetation that will benefit wildlife (planting of mast trees or natural browse)

Field Management

A significant portion of the western upland areas are comprised of fields that were historically used for hay and cattle grazing. Since acquisition the fields have reverted to a state of natural succession. There are two main areas of old field habitat at the Sanctuary – approximately (5) acres located directly north of the observation deck, and the area located to the north of the old barn that encompasses another (5) acres. These areas are currently in differing states of succession, therefore, they will be examined separately.

Old Field Site 1 - North of the Observation Deck

In recent years, this area has been managed as an open meadow environment aimed at song bird management to provide excellent birding opportunities close to the observation deck. Due to current and past management efforts this area has maintained the characteristics of an early successional habitat comprised of mostly herbaceous forbs and grasses such as **Ironweed** (*Vernonia fasciculata*), **Goldenrod** (*Solidago spp.*) **Reed Canary Grass** (*Phalaris arundinacea*), **Canada Thistle** (*Cirsium arvense*), and **Common Teasel** (*Dipsacus fullonum*).

Current and Past Management Efforts

- Removal of large woody vegetation, excluding native Dogwoods (*Cornus Spp.*)
- Mowing - 3 year rotation
- Annual invasive species control via herbicide spot applications twice per year (late spring and early-summer)

Proposed Adjustments to Current Management Efforts

- Institute a 3-year rotational mowing pattern by breaking the field into thirds, and mowing only one section per year – mowing is preferably done in early August (after nesting season) at a height of 10”- 12”
- Continued herbicide spot applications twice per year (late spring and early-summer)
- Spot mowing of areas heavily dominated by invasives (reed canary grass) – spot mowing should be done at least twice annually, following herbicide treatments.
- Incorporate the use of controlled burns where applicable to help control invasives and promote the germination of native plants

Potential Future Habitat Improvement Projects

- Planting of native prairie grasses and forbs in the area directly north of the observation deck to improve birding opportunities
- Planting of perennial browse species in the areas surrounding the oil well structures to replace invasive species and provide valuable forage for wildlife

Old Field Site #2 – Area North of the Red Barn

This area also has not been the focus of management efforts in the recent past, therefore, it offers a fresh start for management options. This site is an area of intermediate succession consisting primarily of small woody shrubs, various small saplings, and some areas of open grass. Several invasive species are very

prevalent in this area such **Multiflora Rose** (*Rosa multiflora*), **Glossy Buckthorn** (*Rhamnus frangula*), **Reed Canary Grass** (*Phalaris arundinacea*), and isolated stands of **Japanese Knotweed** (*Fallopia japonica*).

Potential Future Habitat Improvement Projects

- Brush-cutting to remove undesirable woody species with subsequent herbicide application to initially control invasives/undesirables – leave clusters of native Dogwoods (*Cornus spp.*) – use removed woody debris to create brush-piles spread throughout the site to provide wildlife cover
- Planting a combination of native prairie grass and forbs throughout the improved areas to provide valuable habitat for wildlife species
- Annual herbicide applications in late spring and again in early-summer will be required to maintain control of invasive species
- Incorporate the use of controlled burns where applicable to help control invasives and promote the germination of native plants
- Clearing of undesirable vegetation in and around smaller ponds – algae and/or submerged plant management if needed

Wildlife and Fisheries Management

The MetroParks' primary objective for the Sanctuary 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.

Shorebird and Waterfowl Management

The Sanctuary is most alive during the annual migrations of shorebird and waterfowl species throughout the year. Water levels in ponds #2 and #3 are manipulated annually (see water level fluctuation) to create either mudflats for shorebirds or flooded marshes for waterfowl depending upon the time of year and species targeted. These species attract a lot of attention from local bird enthusiasts, and an annual record is kept by volunteers documenting the vast diversity of species that utilize the Sanctuary throughout the year. Below lists some current and future habitat improvements aimed at shorebird and 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*).
- The creation and maintenance of mudflat habitat for shorebirds via invasive species management and water level fluctuation (See Pond/Wetland Management)
- Annual macro-invertebrate survey (core sampling) during draw down period to ensure ample food for traveling shorebirds (100 midge larvae per square meter)
- Active monitoring and management of predator species
- Continued survey efforts and annual reporting

Canada Geese (*Branta canadensis*) populations can reach nuisance levels in some cases and can threaten the overall biodiversity of the site. As part of the MetroParks' annual goose management program, the Sanctuary will be monitored to ensure populations do not reach nuisance levels. Data such as nest location, total nest count, total egg count, number of nests predated, and the number of adults/goslings

during the molting season (June) will be collected annually and compared to recent years to view population trends.

Wood Duck (*Aix sponsa*) nesting boxes can be found scattered throughout the eastern portion of the site. These structures supplement the natural nesting cavities that wood ducks require and have played a crucial role in the overall management for this species throughout its range. An annual effort is made by ODNR Division of Wildlife to live trap (and release) wood ducks at the Sanctuary. Each individual is equipped with a unique leg band that will identify the individual if encountered again and can help track movement and migration patterns.

For a current species list please refer to Appendix (A).

Song Bird Management

In addition to the previously mentioned shorebird and waterfowl species the Sanctuary is home to a long list of song birds such as the **Mourning Dove** (*Zenaida macroura*), **Dark-eyed Junco** (*Junco hyemalis*), and **Least Flycatcher** (*Empidonax minimus*) to name just a few. Volunteers maintain multiple feeders near the observation deck to not only attract song birds for viewing, but to help sustain them throughout the winter months. Below lists some current and future habitat improvements aimed at song bird 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
- The addition and continued maintenance of bird feeders near the observation deck by MetroParks Volunteers
- Habitat improvement through invasive species management and native plant restoration
- Active monitoring and management of predator populations
- Continued survey efforts and annual reporting

For a current species list please refer to Appendix (A).

Raptor Management

Several species of raptor can be found at the Sanctuary such as **Osprey** (*Pandion haliaetus*), **Northern Harriers** (*Circus hudsonius*), **Turkey Vultures** (*Cathartes aura*), and most notably the **Bald Eagle** (*Haliaeetus leucocephalus*). Some current and future habitat improvements to improve raptor habitat at the Sanctuary 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
- Leaving one or more windows open in the current barn to allow nesting of **Barn Owls** (*Tyto alba*) and **Turkey Vultures** (*Cathartes aura*)
- Continued survey efforts and annual reporting

Bat Management

The wetlands and upland meadows found at the Sanctuary offer excellent feeding opportunities for bat species, and it is likely that multiple species of bats are common visitors to the Sanctuary. However due to their nocturnal habits and elusive nature only one species could be formally identified during the CMNH survey – the **Big Brown Bat** (*Eptesicus fuscus*). Since the 2009 CMNH survey, a single bat nesting box has been added to the upland area near the observation deck, however, the structure has gone relatively unused up to this point – it can take several years for a nesting structure to be discovered and utilized. Some future management actions to improve habitat for bat species at the Sanctuary include:

- Construction of additional nesting structures
- Allowing building infrastructure to be utilized for nesting (Barn)

Surveys to Identify Additional Species

- Nest Surveys
- Mist Netting Surveys

For a current species list please refer to Appendix (A).

Amphibian and Reptile Management

The Sanctuary hosts a wide variety of reptiles and amphibian species such as the **Midland Painted Turtle** (*Chrysemys picta marginata*), **Northern Leopard Frog** (*Rana pipiens*), **Northern Water Snake** (*Nerodia sipedon sipedon*), and **Northern Dusky Salamander** (*Desmognathus fuscus*). Some future management actions can be employed to further enhance the species diversity of amphibian and reptile species throughout the Sanctuary such as:

- Installation and maintenance of basking structures for turtle species
- Enhance vernal pool areas located within the mixed swamp areas to attract and sustain various species of salamanders and frogs
- 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

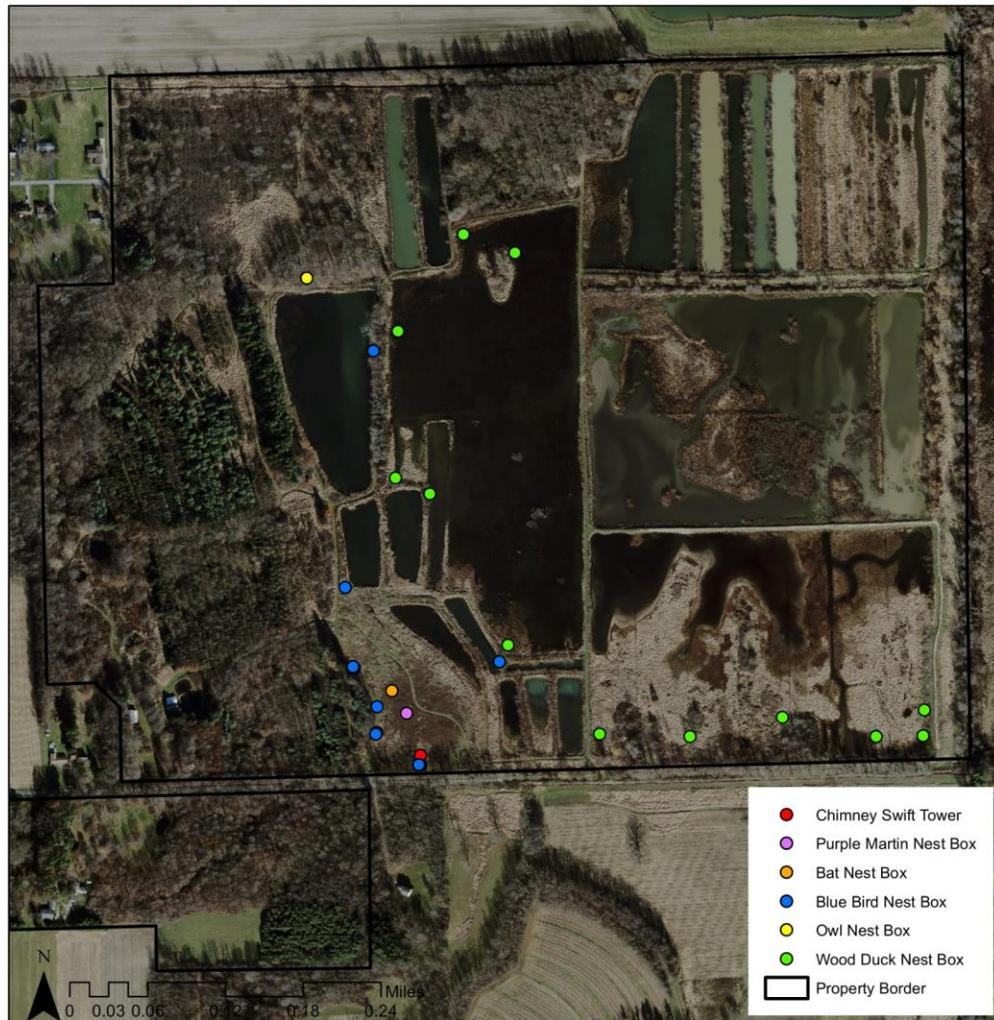
The **Common Snapping Turtle** (*Chelydra serpentina*) is an opportunistic predator and can pose a significant risk to some waterfowl and shorebird species if populations are left unmanaged. If populations of snapping turtles are ultimately deemed to be in excess of the acceptable carrying capacity of the landscape, all viable management options will be explored and implemented as necessary to achieve pre-determined population goals.

For a current species list please refer to Appendix (A).

Nesting Structures

The addition of artificial (man-made) nesting structures is often a reoccurring theme in wildlife management (as seen above). Structures such as these 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 Sanctuary 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 figure (12) below for a visual representation of the current nesting structures located throughout the Sanctuary.

Figure (11). Current Nesting Structures



Nest Box Locations
Mill Creek Wildlife Sanctuary
Beaver Township
Mahoning County, Ohio



Fisheries Management

Numerous fish species both naturally occurring and formerly stocked can be found intermixed throughout the expansive pond system present at the Sanctuary. Common species that can be found include **Largemouth Bass** (*Micropterus salmoides*), **Bluegill** (*Lepomis macrochirus*), and **Yellow Bullhead** (*Ameiurus natalis*), however, a complete presence/absence survey or population estimation has not been completed at the Sanctuary while under MetroParks ownership and operation. Due to the expansive nature of the pond system at the Sanctuary, a large scale survey effort would be extremely time consuming and costly, but the following management actions and survey techniques will be employed when applicable.

- Bathymetric surveys to document water depth, substrate structure, and determine sedimentation
- 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 **Eurasian Watermilfoil** (*Myriophyllum spicatum*) as needed
- Strategic stockings to achieve the desired fish community
- Incorporating additional recreational opportunities through catch and release fishing where applicable
- Before any stocking program is to be considered or instituted habitat assessments will be completed to determine the ability of each 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 will 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. 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 Sanctuary is unknown, and the last recorded survey date conducted by the MetroParks pre-dates the acquisition of the Sanctuary. Various survey methods will be employed to gain insight into the overall condition of the deer herd present at the Sanctuary 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 Sanctuary. 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.

The following quote taken from the 2009 CMNH survey done at the Sanctuary further stresses the importance of healthy herd management through population assessment and management – “As with all natural areas, the management of deer herds is an important concern. While the wooded area of the Sanctuary show moderate populations of wildflowers, their continued health and well-being will be negatively impacted if the deer population is not kept under control. Park staff needs to be aware of the size of the deer herds which make this area a prime target for feeding and breeding, and take measures to ensure that the continued growth of this species is kept to a minimum.” (CMNH)

Furbearer Management

The **Raccoon** (*Procyon lotor*) is a medium-sized mammal commonly found in and around ponds, streams, and wetlands. Raccoons are generally crepuscular or entirely nocturnal omnivores that enjoy a wide range of food sources such as eggs, fish, frogs or berries. While a formal population estimate at the Sanctuary is unknown, it can be observed that raccoons are very prevalent throughout the site. Raccoons are a known rabies vector and are undoubtedly responsible for the nest predation of multiple species of waterfowl, turtles, and ground nesting bird species. Before management decisions are made a formal population estimate will be produced via survey methods such as:

- Spot Light Surveys
- Trail Camera Surveys
- Mark/Recapture Survey
- Track Surveys

If population levels of raccoon are ultimately deemed to be in excess of the acceptable carrying capacity of the landscape (9-45 individuals/square mile) all viable management options will be explored and implemented as necessary to achieve pre-determined population goals.

The following quotes taken from the 2009 CMNH report accurately depicts the need for raccoon management at the Sanctuary – “With the growing problems brought on by the continued over-population of raccoons, it is recommended that an aggressive trapping and removal program be instituted at the Sanctuary. It is quite apparent from tracking surveys and noticeable predation that a healthy population resides on site” (CMNH)

“While there may be seemingly healthy adult population of the smaller turtle species (Painted, and possibly Spotted, Blandings, Box and other species which may be present on site, but not yet found),

young turtles are not being found and it could be because raccoons are decimating the young before they even hatch.” (CMNH)

The **Muskrat** (*Ondatra zibethicus*) is a small semi-aquatic rodent that can be commonly found in ponds, lakes, and wetlands across Ohio. They are mainly herbivorous feeding on foods such as cattail, water-lilies, sedges, rushes, and pondweed, but they can become omnivorous if the opportunity presents itself in the form of clams, snails, crayfish, small frogs, and fish. Muskrats are known for their burrowing activities, which can pose a significant risk to a facility such as the Sanctuary, as burrows have the potential to breach the dikes separating impoundments which leads to excess erosion/water loss. A population estimate for the Sanctuary is unknown, but population management will be in the best interest of the MetroParks to avoid costly dike repairs and to retain the ability to fluctuate water levels as desired in each pond and encourage rich biodiversity. Population survey methods include:

- Visual Documentation
- Spot Light Surveys
- House/Burrow Counts

If population levels of muskrat 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.

The **North American Beaver** (*Castor canadensis*) is a large semi-aquatic rodent common across most of the U.S and Canada – the beaver is the largest rodent in North America. Beavers are herbivores feeding primarily on the bark/cambium of woody species such as **Aspen** (*Populus spp.*), **Cottonwood** (*Populus spp.*), and **Willow** (*Salix spp.*), but will also forage on various aquatic plants and field crops when given the opportunity. Beavers are perhaps best known for their construction abilities – they often times construct dams to manipulate the flow of water to create more favorable habitat. This behavior can create significant flooding concerns, and often causes damage to mature trees along riparian areas as they girdle and fell trees for food and construction material. Denning activities generally consist of a constructed lodge made from logs, sticks, and mud – however, in certain situations bank burrows are also used which can cause bank destabilization and erosion problems similar to muskrat dens.

The majority of beaver activity at the Sanctuary is limited to the riparian areas surrounding Mill Creek and the ditch that serves as the northern boundary for the Sanctuary. Damage to the site does not yet warrant any additional management action, however, close monitoring will take place to avoid flooding and habitat damage. Habitat use and preference of the beaver and river otter overlap a great deal, therefore, any future management actions to control beaver populations should be weighed heavily to avoid any conflict with the river otter. Survey techniques for the monitoring of beaver populations include:

- Lodge/Burrow Counts
- Spotlight Surveys
- Winter Track Surveys
- Trail Camera Surveys

The **River Otter** (*Lontra canadensis*) is a conservation success story in Northeast Ohio, with now thriving population numbers origination from a reintroduction effort started in 1986 by ODNR. Although once extirpated, river otters can now be seen across most of eastern Ohio and are frequent guests at the Sanctuary. They are carnivores, focusing on food sources such as fish, clams, crayfish, frogs, and occasionally birds or small mammals. River otters are often found inhabiting abandoned beaver lodges

and bank dens – surveys are to be conducted during the winter months to identify current locations at the Sanctuary so that special care can be taken during the planning of future projects to not disturb these locations. Surveys are best completed in the winter months when active burrows, tracks, and slides can be easily identified. Survey techniques:

- Winter Track Surveys
- Trail Camera Surveys

Misc. Small/Medium Furbearer Management

The Sanctuary is home to a wide variety of other mammal species such as the **Virginia Opossum** (*Didelphis virginiana*), **Red Fox** (*Vulpes vulpes*), **Eastern Coyote** (*Canis latrans*), and **American Mink** (*Neovison vison*). These animals are all present in varying degrees at the Sanctuary 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 and 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 will provide valuable information for these species as well.

- Spotlight Surveys
- Trail Camera Surveys
- Winter Track Surveys

Facility Maintenance

Routine maintenance activities at the Sanctuary are to be kept to a minimum to keep human intrusion as low as possible. Activities that are deemed necessary will be planned out to avoid wildlife conflict as much as possible. Routine facility maintenance activities include:

- Mowing around observation deck and barns – bi-monthly
- Trail Mowing - approximately every 6 weeks
- Dike Mowing – tops and sides (see dike maintenance)
- Dike Inspection – late winter or early spring (see dike maintenance)
- Observation Deck Maintenance – as required (trash removal, deck repair, etc.)
- Water Control Structure Maintenance – as needed (see water control structure maintenance)
- Blue Bird Box Clean Out – annually (late fall)
- Chimney Swift Tower – close off before winter (late November), reopen in spring (mid-March)
- Wood Duck Boxes Maintenance and Clean Out – annually (winter)

Volunteer Involvement

The Sanctuary has a rich history of dedicated volunteers who have played a vital role in the management and development of the Sanctuary over the years.

Volunteer Activities

- **Annual Bird Count** - Volunteers annually record and document bird species found at the Sanctuary to produce a very detailed and ever-changing list of avian species that utilize the Sanctuary.

- **Public Outreach** - Volunteer led hikes are a common occurrence throughout the year to help share the Sanctuary with members of the public and events such as The Big Sit are largely volunteer run as well.
- **The Big Sit** – “The Big Sit” is an annually occurring, volunteer led event at the Sanctuary that documents the number of bird species confirmed from within a seventeen foot circle by sight or sound over a twenty-four hour period.
- **Invasive Species Management** – Volunteer led invasive species control throughout the years has helped to keep various invasive species at a managed level.
- **Habitat Improvement** – Volunteers are very helpful in several annual habitat improvement projects such as maintaining and adding nesting structures, and routinely maintaining the bird feeders near the observation deck.
- **Bird Feeders** – Volunteers maintain multiple bird feeders near the observation deck to attract numerous species of song birds for easy viewing.

Continued efforts such as these by dedicated volunteers are invaluable to the continued success of the Sanctuary. All volunteers are encouraged to provide an on-going and valuable service to the Sanctuary and must be approved for a permit through the MCMP Planning and Operations Department.

Public Access and Education

Access to the Sanctuary is currently by permit only and is not open to the public. This policy was instituted to preserve the biodiversity and minimize human impacts to the sensitive habitats, specifically the wetland habitats located in the eastern portion of the site. Members of the public are encouraged to utilize the observation deck, which offers an excellent view over the majority of the site. In addition, guided hikes are regularly led by MCMP staff and permitted volunteers for small groups of bird enthusiasts and naturalists along the mowed trails and dikes.

Access restriction will be continued throughout the eastern portions of the site, however, there are opportunities for the potential expansion of public access and educational opportunities in the western portions of the site that will not negatively affect the overall goals of the Sanctuary.

Potential Future Expansion of Public Access and Educational Opportunities

- Lift the “By Permit Only Status” where ecologically feasible to expand recreational/educational opportunities
- Create additional observation locations on the western portion of the site where possible to provide additional opportunities to enjoy the site, without disturbing sensitive areas
- Replace the old block fish rearing building a small educational building or outdoor classroom
- Conduct mist netting surveys and create a song bird banding program for educational purposes
- Provide catch and release fishing opportunities where feasible and applicable
- Host BioBlitz events to continually monitor and evaluate habitat quality, as well as, expand upon the current species list

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Appendix (A). CMNH Species List Flora & Fauna

Animal Species List – Includes County Records & Rarities

Common Name	Genus	Species	Rank
Birds			
Canada Goose	<i>Branta</i>	<i>canadensis</i>	
Greylag Goose	<i>Anser</i>	<i>anser</i>	exotic species
Wood Duck	<i>Aix</i>	<i>sponsa</i>	
Gadwall	<i>Anas</i>	<i>strepera</i>	
American Wigeon	<i>Anas</i>	<i>americana</i>	
American Black Duck	<i>Anas</i>	<i>rubripes</i>	
Mallard	<i>Anas</i>	<i>platyrhynchos</i>	
Blue-winged Teal	<i>Anas</i>	<i>discors</i>	
Northern Shoveler	<i>Anas</i>	<i>clypeata</i>	
Northern Pintail	<i>Anas</i>	<i>acuta</i>	
Green-winged Teal	<i>Anas</i>	<i>crecca</i>	
Canvasback	<i>Aythya</i>	<i>valisineria</i>	
Lesser Scaup	<i>Aythya</i>	<i>affinis</i>	
Hooded Merganser	<i>Lophodytes</i>	<i>cucullatus</i>	
Pied-billed Grebe	<i>Podilymbus</i>	<i>podiceps</i>	
Double-crested Cormorant	<i>Phalacrocorax</i>	<i>auritus</i>	
Great Blue Heron	<i>Ardea</i>	<i>herodias</i>	
Great Egret	<i>Ardea</i>	<i>alba</i>	
Snowy Egret	<i>Egretta</i>	<i>thula</i>	
Green Heron	<i>Butorides</i>	<i>virescens</i>	
Black-crowned Night Heron	<i>Nycticorax</i>	<i>nycticorax</i>	
Turkey Vulture	<i>Cathartes</i>	<i>aura</i>	
Osprey	<i>Pandion</i>	<i>haliaetus</i>	
Bald Eagle	<i>Haliaeetus</i>	<i>leucocephalus</i>	
Northern Harrier	<i>Circus</i>	<i>cyaneus</i>	Endangered
Cooper's Hawk	<i>Accipiter</i>	<i>cooperii</i>	
Red-shouldered Hawk	<i>Buteo</i>	<i>lineatus</i>	
Red-tailed Hawk	<i>Buteo</i>	<i>jamaicensis</i>	
American Kestrel	<i>Falco</i>	<i>sparverius</i>	
Virginia Rail	<i>Rallus</i>	<i>limicola</i>	
Sora	<i>Porzana</i>	<i>carolina</i>	
American Coot	<i>Fulica</i>	<i>americana</i>	
Semipalmated Plover	<i>Charadrius</i>	<i>semipalmatus</i>	
Killdeer	<i>Charadrius</i>	<i>vociferus</i>	
Greater Yellowlegs	<i>Tringa</i>	<i>melanoleuca</i>	
Lesser Yellowlegs	<i>Tringa</i>	<i>flavipes</i>	
Solitary Sandpiper	<i>Tringa</i>	<i>solitaria</i>	
Spotted Sandpiper	<i>Actitis</i>	<i>macularia</i>	
Semipalmated Sandpiper	<i>Calidris</i>	<i>pusilla</i>	
Least Sandpiper	<i>Calidris</i>	<i>minutilla</i>	
Pectoral Sandpiper	<i>Calidris</i>	<i>melanotos</i>	
Dunlin	<i>Calidris</i>	<i>alpina</i>	
Short-billed Dowitcher	<i>Limnodromus</i>	<i>griseus</i>	
Wilson's Snipe	<i>Gallinago</i>	<i>delicata</i>	
American Woodcock	<i>Scolopax</i>	<i>minor</i>	
Wilson's Phalarope	<i>Phalaropus</i>	<i>tricolor</i>	
Ring-billed Gull	<i>Larus</i>	<i>delawarensis</i>	
Herring Gull	<i>Larus</i>	<i>argentatus</i>	
Rock Pigeon	<i>Columba</i>	<i>livia</i>	
Mourning Dove	<i>Zenaida</i>	<i>macroura</i>	

Yellow-billed Cuckoo	<i>Coccyzus</i>	<i>americanus</i>	
Chimney Swift	<i>Chaetura</i>	<i>pelagica</i>	
Ruby-throated Hummingbird	<i>Archilochus</i>	<i>colubris</i>	
Belted Kingfisher	<i>Ceryle</i>	<i>ceryle</i>	
Red-bellied Woodpecker	<i>Melanerpes</i>	<i>carolinus</i>	
Yellow-bellied Sapsucker	<i>Sphyrapicus</i>	<i>varius</i>	Threatened
Downy Woodpecker	<i>Picoides</i>	<i>pubescens</i>	
Hairy Woodpecker	<i>Picoides</i>	<i>villosus</i>	
Northern Flicker	<i>Colaptes</i>	<i>auratus</i>	
Pileated Woodpecker	<i>Dryocopus</i>	<i>pileatus</i>	
Eastern Wood-Pewee	<i>Contopus</i>	<i>virens</i>	
Willow Flycatcher	<i>Empidonax</i>	<i>traillii</i>	
Least Flycatcher	<i>Empidonax</i>	<i>minimus</i>	Endangered
Eastern Phoebe	<i>Sayornis</i>	<i>phoebe</i>	
Great Crested Flycatcher	<i>Myiarchus</i>	<i>crinitus</i>	
Eastern Kingbird	<i>Tyrannus</i>	<i>tyrannus</i>	
Yellow-throated Vireo	<i>Vireo</i>	<i>flavifrons</i>	
Warbling Vireo	<i>Vireo</i>	<i>gilvus</i>	
Red-eyed Vireo	<i>Vireo</i>	<i>olivaceus</i>	
Blue Jay	<i>Cyanocitta</i>	<i>cristata</i>	
American Crow	<i>Corvus</i>	<i>brachyrhynchus</i>	
Horned Lark	<i>Eremophila</i>	<i>alpestris</i>	
Purple Martin	<i>Progne</i>	<i>subis</i>	
Tree Swallow	<i>Tachycineta</i>	<i>bicolor</i>	
N. Rough-winged Swallow	<i>Stelgidopteryx</i>	<i>serripennis</i>	
Barn Swallow	<i>Hirundo</i>	<i>rustica</i>	
Black-capped Chickadee	<i>Poecile</i>	<i>atricapilla</i>	
Tufted Titmouse	<i>Baeolophus</i>	<i>bicolor</i>	
White-breasted Nuthatch	<i>Sitta</i>	<i>carolinensis</i>	
Brown Creeper	<i>Certhia</i>	<i>americana</i>	
Carolina Wren	<i>Thryothorus</i>	<i>ludovicianus</i>	
House Wren	<i>Troglodytes</i>	<i>aedon</i>	
Winter Wren	<i>Troglodytes</i>	<i>troglodytes</i>	
Marsh Wren	<i>Cistothorus</i>	<i>palustris</i>	Sp. of Concern
Ruby-crowned Kinglet	<i>Regulus</i>	<i>calendula</i>	
Blue-gray Gnatcatcher	<i>Poliophtila</i>	<i>caerulea</i>	
Eastern Bluebird	<i>Sialia</i>	<i>sialis</i>	
Veery	<i>Catharus</i>	<i>fuscescens</i>	
Wood Thrush	<i>Hylocichla</i>	<i>mustelina</i>	
American Robin	<i>Turdus</i>	<i>migratorius</i>	
Gray Catbird	<i>Dumetella</i>	<i>carolinensis</i>	
Northern Mockingbird	<i>Mimus</i>	<i>polyglottos</i>	
Brown Thrasher	<i>Toxostoma</i>	<i>rufum</i>	
European Starling	<i>Sturnus</i>	<i>vulgaris</i>	
American Pipit	<i>Anthus</i>	<i>rubescens</i>	
Cedar Waxwing	<i>Bombycilla</i>	<i>cedrorum</i>	
Blue-winged Warbler	<i>Vermivora</i>	<i>pinus</i>	
Nashville Warbler	<i>Vermivora</i>	<i>ruficapilla</i>	
Yellow Warbler	<i>Dendroica</i>	<i>petechia</i>	
Yellow-rumped Warbler	<i>Dendroica</i>	<i>coronata</i>	
Palm Warbler	<i>Dendroica</i>	<i>palmarum</i>	
Blackpoll Warbler	<i>Dendroica</i>	<i>striata</i>	
Black-and-white Warbler	<i>Mniotilta</i>	<i>varia</i>	
American Redstart	<i>Setophaga</i>	<i>ruticilla</i>	
Common Yellowthroat	<i>Geothlypis</i>	<i>trichas</i>	

Yellow-Breasted Chat
 Scarlet Tanager
 Eastern Towhee
 American Tree Sparrow
 Chipping Sparrow
 Field Sparrow
 Savannah Sparrow
 Song Sparrow
 Lincoln's Sparrow
 Swamp Sparrow
 White-throated Sparrow
 White-crowned Sparrow
 Dark-eyed Junco
 Northern Cardinal
 Rose-breasted Grosbeak
 Indigo Bunting
 Bobolink
 Red-winged Blackbird
 Eastern Meadowlark
Rusty Blackbird

Common Grackle
 Brown-headed Cowbird
 Baltimore Oriole
 Purple Finch
 House Finch
 American Goldfinch
 House Sparrow

Amphibians

Eastern American Toad
 Gray Tree Frog
 Northern Spring Peeper
 Western Chorus Frog
 American Bullfrog (adults & tadpoles)
 Northern Green Frog
 Northern Leopard Frog
 Wood Frog
 Allegheny Mountain Dusky Sal.
 Northern Dusky Salamander
 Northern Two-lined Salamander
 Eastern Red-backed Salamander
 Red-spotted Newt

Reptiles

Midland Painted Turtle
 Eastern Snapping Turtle
 Northern Water Snake
 Northern Brown Snake
 Eastern Garter Snake

Fish

Common Carp
 Striped Shiner
 Yellow Bullhead

Icteria
 Piranga
 Pipilo
 Spizella
 Spizella
 Spizella
 Passerculus
 Melospiza
 Melospiza
 Melospiza
 Zonotrichia
 Zonotrichia
 Junco
 Cardinalis
 Pheucticus
 Passerina
 Dolichonyx
 Agelaius
 Sturnella
Euphagus

Quiscalus
 Molothrus
 Icterus
 Carpodacus
 Carpodacus
 Carduelis
 Passer

Bufo
 Hyla
 Pseudacris
 Pseudacris
 Rana
 Rana
 Rana
 Rana
 Desmognathus
 Desmognathus
 Eurycea
 Plethodon
 Notophthalmus

Chrysemys
 Chelydra
 Nerodia
 Storeria
 Thamnophis

Cyprinus
 Luxilus
 Ameiurus

virens
 olivacea
 erythrophthalmus
 arborea
 passerina
 pusilla
 sandwichensis
 melodia
 lincolni
 georgiana
 albicollis
 leucophrys
 hyemalis
 cardinalis
 ludovicianus
 cyanea
 oryzivorus
 phoeniceus
 magna
carolinus

quiscula
 ater
 galbula
 purpureus
 mexicanus
 tristis
 domesticus

americanus
 versicolor
 crucifer crucifer
 triseriata
 catesbeiana
 clamitans melanota
 pipiens
 sylvatica
 ochrophaeus
 fuscus
 bislineata
 cinereus
 viridescens

picta marginata
 serpentina
 sipedon sipedon
 dekayi dekayi
 sirtalis sirtalis

carpio
 chrysocephalus
 natalis

Partners In Flight
 Watch List

Green Sunfish	<i>Lepomis</i>	<i>cyaneus</i>
Pumpkinseed Sunfish	<i>Lepomis</i>	<i>gibbosus</i>
Redear Sunfish	<i>Lepomis</i>	<i>microlophus</i>
Largemouth Bass	<i>Micropterus</i>	<i>salmoides</i>
Mammals		
Virginia Opossum (tracks)	<i>Delphis</i>	<i>virginiana</i>
Short-tailed Shrew	<i>Blarina</i>	<i>brevicauda</i>
Star-nosed Mole (dead specimen)	<i>Condylura</i>	<i>crinata</i>
Eastern Cottontail	<i>Sylvilagus</i>	<i>floridanus</i>
Eastern Chipmunk	<i>Tamias</i>	<i>striatus</i>
Fox Squirrel	<i>Sciurus</i>	<i>niger</i>
Red Squirrel	<i>Tamiasciurus</i>	<i>hudsonicus</i>
Woodchuck	<i>Marmota</i>	<i>monax</i>
Muskrat	<i>Ondatra</i>	<i>zibethicus</i>
White-footed Mouse	<i>Peromyscus</i>	<i>leucopus</i>
Meadow Vole	<i>Microtus</i>	<i>pennsylvanicus</i>
Coyote (tracks & scat)	<i>Canis</i>	<i>latrans</i>
Red Fox (camera capture & tracks)	<i>Vulpes</i>	<i>vulpes</i>
Raccoon	<i>Procyon</i>	<i>lotor</i>
Mink (scat, tracks and burrows)	<i>Mustela</i>	<i>vison</i>
River Otter (scat and tracks)	<i>Lutia</i>	<i>canadensis</i>
White-tailed Deer	<i>Odocoileus</i>	<i>virginianus</i>
Tracks & Signs		
Turkey scat	<i>Meleagris</i>	<i>gallopavo</i>
White-tailed Deer (tracks and scat)	<i>Odocoileus</i>	<i>virginianus</i>
River Otter (tracks, scat & slides)	<i>Lutia</i>	<i>canadensis</i>
Beaver activity	<i>Castor</i>	<i>canadensis</i>
Raccoon (tracks & scat)	<i>Procyon</i>	<i>lotor</i>
Coyote (tracks & scat)	<i>Canis</i>	<i>latrans</i>
Mink (tracks, scat & burrows)	<i>Mustela</i>	<i>vison</i>
Mouse outline in snow	<i>Peromyscus</i>	sp.
Crayfish burrows		
Pellet with crayfish parts		
Mollusks		
Planorbid snails	<i>Mollusca</i>	sp.
Gastropod snails	Family	Physidae
Insects & Arthropods		
<u>Centipedes, Millipedes, Isopods</u>		
Millipede	Class	Diplopoda
<u>Arthropods</u>		
Crayfish	<i>Procambarus</i>	<i>acutus</i>
Harvestman	Family	Phalangidae
Wood Tick	<i>Dermacentor</i>	sp.
Velvet Mite	Family	Thrombidiidae
Arachnids		
<u>Spiders</u>		
Six-spotted Fishing Spider	<i>Dolomedes</i>	<i>triton</i>
Long-jawed Orbweaver	Family	Tetragnatha
Goldenrod Crab Spider	<i>Misumena</i>	<i>vatia</i>

Yellow Garden Argiope
 Banded Garden Spider
 Marbled Orb Weaver
 Splendid Dwarf Spider
 Bowl & Doily Weaver
 Orbweaver

Argiope
 Argiope
 Araneus
 Hypselistes
 Frontinella
 Micrathena

aurantia
 trifasciata
 marmoreus
 florens
 pyramitela
 sp.

Odonates

Dragonflies

Lance-tipped Darner
 Common Green Darner
 Springtime Darner
 Fawn Darner

Aeshna
 Anax
 Basiaeschna
 Boyeria

constricta
 junius
 janata
 vinosa

Spatterdock Darner

Rhionaeschna

mutata

County Record

Swamp Darner

Epiaeschna

heros

County Record

Unicorn Clubtail

Arigomphus

villosipes

Lancet Clubtail

Gomphus

exilis

Ashy Clubtail

Gomphus

lividus

County Record

Common Baskettail

Epitheca

cynosura

Prince Baskettail

Epitheca

princeps

Mocha Emerald

Somatochlora

linearis

Calico Pennant

Celithemis

elisa

County Record

Halloween Pennant

Celithemis

eponina

Eastern Pondhawk

Erythemis

simplicicollis

Dot-tailed Whiteface

Leucorrhinia

intacta

Slaty Skimmer

Libellula

incesta

County Record

Widow Skimmer

Libellula

luctuosa

Twelve-Spotted Skimmer

Libellula

pulchella

Painted Skimmer

Libellula

semifasciata

County Record

Blue Dasher

Pachydiplax

longipennis

Wandering Glider

Pantala

flavescens

Spot-winged Glider

Pantala

hymenaea

Eastern Amberwing

Perithemis

tenera

Common Whitetail

Plathemis

lydia

White-faced Meadowhawk

Sympetrum

obtrusum

Ruby Meadowhawk

Sympetrum

rubicundulum

Band-winged Meadowhawk

Sympetrum

semicinatum

Autumn Meadowhawk

Sympetrum

vicinum

Carolina Saddlebags

Tramea

carolina

Co. Rec.-Sight

Black Saddlebags

Tramea

lacerata

Damselflies

Ebony Jewelwing

Calopteryx

maculata

Southern Spreadwing

Lestes

australis

Elegant Spreadwing

Lestes

inequalis

Slender Spreadwing

Lestes

rectangularis

Violet Dancer

Argia

fumipennis violacea

Azure Bluet

Enallagma

aspersum

Double-striped Bluet

Enallagma

basidens

2nd Co. Record

Familiar Bluet

Enallagma

civile

Skimming Bluet

Enallagma

geminatum

Orange Bluet

Enallagma

signatum

Fragile Forktail

Ischnura

posita

Eastern Forktail

Ischnura

verticalis

Lepidoptera - Butterflies

Black Swallowtail
 Eastern Tiger Swallowtail
 Spicebush Swallowtail
 Cabbage Butterfly
 Clouded (Yellow) Sulfur
 Orange Sulfur
 Bronze Copper
Gray Hairstreak
 Eastern Tailed Blue
 Spring Azure
 Summer Azure
 Great Spangled Fritillary
 Meadow Fritillary
 Pearl Crescent
 Question Mark
 Eastern Comma
 Mourning Cloak
 Red Admiral
 American Lady
 Painted Lady
 Red-spotted Purple
 Viceroy
 Northern Pearly-eye
 Little Wood Satyr
 Common Wood Nymph
 Monarch (caterpillars & adults)
 Silver-spotted Skipper
 Common Sootywing
 Least Skipper
 Peck's Skipper
Delaware Skipper
Zabulon Skipper

Papilio
Papilio
Papilio
Pieris
Colias
Colias
Lycaena
Strymon
 Everes
Celastrina
Celastrina
Speyeria
Boloria
Phyciodes
Polygonia
Polygonia
Nymphalis
Vanessa
Vanessa
Vanessa
Limenitis
Limenitis
Enodia
Megisto
Cercyonis
Danaus
Epargyreus
Pholisora
Ancyloxpha
Polites
Atrytone
Poanes

polyxenes
glaucus
troilus
rapae
philodice
eurytheme
hyllus
melinus humuli
comyntas
ladon complex
ladon neglecta
cybele
bellona
tharos
interrogationis
comma
antiopa
atalanta rubria
virginiensis
cardui
arthemis astyanax
archippus
anthon
cymela
pegala F. alope
plexippus
clarus
catullus
numitor
peckius
logan
zabulon

County Record

County Record

County Record

Lepidoptera - Moths

Eupatorium Borer Moth
 Virginia Creeper Clearwing Moth
 Yellow-Banded Underwing Moth
 Crocus Geometer Moth
 Chickweed Geometer Moth
 Northern Eudeilinia Moth
 Eight-spotted Forester Moth
 White-striped Black Moth
 Virginia Ctenucha Moth
 Nessus Sphinx Moth
 Clover Looper Moth
 Woolly Bear caterpillar
 Hickory Tussock caterpillar
 Salt Marsh Tiger Moth caterpillar
 Smartweed caterpillar
 American Dagger caterpillar
 Fall Webworm caterpillar
 Yellow Bear caterpillar
 Eastern Tent caterpillar
 Cutworm caterpillar

Carmenta
Albuna
Catocala
Xanthotype
Haematopis
Eudeilinia
Alypia
Trichodezia
Ctenucha
Amphion
Caenurgina
Pyrrharctica
Lophocampa
Estigmene
Acronicta
Acronicta
Hyphantria
Spilosoma
Malacosoma
 Subfamily

bassiformis
fraxini
cerogama
sospeta
grataria
herminiata
octomaculata
albovittata
virginica
floridensis
crassiuscula
isabella
caryae
acrea
oblinita
americana
cunea
virginica
americanum
 Noctuidae

Hangingflies

Hangingfly	<i>Bittacus</i>	<i>strigosus</i>
Short-faced Scorpionfly	<i>Panorpa</i>	sp.

Treehopper, Leafhopper, Spittlebugs

Leafhopper	<i>Gyponana</i>	sp.
Leafhopper	<i>Draeculacephala</i>	sp.
Candy-striped Leafhopper	<i>Graphocephala</i>	<i>coccinea</i>
Meadow Spittlebug	<i>Philaenus</i>	<i>spumarius</i>
Two-line Spittlebug	<i>Prosapia</i>	<i>bicincta</i>

Aphids

Oleander Aphid	<i>Myzus</i>	<i>persicae</i>
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Aquatic Bugs

Water Boatmen	Family	Corixidae
Whirlygig Beetle	<i>Gyrinus</i>	sp.
Giant Water Bug	<i>Lethocerus</i>	sp.
Water Scavenger Beetle	<i>Tropisternus</i>	<i>lateralis</i>

Roaches, Termites, Mantids

Chinese Mantis	<i>Tenodera</i>	<i>ardifolia</i>
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Grasshoppers, Katydid, Crickets, Cicadas

Pygmy Grasshopper	<i>Tetrix</i>	<i>sublata</i>
Red-legged Grasshopper	<i>Melanopus</i>	sp.
Differential Grasshopper	<i>Melanopus</i>	<i>differentialis</i>
Marsh Meadow Grasshopper	<i>Chorthippus</i>	<i>curtipennis</i>
Carolina Locust	<i>Dissosteira</i>	<i>carolina</i>
Short-winged Meadow Katydid	<i>Conocephalus</i>	<i>brevipennis</i>
Black-legged Meadow Katydid	<i>Orchelimum</i>	<i>nigripes</i>
Sword-bearing Conehead	<i>Neoconocephalus</i>	<i>ensiger</i>
Handsome Trig	<i>Phyllopalpus</i>	<i>pulchellus</i>
Narrow-winged Tree Cricket	<i>Oecanthus</i>	<i>niveus</i>
Black-horned Tree Cricket	<i>Oecanthus</i>	<i>nigricornis</i>
Allard's Ground Cricket	<i>Allonemobius</i>	<i>allardi</i>
Black Field Cricket	<i>Gryllus</i>	sp.
Dog-day Cicada	<i>Tibicen</i>	<i>canicularis</i>

True Bugs - Order Hemiptera

Stink Bug - Brown Shield Bug	<i>Euschistus</i>	sp.
Stink Bug	<i>Podisus</i>	sp.
Green Stink Bug	<i>Acrosternum</i>	<i>hilare</i>
Water Strider	<i>Gerris</i>	sp.
Locust Borer	<i>Megacyllene</i>	<i>robiniae</i>
Small Milkweed Bug	<i>Lygaeus</i>	<i>kalmii</i>
Leaf-footed Bug	<i>Acanthocephala</i>	sp.

Gall-forming Insects

Oak Apple Gall	<i>Amphibolips</i>	<i>confluenta</i>
Willow Cone Gall	<i>Rhabdophaga</i>	<i>strobiloides</i>
Blackberry Knot Gall	<i>Diastrophus</i>	<i>nebulosus</i>
Eastern Speckled Oak Gall	<i>Loxaulus</i>	<i>maculipennis</i>
Gall Wasp - plate galls on oak leaves	Family	Cynipidae

Beetles

Firefly	Photinus	sp.	
Asian Lady Beetle (adults & larvae)	Harmonia	sp.	
Spotted Lady Beetle	Coleomegilla	maculata	
Japanese Beetle	Popillia	japonica	
Dogbane Leaf Beetle	Chrysocus	auratus	
Spotted Cucumber Beetle	Diabrotica	undecimpunctata	
Firefly	Photinus	sp.	
Click Beetle	Ctenicera	sp.	
Twelve-spotted Tiger Beetle	Cicindela	duodecimguttata	County Record
Bronzed Tiger Beetle	Cicindela	repanda	County Record
Six-spotted Tiger Beetle	Cicindela	sexguttata	County Record
Milkweed Leaf Beetle	Labidomera	clivicollis	
Ground Beetle	Calleida	punctata	
Ground Beetle	Chlaenius	tricolor	
Soldier Beetle	Podabrus	sp.	
Red Weevil	Lixus	sp.	
Seedcorn Beetle	Stenolophus	sp.	

Flies

Cranefly	Tipula	paterifera	
Phantom Cranefly	Bittacomorpha	clavipes	
Marsh Fly	Tetanocera	sp.	
Syrphid Fly	Xylota	quadrifasciata	
Tachinid Fly	Epalpus	signifer	
Tachinid Fly	Zelia	sp.	
Tachinid Fly	Archytas	sp.	
Shore Fly	Ephydra	sp.	
March Fly	Biblio	sp.	
Long-legged Fly	Dolichopus	sp.	
Drone Fly	Eristalis	tenax	
Robber Fly	Machimus	sp.	
Robber Fly	Laphria	thoracica	
Bee Fly	Bombylius	major	
Snipe Fly	Chrysopilus	ornatus	
Bluebottle Fly	Lucilia	sericata	
Midge	Family	Chironomidae	

Bees, Wasps & Ants

Yellow Bumble Bee	Bombus	fervidus	
Common Eastern Bumble Bee	Bombus	impatiens	
Eastern Carpenter Bee	Xylocopa	virginica	
Leaf Cutter Bees (cut out leaf)	Megachile	sp.	
Honey Bee	Apis	mellifera	
Potter Wasp	Parancistrocerus	perennis	
Wasp	Leucospis	sp.	
Solitary Wasp	Eremnophila	aureonotata	
Common Thread-waisted Wasp	Ammophila	procera	
Blue Mud Dauber	Chalybion	californicum	
Great Golden Digger Wasp	Sphex	ichnumoneus	
Eastern Yellowjacket	Vespula	maculifrons	
Bald-faced Hornet	Dolichovespula	maculata	
Sawfly	Arge	sp.	
Sawfly larvae	Periclista	sp.	
Black Carpenter Ant	Camponotus	pennsylvanicus	

Appendix (B). eBird Field Checklist
248 species (+34 other taxa) - Year-round, All Years

<u>Waterfowl</u>	<u>Shorebirds</u>
<ul style="list-style-type: none"> • Snow Goose • Greater White-fronted Goose • Cackling Goose • Canada Goose • Mute Swan • Trumpeter Swan • Tundra Swan • Wood Duck • Blue-winged Teal • Northern Shoveler • Gadwall • Eurasian Wigeon • American Wigeon • Mallard • Mallard (Domestic type) • American Black Duck • Mallard x American Black Duck (hybrid) • Northern Pintail • Green-winged Teal • Teal sp. • Dabbling duck sp. • Canvasback • Redhead • Ring-necked Duck • Greater Scaup • Lesser Scaup • Greater/Lesser Scaup • Aythya sp. • White-winged Scoter • Long-tailed Duck • Bufflehead • Common Goldeneye • Hooded Merganser • Common Merganser • Red-breasted Merganser • Ruddy Duck • Duck sp. • Red-necked Grebe 	<ul style="list-style-type: none"> • American Avocet • Black-bellied Plover • American Golden-Plover • Black-bellied Plover/golden-plover sp. • Semipalmated Plover • Killdeer • Whimbrel • Marbled Godwit • Ruddy Turnstone • Stilt Sandpiper • Sanderling • Dunlin • Baird's Sandpiper • Least Sandpiper • White-rumped Sandpiper • Buff-breasted Sandpiper • Pectoral Sandpiper • Semipalmated Sandpiper • Peep sp. • Calidris sp. • Short-billed Dowitcher • Long-billed Dowitcher • Short-billed/Long-billed Dowitcher • American Woodcock • Wilson's Snipe • Wilson's Phalarope • Red-necked Phalarope • Red Phalarope • Spotted Sandpiper • Solitary Sandpiper • Greater Yellowlegs • Willet • Lesser Yellowlegs • Greater/Lesser Yellowlegs • Tringa sp. • Shorebird sp.

Grouse, Quail, and Allies

- Northern Bobwhite
- Ring-necked Pheasant
- Wild Turkey
- Grebes
- Pied-billed Grebe
- Horned Grebe
- Pigeons and Doves
- Rock Pigeon
- Mourning Dove
- Cuckoos
- Yellow-billed Cuckoo
- Black-billed Cuckoo
- Yellow-billed/Black-billed Cuckoo
- Nightjars
- Common Nighthawk
- Swifts
- Chimney Swift
- Hummingbirds
- Ruby-throated Hummingbird
- Rails, Gallinules, and Allies
- Virginia Rail
- Sora
- Common Gallinule
- American Coot

Cranes

- Sandhill Crane

Gulls, Terns, and Skimmers

- Bonaparte's Gull
- Ring-billed Gull
- Herring Gull
- Iceland Gull
- Gull sp.
- Caspian Tern
- Black Tern
- Common Tern
- Forster's Tern
- Loons
- Common Loon
- Cormorants and Anhingas
- Double-crested Cormorant

Pelicans

- American White Pelican

Shrikes

- Northern Shrike

Hérons, Ibis, and Allies

- American Bittern
- Least Bittern
- Great Blue Heron
- Great Egret
- Snowy Egret
- Little Blue Heron
- Green Heron
- Black-crowned Night-Heron
- Yellow-crowned Night-Heron
- Glossy Ibis
- White-faced Ibis

Vultures, Hawks, and Allies

- Turkey Vulture
- Osprey
- Swallow-tailed Kite
- Golden Eagle
- Northern Harrier
- Sharp-shinned Hawk
- Cooper's Hawk
- Sharp-shinned/Cooper's Hawk
- Accipiter sp.
- Bald Eagle
- Red-shouldered Hawk
- Broad-winged Hawk
- Red-tailed Hawk
- Rough-legged Hawk
- Buteo sp.
- Hawk sp.

Owls

- Eastern Screech-Owl
- Great Horned Owl
- Barred Owl
- Short-eared Owl

Kingfishers

- Belted Kingfisher

Woodpeckers

- Yellow-bellied Sapsucker
- Red-headed Woodpecker
- Red-bellied Woodpecker
- Downy Woodpecker
- Hairy Woodpecker
- Pileated Woodpecker
- Northern Flicker
- Woodpecker sp.

Falcons and Caracaras

- American Kestrel
- Merlin
- Peregrine Falcon

Tyrant Flycatchers: Pewees, Kingbirds, and Allies

- Eastern Wood-Pewee
- Yellow-bellied Flycatcher
- Acadian Flycatcher
- Alder Flycatcher
- Willow Flycatcher

Alder/Willow Flycatcher (Traill's Flycatcher)

- Least Flycatcher
- Empidonax sp.
- Eastern Phoebe
- Great Crested Flycatcher
- Eastern Kingbird
- Flycatcher sp. (Tyrannidae sp.)

Vireos

- White-eyed Vireo
- Bell's Vireo
- Yellow-throated Vireo
- Blue-headed Vireo
- Philadelphia Vireo
- Warbling Vireo
- Red-eyed Vireo
- Vireo sp.

Jays, Magpies, Crows, and Ravens

- Blue Jay
- American Crow
- Crow sp.
- Common Raven

Larks

- Horned Lark

Martins and Swallows

- Northern Rough-winged Swallow
- Purple Martin
- Tree Swallow
- Bank Swallow
- Barn Swallow
- Cliff Swallow
- Swallow sp.

Old World Sparrows

- House Sparrow

Others

Passerine sp.

Tits, Chickadees, and Titmice

- Black-capped Chickadee
- Tufted Titmouse

Nuthatches

- Red-breasted Nuthatch
- White-breasted Nuthatch

Treecreepers

- Brown Creeper

Wrens

- House Wren
- Winter Wren
- Marsh Wren
- Carolina Wren

Gnatcatchers

- Blue-gray Gnatcatcher

Kinglets

- Golden-crowned Kinglet
- Ruby-crowned Kinglet
- Kinglet sp.

Thrushes

- Eastern Bluebird
- Veery
- Gray-cheeked Thrush
- Swainson's Thrush
- Hermit Thrush
- Catharus sp.
- Wood Thrush
- American Robin

Catbirds, Mockingbirds, and Thrashers

- Gray Catbird
- Brown Thrasher
- Northern Mockingbird

Starlings and Mynas

- European Starling
- Wagtails and Pipits
- American Pipit
- Waxwings
- Cedar Waxwing
- Finches, Euphonias, and Allies
- House Finch
- Purple Finch
- Common Redpoll
- Hoary Redpoll
- White-winged Crossbill
- Pine Siskin
- American Goldfinch

New World Sparrows

- Chipping Sparrow
- Clay-colored Sparrow
- Field Sparrow
- Spizella sp.
- American Tree Sparrow
- Fox Sparrow
- Dark-eyed Junco
- White-crowned Sparrow
- White-throated Sparrow
- Vesper Sparrow
- Nelson's Sparrow
- Savannah Sparrow
- Song Sparrow
- Lincoln's Sparrow
- Swamp Sparrow
- Eastern Towhee
- Sparrow sp.
- Yellow-breasted Chat
- Yellow-breasted Chat
- Blackbirds
- Bobolink
- Eastern Meadowlark
- Orchard Oriole
- Baltimore Oriole
- Red-winged Blackbird
- Brown-headed Cowbird
- Rusty Blackbird
- Brewer's Blackbird
- Common Grackle
- Blackbird sp.

Cardinals, Grosbeaks, and Allies

- Scarlet Tanager
- Northern Cardinal
- Rose-breasted Grosbeak
- Indigo Bunting
- Dickcissel

Wood-Warblers

- Ovenbird
- Louisiana Waterthrush
- Northern Waterthrush
- Blue-winged Warbler
- Black-and-white Warbler
- Prothonotary Warbler
- Tennessee Warbler
- Orange-crowned Warbler
- Nashville Warbler
- Connecticut Warbler
- Mourning Warbler
- Kentucky Warbler
- Common Yellowthroat
- Hooded Warbler
- American Redstart
- Cape May Warbler
- Northern Parula
- Magnolia Warbler
- Bay-breasted Warbler
- Blackburnian Warbler
- Yellow Warbler
- Chestnut-sided Warbler
- Blackpoll Warbler
- Black-throated Blue Warbler
- Palm Warbler
- Pine Warbler
- Yellow-rumped Warbler
- Yellow-throated Warbler
- Prairie Warbler
- Black-throated Green Warbler
- Wilson's Warbler
- Warbler sp. (Parulidae sp.)

Appendix (C). Complete Soils List

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BgB	Bogart loam, 2 to 6 percent slopes	0.4	0.1%
BgC	Bogart loam, 6 to 12 percent slopes	19.5	7.3%
CdB	Canfield silt loam, 2 to 6 percent slopes	3.2	1.2%
CdC2	Canfield silt loam, 6 to 12 percent slopes, eroded	20.8	7.8%
CmC	Chili loam, 6 to 12 percent slopes	19.5	7.3%
CoC	Chili-Urban land complex, rolling	0.1	0.0%
Da	Damascus loam	7.2	2.7%
Lb	Lobdell loam	3.2	1.2%
Ly	Luray silty clay loam, 0 to 2 percent slopes	25.6	9.6%
Mn	Marengo silty clay loam	2.5	0.9%
Od	Olmsted loam	0.0	0.0%
Pc	Papakating silty clay loam	48.1	18.0%
RaB	Ravenna silt loam, 2 to 6 percent slopes	2.1	0.8%
Sb	Sebring silt loam, 0 to 2 percent slopes	20.2	7.6%
W	Water	5.2	2.0%
Wc	Wayland silt loam	75.1	28.0%
WrF2	Wooster loam, 25 to 50 percent slopes, moderately eroded	3.5	1.3%
WsB	Wooster silt loam, 2 to 6 percent slopes	3.2	1.2%
WsD2	Wooster silt loam, 12 to 18 percent slopes, moderately eroded	8.0	3.0%
Totals for Area of Interest		267.7	100.0%

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 Xglauca</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>Hemerocallis 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
Onithigalum 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 Wildlife Sanctuary Dike Inspection Form



Mill Creek MetroParks Wildlife Sanctuary Dike Inspection Form

General Information

Inspection Date: _____	Inspector: _____
Weather Conditions: _____	Start Time: _____
Temperature: _____	End Time: _____

Dike #1

Check All That Apply	Notes				
Wildlife Damage: <input type="checkbox"/>	<table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> </table>				
Erosion: <input type="checkbox"/>					
Woody Vegetation: <input type="checkbox"/>					
Visible/Audible Breach: <input type="checkbox"/>					

Dike #2

Check All That Apply	Notes				
Wildlife Damage: <input type="checkbox"/>	<table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> </table>				
Erosion: <input type="checkbox"/>					
Woody Vegetation: <input type="checkbox"/>					
Visible/Audible Breach: <input type="checkbox"/>					

Dike #3

Check All That Apply	Notes				
Wildlife Damage: <input type="checkbox"/>	<table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td></tr> </table>				
Erosion: <input type="checkbox"/>					
Woody Vegetation: <input type="checkbox"/>					
Visible/Audible Breach: <input type="checkbox"/>					

Follow Up Required? Yes No <input type="checkbox"/> <input type="checkbox"/>

DEED OF CONSERVATION EASEMENT

KNOW ALL MEN BY THESE PRESENTS, that Timothy R. Calvin and Richard A. Calvin, whose residence address is 2705 W. Calla Road, Canfield, Ohio 44406, the Grantors, in consideration of the sum of one dollar (\$1.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, do hereby grant, bargain, sell and convey, in perpetuity, unto the MILL CREEK METROPOLITAN PARK DISTRICT, ("Park"), 7574 Columbiana-Canfield Road, P.O. Box 596, Canfield, OH 44406-0596 and Mahoning Soil and Water Conservation District, 535 N. Broad Street, Canfield, OH 44406 ("Conservation District") (collectively, Park and Conservation district shall be referred to as "Grantee"), its successors and assigns, an estate, interest and easement for conservation purposes of the nature and character and extent hereinafter expressed, to be and to constitute a servitude upon the following real property of the Grantor situated in the County of Mahoning in the State of Ohio and being further described in the attached Exhibit A (the "Premises").

For the purposes of accomplishing the intent of the parties hereto, Grantors covenant on behalf of themselves and their heirs, executors, administrators and assigns with Grantee and its successors and assigns to do and to refrain from doing, severally and collectively, upon the Premises herein described the various acts hereinafter set forth:

A. EASEMENT RESTRICTIONS

Grantors have operated a commercial fish hatchery on the Premises for years. Fish ponds, buildings, dikes, pumps, electric lines, drives and other improvements presently exist on Grantor's property or the Premises. It is Grantor's intention and desire to reserve to itself and its assigns all such rights as are reasonably necessary to continue to operate and maintain these facilities for purposes of fish farming. The restrictions hereby imposed upon the use of the Premises of the Grantors, and the acts which said Grantors so covenant to do and refrain from doing upon granted easement property in connection therewith are and shall be as follows:

1. The Premises herein described shall be kept in its natural state. As herein used, the term "natural state" is intended to mean that no buildings, billboards or other structures of any kind, either temporary or permanent, shall be placed or erected on the easement property, unless otherwise expressly provided hereunder. All improvements and maintenance issues will be addressed by a conservation management plan to be executed by the parties. The plan will be developed by the parties involved and will be mutually agreed upon.

2. There shall not be on or in the Premises any fillings, drilling, excavating, removal of top soil, sand, gravel, rock minerals or other materials nor any building of roads or change in the topography of the land in any manner, other than that caused by the forces of nature or as reserved hereafter.

9900030335
 Filed for Record in
 MAHONING COUNTY, OHIO
 BRUCE E PAPALIA
 On 07-27-1999 At 01:09 pm.
 EASEMENT 42.00
 Book OR Vol. 4271 Pg. 110 - 118

3. There shall be no spraying or other application of herbicides, pesticides, insecticides, fungicides or rodenticides unless, in advance, written permission is granted and mutual consent agreed upon by the Grantors and Grantee.

4. No power or transmission lines may be erected, nor any interests in the Premises shall be granted for this purpose. It is the intent of this provision to grant to the Grantee such an interest in said easement property as is sufficient to prohibit the exercise of the power of eminent domain by public utility companies and any other body or person. The Grantors reserve the right to maintain and repair existing telephone, electric, water, wells or other utility lines or mains needed to provide for the needs of the Grantors, Grantors' successors or assigns. The area needed to repair said facility shall be the minimum necessary to accomplish the task as agreed upon in writing by the Grantors and Grantee. Upon completion, the area shall be restored to its previous state or as near as practical.

5. No trees, ground cover or other vegetation shall be removed by cutting, mowing or any other activity unless approved by the Grantee. Notwithstanding any provision to the contrary, Grantor shall be permitted to remove, cut or mow any ground cover or vegetation necessary to continue the operation of its fish hatchery business.

6. The Premises shall at all times be kept free of garbage, trash and machinery, except machinery actively used in fish farming; and no other unsightly material shall be allowed to accumulate or be stored thereon, except that Grantee shall not have the duty to remove garbage, trash, etc. unlawfully deposited on the premises by persons acting without the consent of the Grantors.

7. Each and every activity, including but not limited to construction activity which might endanger the natural integrity or state of the Premises, is forbidden unless otherwise permitted by this Conservation Easement.

8. The Grantee reserves the right to periodically inspect the Premises for violations of the easement, and if upon 60 days advance written notice the Grantors have not eliminated said violations, the Grantee may remove or eliminate, at the expense of the Grantors, any violation by the Grantors of the easement. The Grantee or an authorized representative may enter upon said lands for the purpose of inspection.

9. The Grantee reserves the right to post or clearly mark the boundaries of said easement in compliance with the Grantee's policies.

10. Cattle or other livestock, except fish, shall not be permitted on the Premises, except that the Grantee shall permit access to and use of waters within an area necessary for livestock watering under such terms and conditions as the Grantee deems necessary to protect and further the purposes of this easement, provided:

- (a) The Grantors bear the cost of building and maintaining fencing or other facilities reasonably necessary to preclude livestock from entering the easement property;

- (b) Access for the livestock watering need not be permitted where other waters are reasonably available from other sources outside the easement property; and
- (c) Access for the livestock watering points must comply with established Best Management Practices (BMPs).

11. There shall be no dumping or storing of ashes, non-composted organic waste, off-site sewage, sediment discharges, oil or its by-products, sanitary discharge or other offensive material shall not be allowed in, on, over, under or upon the Premises.

12. No residential, commercial, or industrial activities of any kind shall be permitted on the Premises without the prior written consent of the Grantee except that Grantors present fish hatchery business may be continued on the Premises. No mining will be conducted and no minerals, gas, oil or coal will be extracted from the Premises whether above or below the surface without the prior written consent of the Grantee except for existing leases of record regarding the extraction of oil and gas from the Premises. The Grantor agrees to notify and cooperate with the Grantee regarding the location and site restoration of any new wells that may be drilled on or near the Premises or which affect the Premises.

13. The Grantor shall not permit any liens, mortgages, judgments, or encumbrances of any kind to be placed on the Premises.

14. All activities which are prohibited to be performed by the Grantors on the Premises shall not be done by any employee, agent or representative of the Grantors, nor shall the Grantors give permission to another person to perform such activities.

B. RIGHTS OF THE GRANTORS

The easement granted hereunder and the covenants heretofore made are subject to the following rights of the Grantors which are expressly reserved hereunder:

1. Except as expressly limited herein, the Grantors reserve for themselves, their heirs and assigns, all rights as owner of the Premises, including the right to use the easement property for all purposes consistent with this easement.

2. The Grantors reserve the right to maintain the stream bank within the prescribed methods approved by the Grantee.

3. The Grantors have the right but have no duty to remove, for safety purposes and for personal use as firewood, fallen logs or dead trees in the easement area.

4. The Grantors also reserve the right but have no duty to maintain existing and control gates within the said easement areas and to erect additional fences on the perimeter of said areas to control trespassing from adjoining areas.

C. MISCELLANEOUS PROVISIONS

1. Grantors and Grantee agree that Premises is subject to the police authority of the Mill Creek Metropolitan Park District and that the duly employed police officers of the Park have full authority to act in their police capacity on the Premises.

2. In consideration of the terms of this Agreement, the Grantors hereby give and grant to the Park a Right of First Refusal to purchase the Premises. The Grantors shall provide the Park with a copy of a written offer that it receives from any prospective purchaser that is agreeable to the Grantors. The Park shall have sixty (60) days after receipt of the written offer to exercise its Right of First Refusal granted herein. Park shall notify Grantors in writing of its intention to act on this Right of First Refusal. Closing on said purchase shall occur no later than sixty (60) days of the Park's exercise of its Right of First Refusal.

3. The Grantors and Grantee agree that the provisions of this easement are severable and that if any court of competent jurisdiction shall render a judgment voiding or nullifying any provisions hereof, the effect of said judgment shall be limited to the nullified, voided portion of this easement and the remaining provisions hereof shall continue in full force and effect.

4. The Park and the Conservation District shall jointly hold this easement as Grantee for a period of fifteen (15) years. After the fifteen year time period has expired, the Park District shall solely hold the easement in perpetuity and the Conservation District agrees to execute any documents necessary to release their interests in the Conservation Easement. However, if for any reason the Park purchases the fee interest in the Premises, the Conservation Easement shall revert back to joint management by the Park and Conservation District to be held in perpetuity.

TO HAVE AND TO HOLD unto the Grantee and its assigns forever for the life of the easement. The Covenants agreed to and restrictions imposed, as aforesaid, shall be binding upon the Grantors, their heirs, successors and assigns and each of them and they shall warrant that the title to the Premises is free and clear of all liens and encumbrances and that the Grantors shall defend the Grantees, their heirs, successors and assigns from and against all lawful claims of all persons whomsoever.

EXHIBIT "A"

MILL CREEK METRO PARKS

PARCEL NO. 1:

Situated in the Township of Beaver, County of Mahoning and State of Ohio, being a part of Section #4 of said Township, bounded and described as follows:

Beginning at an iron pin on the South line of land now or formerly owned by E. M. Bieber and 1571.55 feet West of the East line of Section #3, said point also being the Northwest corner of a 30.513 acre parcel conveyed to Rosena Calvin by deed recorded in Volume 605, Page 473 of the Mahoning County Record of Deeds; thence South, along the West line of said 30.513 acre parcel 847.1' to an iron pin at a corner; thence West, 1029' to a point; thence North 846.15' but to the South line of the aforesaid Bieber land; thence East, 1029' along said Bieber line to the place of beginning, and containing within the above described bounds, 20.00 acres of land, be the same more or less, but subject to all legal highways.

PARCEL NO. 2:

Situated in the Township of Beaver, County of Mahoning and State of Ohio, being a part of Section #4 of said Township, bounded and described as follows:

Beginning at an iron pin in the Easterly line of Section #4 at the Southeast corner of lands now or formerly owned by Curtis A. Bieber, thence 5° 02' W. along Easterly line of Section #4 a distance of 848.5' to the Northeasterly corner of lands of Rosena and Richard Calvin; thence N. 85° 38' W. along the Northerly line of the Calvin land a distance of 1564' to an iron pin in the Northwesterly corner of the Calvin land; thence N. 4° 31' E. a distance of 847.1 feet to an iron pin in the Southerly line of the Bieber land; thence S. 85° 34' E. along the southerly line of Bieber land a distance of 1571.55' to the place of beginning and containing within said boundaries 30.513 acres more or less.

PARCEL NO. 3:

Situated in the Township of Beaver, County of Mahoning and State of Ohio, being a part of Section #4 of said Township, bounded and described as follows:

Beginning at an iron pin in the centerline of the Calla Rd., that is S. 85° 30' E. a distance of 300' from the Southeasterly corner extended of Lot #6 in the Paradise Acres Plat #1 as shown in Mahoning County Record of Plats, Vol.43, Pg. 34; thence N. 4° 30' E. along the Easterly line of lands of R. & M. Dorman a distance of 335.6' to a point; thence N. 40° 30' W. a distance of 141.42' to a point; thence N. 85° 30' W. and parallel to the centerline of the Calla Road a distance of 200' to the Easterly line of lands of Mildred J. Jacobs; thence North along the Easterly line of lands of Mildred J. Jacobs a distance of 1621.31' to the Southerly line of lands of R. F. & J. Calvin and the Southerly line of the Haus Plat #3; thence Easterly along the Southerly line of the Haus Plat #3 and the Southerly line of the R. F. & K. Calvin lands a distance of 2210.34' to the Westerly line of lands of R. & R. Calvin a distance of 2062.03' to the centerline of the Calla Road; thence Westerly along the centerline of the Calla Road a distance of 1910.34' to the place of beginning, and containing within said boundaries 101.445 acres more or less, but subject to all

legal highways.

PARCEL NO. 4

Situated in the Township of Beaver, County of Mahoning and State of Ohio, being a part of Section #4 of said Township, bounded and described as follows:

Commencing at an iron pin on the South line of said Section, 54 Chains and 36 Links East to the Southwest corner of said Section; thence East, 23 Chains and 42 Links to a point on bridge above corner stone in creek (Point on bridge being 30' East of an iron pin on said South line and 4.8' West of the East edge of stone abutment of said bridge); thence North 40' East 31 Chains and 15 Links to a stone in the center of the creek 30' East of an iron pin on the North line of the within described tract; thence West 23 Chains and 79 Links to an iron pin; thence South 31 Chains and 15 Links to an iron pin and place of beginning and containing 73.521 acres of land, be the same more or less, but subject to all legal highways.

PARCEL NO. 5

Situated in the Township of Beaver, County of Mahoning and State of Ohio, being a part of Section #4 of said Township, bounded and described as follows:

Beginning at an iron pin at the Southeast corner of Lot #26 of Haus Plat #3 as recorded in Vol. 42, Pg. 108, Mahoning County Records of Plats; Thence North along the East line of said Plat to the South line of land now or formerly owned by E.M. Beiber a distance of 846' to an iron pin; Thence East along said Beiber line 875' to an iron pin at the Northwest corner of a 20 acre parcel owned by Richard Calvin and Rosena Calvin; Thence South along said Calvin line 846.15' to the Southwest corner of said 20 acre parcel; Thence West along the South line of land of grantor 875' to the place of beginning and containing within the above bounds 17 acres of land, be the same more or less, but subject to all legal highways.

IN WITNESS WHEREOF, the Grantors have hereunto set their hands this 8th day of July, 1999.

SIGNED AND ACKNOWLEDGED IN THE PRESENCE OF:

Witnesses:

[Signature]
ERIC C. JOHNSON

Cindy Wilson
CINDY WILSON

[Signature]
ERIC C. JOHNSON

Cindy Wilson
CINDY WILSON

Grantors:

[Signature]
Timothy R. Calvin

[Signature]
Richard A. Calvin

Grantees:

Board of Commissioners of the Mill Creek Metropolitan Park District

By: [Signature]

And: [Signature]

And: [Signature]

Mahoning Soil and Water Conservation District Board of Supervisors

By: [Signature]
Its: Chairperson

[Signature]
[Signature]

[Signature]
Christopher J. Wagner

[Signature]
SUSAN E. DICKEN

Prepared By: ACS Title

STATE OF OHIO)
)
COUNTY OF Mahoning) SS:

Before me, a notary public in and for said county and state, personally appeared the above-named Grantors who acknowledged that they did sign the foregoing instrument and that the same is their free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal at Cantida, Ohio this 8th day of July, 1999



ERIC C. JOHNSON
Notary Public - State of Ohio
Lifetime Commission
Section 147-03 O.R.C.

[Signature]
Notary Public
My Commission expires: _____

STATE OF OHIO)
)
COUNTY OF MAHONING) SS:

Before me, a notary public in and for said county and state, personally appeared the above-named GRANTEES of the Board of Commissioners of the Mill Creek Metropolitan Park District who acknowledged that THEY did sign the foregoing instrument and that the same is THEIR free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal at CANFIELD, Ohio this 15TH day of JULY, 1999.

JERRY F. EPSTEIN
Notary Public, State of Ohio
My Commission Expires Jan. 13, 2002

[Signature]
Notary Public
My Commission expires: JAN. 13, 2002

STATE OF OHIO)
)
COUNTY OF MAHONING) SS:

Before me, a notary public in and for said county and state, personally appeared the above-named GRANTEES of the Mahoning Soil and Water Conservation District Board of Supervisors who acknowledged that THEY did sign the foregoing instrument and that the same is THEIR free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal at
CANFIELD, Ohio this 13TH day of JULY, 1999.

Jerry F. Epstein
Notary Public

JERRY F. EPSTEIN
Notary Public, State of Ohio
My Commission Expires Jan. 13, 2002

My Commission expires: JAN 13, 2002

COPY

DECLARATION OF RESTRICTIONS

This Declaration of Restrictions (this "Declaration") is made on this 8 day of August 2005 by **Board of Park Commissioners of the Mill Creek Metropolitan Park District**, an Ohio Park District as set forth in O.R.C. § 1545.01 et seq. ("Mill Creek Park" or the "Declarant").

Recitals:

A. Declarant owns certain property located in Mahoning, County, Ohio as more particularly described on Exhibit A attached hereto and made a part hereof (the "Property").

B. Declarant applied for and has received a grant from the State of Ohio, acting by and through the Director of the Ohio Public Works Commission ("OPWC"), pursuant to Ohio Revised Code §164.20 et seq. (the "Grant"). In connection with Declarant's application for the Grant, Declarant proposed to use the Grant funds either for open space acquisition and related development or to protect and enhance riparian corridors, as set forth more specifically in its application.

C. As a condition to Declarant's receipt of the Grant, Declarant has agreed to restrict the use of the Property as set forth in this Declaration, with the intent that such restrictions run with the land.

NOW, THEREFORE, for valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Declarant, for itself and its successors and assigns as owners of the Property, hereby agrees as follows:

§1. Use and Development Restrictions. Declarant hereby agrees, for itself and its successors and assigns as owners of the Property, that the Property shall be subject to the following:

a. The Property shall be acquired for preservation of open space and shall be used as a public park and conservation area, with recreational and public uses designed to be compatible with the protection of riparian areas and water quality and important wildlife and plant habitats.

b. The Declarant shall be able to construct and maintain trails, observation platforms, pavilions, parking lot, restrooms and facilities for public use and access provided that these facilities will not result in significant degradation of important conservation values.

c. There shall be no manipulation of water courses, marshes, or other water bodies and no activities or uses detrimental to water purity or the quality of aquatic habitat, provided, however, that beavers and their activities may be controlled, and stream and wetland restoration and enhancement activities may be conducted.

200600047392
12-22-2006 At 11:22 am.
DEC/RESTRIC 76.00
OR Book 5667 Page 413 - 420
RONALD V. GERBERRY
RECORDER

§2. Perpetual Restrictions. The restrictions set forth in this Declaration shall be perpetual and shall run with the land for the benefit of, and shall be enforceable by, OPWC. This Declaration and the covenants and restrictions set forth herein shall not be amended, released, extinguished or otherwise modified without the prior written consent of OPWC, which consent may be withheld in its sole and absolute discretion.

§3. Enforcement. If Declarant, or its successors or assigns as owner of the Property, should fail to observe the covenants and restrictions set forth herein, the Declarant or its successors or assigns, as the case may be, shall pay to OPWC upon demand, as liquidated damages, an amount equal to the greater of (a) two hundred percent (200%) of the amount of the Grant received by Declarant, together with interest accruing at the rate of six percent (6%) per annum from the date of Declarant's receipt of the Grant, or (b) two hundred percent (200%) of the fair market value of the Property as of the date of demand by OPWC. Declarant acknowledges that such sum is not intended as, and shall not be deemed, a penalty, but is intended to compensate for damages suffered in the event a breach or violation of the covenants and restrictions set forth herein, the determination of which is not readily ascertainable. OPWC shall have the right to enforce, by any proceedings at law or in equity, all restrictions, conditions and covenants set forth herein. Failure by OPWC to proceed with such enforcement shall in no event be deemed a waiver of the right to enforce at a later date the original violation or a subsequent violation.

§4. Restriction on Transfer of the Property. Declarant acknowledges that the Grant is specific to Declarant and that OPWC's approval of Declarant's application for the Grant was made in reliance on Declarant's continued ownership and control of the Property. Accordingly, Declarant shall not voluntarily or involuntarily sell, assign, transfer, lease, exchange, convey or otherwise encumber the Property without the prior written consent of OPWC, which consent may be withheld in its sole and absolute discretion.

§5. Separability. Each provision of this Declaration and the application thereof to the Property are hereby declared to be independent of and severable from the remainder of this Declaration. If any provision contained herein shall be held to be invalid or to be unenforceable or not to run with the land, such holding shall not affect the validity or enforceability of the remainder of this Declaration.

§6. Notices. Notices or other communication hereunder shall be in writing and shall be sent certified or registered mail, return receipt requested, or by other national overnight courier company, or personal delivery. Notice shall be deemed given upon receipt or refusal to accept delivery. Each party may change from time to time their respective address for notice hereunder by like notice to the other party. The notice addresses of the parties are as follows:

Declarant: Board of Park Commissioners
of the Mill Creek Metropolitan Park District
P.O. Box 596
Canfield, Ohio 44406
Attention: Susan Dicken, Executive Director

EXHIBIT A

Situated in the Township of Beaver, County of Mahoning and State of Ohio:

PARCEL I

Known as being a part of the Northwest quarter of Section No. 9 in said Township, and more particularly described as follows:

Beginning at a monument at the intersection of the centerline of New Buffalo Road with the centerline of Calla Road;

Thence South 85 deg. 25' 20" East, along the centerline of Calla Road a distance of 1115.73 feet to the true point of beginning of the parcel herein described;

Thence continuing along the centerline of Calla Road South 85 deg. 25' 20" East, a distance of 1573.47 feet to a point;

Thence South 5 deg. 03' 06" West, along the Westerly line of lands now or formerly owned by W.T. & L.H. Powers, as recorded in Off. Rec. 1972, Page 198, Mahoning County Record of Deeds, and passing over an iron pin at 27.21 feet, a total distance of 745.73 feet to an iron pin;

Thence North 85 deg. 15' 25" West, along lands now or formerly owned by W.R. & D.M. Hartman, as recorded in Volume 1035, Page 628, Mahoning County Record of Deeds, a distance of 879.52 feet to a 5/8" capped rebar;

Thence North 5 deg. 28' 01" East, a distance of 183.18 feet to a 5/8" capped rebar;

Thence North 85 deg. 25' 20" West a distance of 690.63 feet to a 5/8" capped rebar;

Thence North 4 deg. 34' 40" East, a distance of 560.00 feet to the centerline of Calla Road, and the place of beginning over a 5/8" capped rebar at 30.00 feet, and containing within said bounds 23.9196 acres of land; be the same more or less, but subject to all legal highways and easements on record, and containing a 6.103 acre parcel of land and a 17.816 parcel of land. As surveyed by Alan N. Ewing, Registered Surveyor No. 6341, in April, 1995.

2705 West Calla Road
Canfield, Ohio 44406

PPN: 05-135-0-002.01-0 &
05-135-0-002.02-0

PARCEL II

Being a part of Section No. 3 of said Township, bounded and described as follows:

Beginning at an iron pin in the Easterly line of Section No. 3 at the Southeast corner of lands now or formerly owned by Curtis A. Beiber,

Thence 5 deg. 02' West along the Easterly line of Section No. 3 a distance of 848.5' to the Northeasterly corner of lands of Richard Calvin;

Thence North 85 deg. 38' West along the Northerly line of the Calvin land a distance of 1564' to an iron pin in the Northwesterly corner of the Calvin land;

Thence North 4 deg. 31' East a distance of 847.1 feet to an iron pin in the Southerly line of the Beiber land;

Thence South 85 deg. 34' East along the Southerly line of Beiber land a distance of 1571.55' to the place of beginning and containing within said boundaries 30.513 acres more or less.

V/L New Buffalo
Canfield, Ohio 44406

PPN: 04-104-0-002.00-0

PARCEL III

Known as being part of Section 4 in said Beaver Township and being further bounded and described as follows:

Commencing at a monument found on the centerline of Calla Road at its intersection with the centerline of New Buffalo Road;

Thence along said Calla Road centerline, South 88 deg. 30' 00" East a distance of 1378.45 feet to the Southwesterly corner of lands now or formerly of J.M. & J.E. Mahood;

Thence along said Mahood lands and other lands of T.R. & R.A. Calvin, North 01 deg. 32' 32" East a distance of 2060.68 feet to an iron pin found on the Southerly line of the Haus Plat No. 3;

Thence along said Southerly line and lands of the Mill Creek Metropolitan Park District, South 88 deg. 25' 31" East a distance of 834.22 feet to an iron pin set at the Southeasterly corner of said Mill Creek Parks lands and the true Point of Beginning;

Thence by the next two courses along said Mill Creek Metropolitan Park District lands, North 01 deg. 26' 00" East a distance of 745.00 feet to an iron pin set;

Thence North 88 deg. 25' 31" West a distance of 526.23 feet to an iron pin set on the Easterly line of Lot 25, in said Haus Plat No. 3;

Thence along said Lot 25, North 01 deg. 26' 00" East a distance of 102.10 feet to an iron pin found on the Southerly line of lands now or formerly of O.C. Bieber, Trustee;

Thence along said Bieber lands, South 88 deg. 31' 26" East a distance of 1903.83 feet to an iron pin found at the Northwesterly corner of other lands of Timothy R. Calvin and Richard A. Calvin;

Thence by the next two courses along said Calvin lands, South 01 deg. 32' 00" West a distance of 850.37 feet to an iron pin set;

Thence North 88 deg. 25' 31" West a distance of 1376.12 feet to the point of beginning.

The above described parcel is a landlocked parcel which contains within said bound 28.080 acres of land, as surveyed under the supervision of Haven R. Grover, Registered Surveyor No. 6971, of Western Reserve Land Consultants, Inc., on May 6, 2002, but subject to all legal highways and easements of record. Basis of Bearing of the above described parcel being the centerline said Calla Road, held at North 88 deg. 30' 00" West, as recorded in Volume 43 at Page 348 of the Mahoning County Record of Plats. All iron pins set are 5/8" rebar with identification cap.

This landlocked parcel shall only be transferred to an adjoining land owner.

Be the same more or less, but subject to all legal highways.

V/ L Haus Boulevard
Canfield, Ohio 44406

PPN: 04-137-0-014.00-0

PARCEL IV

Being a part of Section No. 4 of said Township, bounded and described as follows:

Commencing at an iron pin on the South line of said Section, 54 chains and 36 links East to the Southwest corner of said Section;

Thence East, 23 chains and 42 links to a point on bridge above corner stone in creek (point on bridge 30' East of an iron pin on said South line and 4.8' West of the East edge of stone abutment of said bridge);

Thence North 40' East 31 chains and 15 links to a stone in the center of the creek 30' East of an iron pin on the North line of the within described tract;

Thence West 23 chains and 79 links to an iron pin;

Thence South 31 chains and 15 links to an iron pin and place of beginning and containing 73.521 acres of land.

Be the same more or less, but subject to all legal highways.

V/L Calla Road
Canfield, Ohio 44406

PPN: 05-105-0-002,00-0

PARCEL V

Being a part of Section No. 4 of said Township, bounded and described as follows:

Beginning at an iron pin in the centerline of the Calla Road, that is South 85 deg. 30' East, a distance of 300' from the Southeasterly corner extended of Lot No. 6 in the Paradise acres Plat No. 1 as shown in Mahoning County Record of Plats, Volume 43, Page 34;

Thence North 4 deg. 30' East along the Easterly line of lands of R. and M. Doorman a distance of 335.6' to a point;

Thence North 40 deg. 30' West a distance of 141.42' to a point;

Thence North 85 deg. 30' West and parallel to the centerline of the Calla Road, a distance of 200' to the Easterly line of lands of Mildred J. Jacobs;

Thence North along the Easterly line of lands of Mildred J. Jacob's a distance of 1621.31' to the Southerly line of lands of R. F. and J. Calvin and the Southerly line of the Haus Plat No. 3;

Thence Easterly along the Southerly line of the Haus Plat No. 3 and the Southerly line of the R. F. and J. Calvin lands a distance of 2210.34' to the Westerly line of lands of R. and R. Calvin a distance of 2062.03' to the centerline of the Calla Road;

Thence Westerly along the centerline of the Calla Road a distance of 1910.34' to the place of beginning, and containing within said boundaries 101.445 acres more or less, but subject to all legal highways.

2650 Calla Road
Canfield, Ohio 44406

PPN: 08-105-0-001.00-0

This form is available electronically.

CRP-1 (03-26-04) U.S. DEPARTMENT OF AGRICULTURE Commodity Credit Corporation CONSERVATION RESERVE PROGRAM CONTRACT	1. ST. & CO. CODE & ADMIN. LOCATION 39099	2. SIGN-UP NUMBER 15
	3. CONTRACT NUMBER 24C	4. ACRES FOR ENROLLMENT 33.0
7. COUNTY OFFICE ADDRESS (Include Zip Code) Columbiana Farmington County FSA Office 1834 S Lincoln Ave Suite A Salem OH 44460 4393	5. FARM NUMBER 3162	6. TRACT NUMBER(S) 1531
TELEPHONE NUMBER (Include Area Code): (330) 424-5525	8. OFFER (Select one) GENERAL <input type="checkbox"/> ENVIRONMENTAL PRIORITY <input checked="" type="checkbox"/>	9. CONTRACT PERIOD FROM: (MM-DD-YYYY) 04/26/1999 TO: (MM-DD-YYYY) 09/30/2009

NOTE: The authority for collecting the following information is Pub. L. 107-171. This authority allows for the collection of information without prior OMB approval mandated by the Paperwork Reduction Act of 1995. The time required to complete this information is approximately 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

THIS CONTRACT is entered into between the Commodity Credit Corporation (referred to as "CCC") and the undersigned owners, operators, or tenants (who may be referred to as "the Participant"). The Participant agrees to place the designated acreage into the Conservation Reserve Program ("CRP") or other use set by CCC for the stipulated contract period from the date the Contract is executed by the CCC. The Participant also agrees to implement on such designated acreage the Conservation Plan developed for such acreage and approved by the CCC and the Participant. Additionally, the Participant and CCC agree to comply with the terms and conditions contained in this Contract, including the Appendix to this Contract, entitled Appendix to CRP-1, Conservation Reserve Program Contract (referred to as "Appendix"). By signing below, the Participant acknowledges that a copy of the Appendix for the applicable sign-up period has been provided to such person. Such person also agrees to pay such liquidated damages in an amount specified in the Appendix if the Participant withdraws prior to CCC acceptance or rejection. The terms and conditions of this contract are contained in this Form CRP-1 and in the CRP-1 Appendix and any addendum thereto. **BY SIGNING THIS CONTRACT PRODUCERS ACKNOWLEDGE RECEIPT OF THE FOLLOWING FORMS: CRP-1; CRP-1 Appendix and any addendum thereto; CRP-2 or CRP-2C, if applicable; and, if applicable, CRP-15.**

10A. Rental Rate Per Acre \$ 37.43 B. Annual Contract Payment \$ 1235.00 C. First Year Payment \$ <i>(Item 10C applicable only to continuous signup when the first year payment is prorated.)</i>	11. Identification of CRP Land (See Page 2 for additional space)																				
	<table border="1"> <thead> <tr> <th>A. Tract No.</th> <th>B. Field No.</th> <th>C. Practice No.</th> <th>D. Acres</th> <th>E. Total Estimated Cost-Share</th> </tr> </thead> <tbody> <tr> <td>T1531</td> <td>1</td> <td>CP10</td> <td>12.6</td> <td>0</td> </tr> <tr> <td></td> <td>2</td> <td>CP10</td> <td>4.6</td> <td></td> </tr> <tr> <td></td> <td>3</td> <td>CP10</td> <td>3.4</td> <td></td> </tr> </tbody> </table>	A. Tract No.	B. Field No.	C. Practice No.	D. Acres	E. Total Estimated Cost-Share	T1531	1	CP10	12.6	0		2	CP10	4.6			3	CP10	3.4	
A. Tract No.	B. Field No.	C. Practice No.	D. Acres	E. Total Estimated Cost-Share																	
T1531	1	CP10	12.6	0																	
	2	CP10	4.6																		
	3	CP10	3.4																		

12. PARTICIPANTS				
(1). PARTICIPANT'S NAME AND ADDRESS (Zip Code): Hillcreek Metro Park District 574 Columbiana Canfield Rd Canfield OH 44406 30-702-3000	(2) SHARE 100%	(3) SOCIAL SECURITY NUMBER: 346003205	(4) SIGNATURE <i>James F. Dicker</i>	DATE (MM-DD-YYYY) 10-25-04
<i>(If more than three individuals are signing, continue on attachment.)</i>				
(1). PARTICIPANT'S NAME AND ADDRESS (Zip Code):	(2) SHARE %	(3) SOCIAL SECURITY NUMBER:	(4) SIGNATURE	DATE (MM-DD-YYYY)
<i>(If more than three individuals are signing, continue on attachment.)</i>				
(1). PARTICIPANT'S NAME AND ADDRESS (Zip Code):	(2) SHARE %	(3) SOCIAL SECURITY NUMBER:	(4) SIGNATURE	DATE (MM-DD-YYYY)
<i>(If more than three individuals are signing, continue on attachment.)</i>				

CCC USE ONLY - Payments according to the shares are approved.	A. SIGNATURE OF CCC REPRESENTATIVE	B. DATE (MM-DD-YYYY)
--	------------------------------------	----------------------

NOTE: The following statement is made in accordance with the Privacy Act of 1974 (5 USC 552a) and the Paperwork Reduction Act of 1995, as amended. The authority for requesting the following information is the Food Security Act of 1985, (Pub. L. 99-198), as amended and the Farm Security and Rural Investment Act of 2002 (Pub. L. 107-171) and regulations promulgated at 7 CFR Part 1410 and the Internal Revenue Code (26 USC 6109). The information requested is necessary for CCC to consider and process the offer to enter into a Conservation Reserve Program Contract, to assist in determining eligibility, and to determine the correct parties to the contract. Furnishing the requested information is voluntary. Failure to furnish the requested information will result in determination of ineligibility for certain program benefits and other financial assistance administered by USDA agency. This information may be provided to other agencies, IRS, Department of Justice, or other State and Federal Law enforcement agencies, and in response to a court magistrate or administrative tribunal. The provisions of criminal and civil fraud statutes, including 18 USC 286, 287, 371, 641, 651, 1001; 15 USC 714m; and 31 USC 3729, may be applicable to the information provided. **RETURN THIS COMPLETED FORM TO YOUR COUNTY FSA OFFICE.**

U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Original - County Office Copy
 Owner's Copy
 Operator's Copy

This form is available electronically.

CRP-1 U.S. DEPARTMENT OF AGRICULTURE
(02-04-03) Commodity Credit Corporation
CONSERVATION RESERVE PROGRAM CONTRACT

1. ST. & CO. CODE & ADMIN. LOCATION 39-099	2. SIGN-UP NUMBER 15
3. CONTRACT NUMBER 24A	4. ACRES FOR ENROLLMENT 34.2 SED
5. FARM NUMBER 3162	Please initial in item 4
8. OFFER (Select One) GENERAL <input type="checkbox"/> ENVIRONMENTAL PRIORITY <input checked="" type="checkbox"/>	

NOTE: The authority for collecting the following information is Pub. L. 107-171. This authority allows for the collection of information without prior OMB approval mandated by the Paperwork Reduction Act of 1995. The time required to complete this information collection is estimated to average 4 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

7. COUNTY OFFICE ADDRESS (Include Zip Code):

Columbiana Mahoning County FSA Office
1834 S Lincoln Ave Suite A
Salem OH 44460 4393

TELEPHONE NUMBER (Include Area Code): **330-533-5428**

THIS CONTRACT is entered into between the Commodity Credit Corporation (referred to as "CCC") and the undersigned owners, operators, ("Owner", "Operator", and "Tenant", respectively) on the farm identified above. The undersigned person or persons may hereafter collectively be referred to as the "Participant". The Participant agrees to place the designated acreage into the Conservation Reserve Program (CRP) or other use set by CCC for the stipulated period as executed by the CCC. The Participant also agrees to implement on such designated acreage the Conservation Plan developed for such acreage by the CCC. Additionally, the Participant and CCC agree to comply with the terms and conditions contained in this Contract, including the Appendix to this Contract, including the Appendix to CRP-1, Conservation Reserve Program Contract (referred to as "Appendix"). By signing below, the Participant acknowledges that a copy of the Appendix to this Contract, including the Appendix to CRP-1, Conservation Reserve Program Contract (referred to as "Appendix"). By signing below, the Participant acknowledges that a copy of the Appendix to this Contract, including the Appendix to CRP-1, Conservation Reserve Program Contract (referred to as "Appendix") has been provided to such person. Such person also agrees to pay such liquidated damages in an amount specified in the Appendix if the Participant withdraws prior to CCC acceptance or rejection. The terms and conditions of this contract are contained in this Form CRP-1 and in the CRP-1 Appendix and any addendum thereto. BY SIGNING THIS CONTRACT PRODUCERS ACKNOWLEDGE RECEIPT OF THE FOLLOWING FORMS: CRP-1; CRP-1 Appendix and any addendum thereto; CRP-2 or CRP-2C, if applicable; and, if applicable, CRP-15.

10A. Rental Rate Per Acre	\$ 37.43	11. Identification of CRP Land (See Page 2 for additional space)				
B. Annual Contract Payment	\$ 1,280.00	A. Tract No.	B. Field No.	C. Practice No.	D. Acres	E. Total Estimated Cost-Share
C. First Year Payment	\$ 1,280.00	T1531	1	CP10	5.9	
(Item 10C applicable only to continuous signup when the first year payment is prorated.)			2,3,4,6	CP3	28.3	

12. OWNERS, OPERATORS, AND TENANTS

A(1). OPERATOR NAME AND ADDRESS (Include Zip Code): Mill Creek Metro Park District 7574 Columbiana Canfield Rd Canfield OH 444406	(2) SHARE 1.0000 %	(3) SOCIAL SECURITY NUMBER: 34-6003205
		(4) SIGNATURE SED DATE (MM/DD/YYYY)
B(1). OWNER NAME AND ADDRESS (Include Zip Code):	(2) SHARE 0.0000 %	(3) SOCIAL SECURITY I
		(4) SIGNATURE
C(1). NAME AND ADDRESS (Include Zip Code):	(2) SHARE %	(3) SOCIAL SECURITY I
		(4) SIGNATURE

Please sign in item 12A1

13. CCC US to the sh

SIGNATURE OF CCC REPRESENTATIVE [B. DATE (MM/DD/YYYY)]

NOTE: The the fi regu to e info adn req are

Please sign all papers where indicated - Any questions, please call 330-424-5525 or 330-533-5428 Thank you, DC

Privacy Act of 1974 (5 USC 552a) and the Paperwork Reduction Act of 1995, as amended. The authority for requesting (Pub. L. 99-198), as amended and the Farm Security and Rural Investment Act of 2002 (Pub. L. 107-171) and Internal Revenue Code (26 USC 6109). The information requested is necessary for CCC to consider and process the offer to assist in determining eligibility, and to determine the correct parties to the contract. Furnishing the requested information will result in determination of ineligibility for certain program benefits and other financial assistance provided to other agencies, IRS, Department of Justice, or other State and Federal Law enforcement agencies, and in the provisions of criminal and civil fraud statutes, including 18 USC 286, 287, 371, 641, 651, 1001; 15 USC 714m; provided. RETURN THIS COMPLETED FORM TO YOUR COUNTY FSA OFFICE.

Th se (B) 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

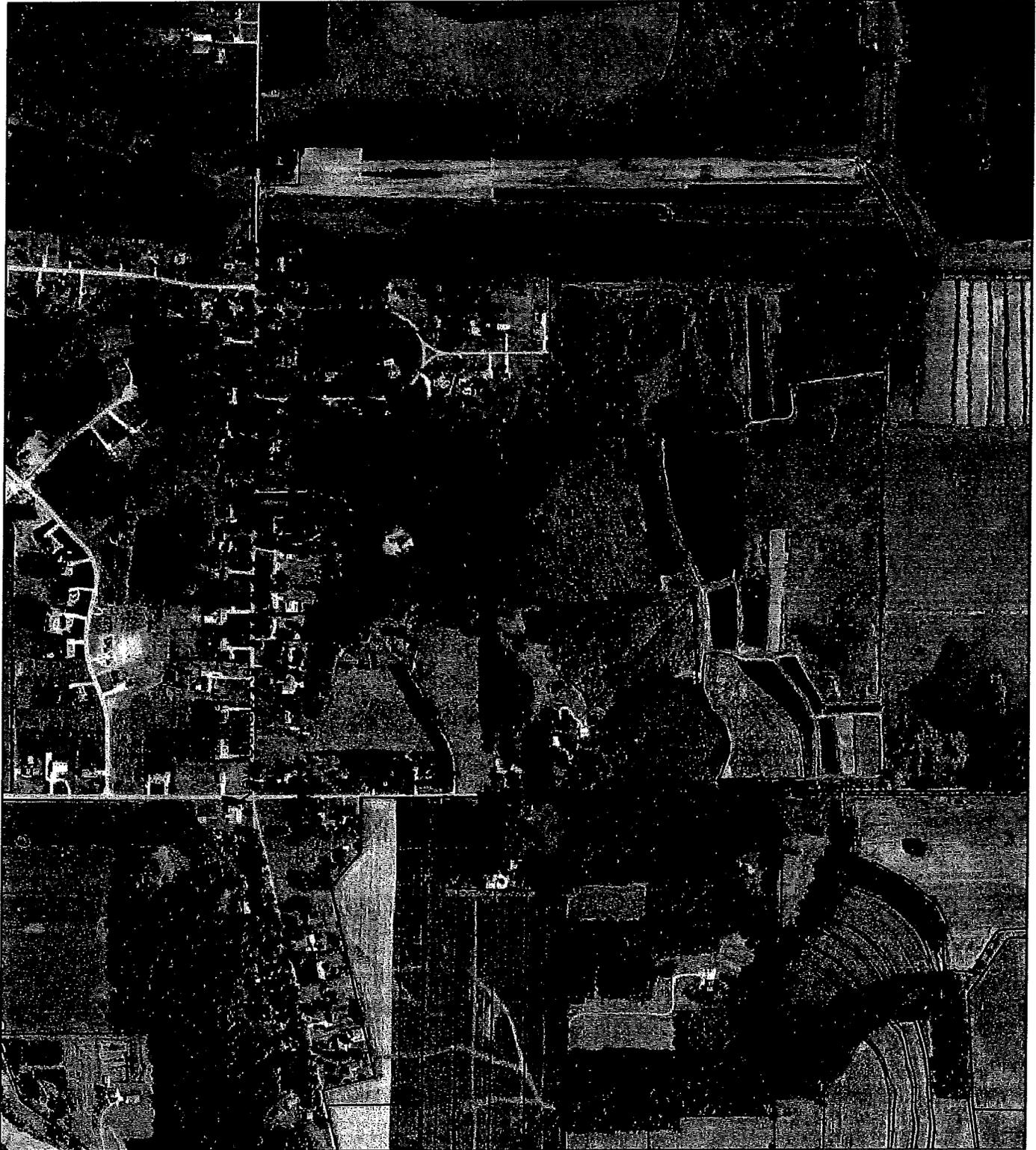
Original - County Office Copy Owner's Copy Operator's Copy



Mahoning County FSA Office
 1834 S Lincoln Ave
 Salem OH 44460-4393
 Phone: 330-533-5428
 Phone (alt): 330-424-5525
 Fax: 330-332-2976

Farm: 3162
Tract: 1531

Printed on October 25, 2006



- Wetland Determination
 CLU Boundary
- HEL** Highly Erodible Determination
- NHEL** Not Highly Erodible Determination
- CRP** Conservation Reserve Program

Boundaries and acres depicted are for USDA Program purposes.

Millcreek Metro Parks
 Cont #24C



1 inch equals 805.2 feet

**UNITED STATES DEPARTMENT OF AGRICULTURE
HIGHLY ERODIBLE LAND CONSERVATION (HELIC) AND WETLAND
CONSERVATION (WC) CERTIFICATION**

(See Page 2 for Public Burden and Privacy Act Statements.)

1. Name of Producer Mill Creek Metro Parks	2. I.D. Number (Last 4 digits only) 3205 E	3. Current Crop Year 2006
4. Do all your farming interests have current NRCS determinations? <i>If "No", contact your County FSA Office before completing this form.</i>		
	YES	NO
	X	
5. Are you a landlord on any farm that will not be in compliance with HELC and WC provisions? <i>If "Yes", enter the farm number at the end of this statement, or contact your County FSA Office before completing this form:</i>		
		X
6. Does any of your landlord refuse to comply with HELC requirements on any farms? <i>If "Yes", enter the farm number at the end of this statement, or contact your County FSA Office before completing this form:</i>		
		X
7. List here or attach a list of affiliated persons with farming interest. <i>See Page 2 for an explanation. Enter "None", if applicable.</i> <p align="center">None</p>		
8. During the crop year entered in item 3 above, or the term of a requested USDA loan, did or will you plant or produce an agricultural commodity on land for which a highly erodible determination has not been made?		
	YES	NO
	X	
9. On any land in which you have an interest, has anyone conducted any activities (since December 23, 1985) or will anyone conduct any activities (during the current crop year or the term of a requested USDA loan) to:		
(a) Create new drainage, conduct land leveling, filling, dredging, land clearing, or stump removal that has not been evaluated by NRCS? <i>Indicate year if answered "Yes":</i> _____		
		X
(b) Maintain, improve, or modify an existing drainage that has not been evaluated by NRCS? <i>Indicate year if answered "Yes":</i> _____		
		X
10. Will you conduct any activities for fish production, trees, vineyards, shrubs, building construction, or other non-agricultural purposes on lands for which a wetland determination has not been completed by NRCS?		
		X

If answers to item 8, 9, or 10 are: } "YES" for any one of these items, sign and date in item 11 below. A "YES" answer authorizes FSA to refer this AD-1026 to NRCS to make a HELC and or certified wetland determinations. DO NOT sign in item 13 until the NRCS determination is complete.

"NO" for all of these items, complete item 13. (Contact your County FSA Office if you are unsure about the answers to Items 9 or 10.)

11. Signature of Producer	I hereby certify that the information on this form is true and correct to the best of my knowledge.		
			SED
		3-21-06	Date (MM-DD-YYYY)
12. Referral to NRCS (Completed by FSA)	Enter a checkmark if a NRCS determination is needed because "Yes" is answered in item 8, 9, or 10. <input type="checkbox"/>	Signature of FSA Representative	Date (MM-DD-YYYY)

NOTE: Before signing in item 13, Read AD-1026 Appendix.

Continuous AD-1026 Certification

I understand and agree that my eligibility for certain USDA program benefits is contingent upon this certification of compliance with the highly erodible land and wetland conservation provisions of the 1985 Food Security Act as amended. This agreement shall serve as a continuous certification and agreement for subsequent crop years. For current and subsequent crop years:

- I agree to the terms and conditions stated on AD-1026 Appendix on all land in which I have or will have an interest.
- I agree that if there are any changes in my operation or activities that may affect compliance with these provisions, I will file a revised AD-1026.
- I agree to file any required exemption requests for each applicable crop year.

I understand that affiliated persons are also subject to compliance with these provisions and their failure to comply or file AD-1026 will result in loss of eligibility to persons or enterprises with whom they are affiliated. (Affiliated person rules are printed on the Page 2 of this form.)

3. Producer Sign Here			Date (MM-DD-YYYY) 3-21-06
-----------------------	--	--	------------------------------

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, D. C. 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

ORIGINAL - FSA COPY

NRCS COPY

PRODUCER'S COPY

INSTRUCTIONS FOR ITEM 7 OF AD-1026

The producer requesting benefits on AD-1026 shall attach to AD-1026 a list of the applicable affiliated persons with farming interests who are required to file AD-1026. Follow the rules in this table to determine affiliated persons.

IF producer, requesting benefits is a (an)...	THEN affiliated person who must file AD-1026 if they have farming interests are...	
individual	spouse with separate farming interests, or who receives benefits under their individual ID number.	
NOTE: If the individual filing is a minor child, the father and mother shall be listed as affiliates	estates, trust, partnerships, and joint ventures that the individual filing or the individual's spouse or minor children have an interest	
	corporations that the individual filing or the individual's spouse or minor children have more than 20% interest.	
	general partnership	
limited partnership	first level members of the entity	
joint venture		
estate		
irrevocable or revocable trust		
Indian tribal venture or group		
corporation with stockholders		first level members with more than 20% interest in the corporation
State		none
Church or other charitable organization	none	
county		
city		
public schools		
corporation with no stockholders		

KEY TO NRCS DETERMINATIONS IN ITEMS 8 THROUGH 11 LISTED ON AD-1026A

- | | |
|--|---|
| <p>8. HEL = Highly Erodible Land:
 "Y" = NRCS determined highly erodible land.
 "N" = NRCS determined no highly erodible land.
 " " = NRCS has not made a determination.</p> | <p>9. 027 = Approved Conservation Plan (CPA-027):
 "Y" = Tract has an approved conservation plan.
 "N" = Tract does not have an approved conservation plan.
 "X" = HEL flag is "Y". Producer has a 2-year grace period after soil survey is available to obtain an approved conservation plan.</p> |
| <p>10. A027 = Applying Conservation Plan:
 "Y" = Producer is actively applying an approved conservation plan or system
 "N" = Producer is NOT actively applying an approved conservation plan or system.</p> | <p>11. W = Wetlands:
 "Y" = NRCS determined wetlands on this tract. (*See footnote.)
 "N" = NRCS determined no wetlands on this tract.
 " " = NRCS has not made wetland determinations on entire tract.</p> |

* NRCS has determined a wetland does exist on this tract. Contact your local NRCS office or FSA office for details concerning then location of the wetlands and restrictions applying to the land according to NRCS determination before planting an agricultural commodity or performing any drainage or manipulation on this tract.

N The following statements are made in accordance with the Privacy Act of 1974 (5 USC 552a) and the Paperwork Reduction Act of 1980, as amended. The authority for requesting the following information to be supplied on is the Food Security Act of 1985, Pub. L. 99-198, and regulations promulgated under the Act (7CFR Part 12). The information will be used to determine eligibility for program benefits and other financial assistance administered by USDA agencies. The information may be furnished to other USDA agencies, IRS, Department of Justice, or other State and Federal law enforcement agencies, and in response to orders of a court magistrate or administrative tribunal. Furnishing the Social Security Number is voluntary. Furnishing the other requested information is voluntary; however, failure to furnish to correct, complete information will result in a determination of ineligibility for certain program benefits and other financial assistance administered by USDA agencies. **T** The provisions of criminal and civil fraud statutes, including 18 USC 286, 287, 371, 641, 1001; 15 USC 714m; and 31 USC 3729, may be applicable to the information provided by the producer on this form. **E**

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0560-0185. The time required to complete this information collection is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

RETURN THIS COMPLETED FORM AD-1026 TO YOUR COUNTY FARM SERVICE AGENCY (FSA) OFFICE (ADDRESS PRINTED IN ITEM 6 OF AD-1026A).

AD-1026A (Supplemental to AD-1026)

1. STATE: OHIO 39 2. COUNTY: MAHONING 099 3. CROP YEAR: 2006 4. ID NO. 34-6003205

5. PRODUCER NAME & ADDRESS TELEPHONE 6. COUNTY OFFICE NAME & ADDRESS TELEPHONE
 MILLCREEK METRO PARKS (330) 702-3000 COLUMBIANA MAHONING COUNTY FSA OFFICE (330) 533-5428
 P O BOX 596 1834 S LINCOLN AVE SUITE A
 7574 COLUMBIANA CANFIELD R SALEM OH 44460-4393
 CANFIELD, OH 44406

FARMING INTEREST (Completed by producer)

7. Circle each tract for which a "YES" answer applies to the tract for Items 8, 9, OR 10 on AD-1026. (OP = Operator, OW = Owner, OO = Owner-Operator).

FARM NO	OP/ OW/ OO	TRACT NO	CROPLAND	OWNER	PHOTO/GRID	-NRCS DETERMINATIONS-			
						8.	9.	10.	11.
						HEL	027	A027	Wetland
3162	OW	1531	34.7	MILLCREEK METRO PARKS	CLU M7	Y	Y	Y	Y

12. You are recorded as a tenant or sharecropper on the farm numbers listed below.
 Please specify the tracts that apply to you by completing items (a) and (b).

(a) Circle "YES" or "NO" in the "FARMING INTEREST" column beside each tract number below to indicate whether you have a farming interest in the tract. The HELC and WC provisions will apply to all land in which you have a farming interest.

(b) If any "YES" answer to questions 8, 9, or 10 on AD-1026 applies to your land listed below, circle the applicable tract in the "Tract No" column.

FARM NO	TRACT NO	FARMING INTEREST	CROPLAND	OWNER	PHOTO/GRID	-NRCS DETERMINATIONS-			
						8.	9.	10.	11.
						HEL	027	A027	Wetland

NONE FOUND

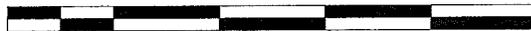
13. MULTIPLE COUNTY INTEREST: (CONTROL COUNTY: NONE)
 OTHER COUNTIES & STATES :
 NONE



Tract 1531
Farm 3162
Mill Creek Metro Park

Clu_a_oh099.shp
 Roads100k_l_oh099.shp

0.07 0 0.07 0.14 0.21 0.28 Miles



Map Printed: Feb 23, 2006

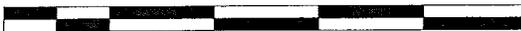


Tract 1531
Farm 3162
Mill Creek Metro Park

 Clu_a_oh099.shp
 Roads100k_l_oh099.shp



0.07 0 0.07 0.14 0.21 0.28 Miles



Map Printed: Feb 23, 2006

PURCHASE AGREEMENT

THIS AGREEMENT is made and entered into this 23 day of August, 2005 by and between TIMOTHY R. CALVIN and RICHARD A. CALVIN, hereinafter referred to as "Seller", and THE BOARD OF PARK COMMISSIONERS OF THE MILL CREEK METROPOLITAN PARK DISTRICT, hereinafter referred to as "Buyer".

WITNESSETH

In consideration of their mutual promises contained in this Agreement, it is agreed by and between the Seller and Buyer as follows:

1. The Seller agrees to sell to the Buyer, and the Buyer agrees to purchase from the Seller the real estate described in Exhibit A ("Premises") upon the terms and conditions hereinafter stated containing approximately 250 acres of land.

2. The Purchase price of the property shall be Three Hundred Eight-four Thousand Dollars (\$384,000.00), the entire amount of which is payable in cash at the closing.

3. At the closing, which shall occur no later than October 15, 2005, Seller shall furnish to Buyer a duly executed Warranty Deed in proper form conveying title to the Premises in fee simple to Buyer and showing the property to be marketable and free and clear of all liens and encumbrances except acceptable easements, leases and restrictions of record, current real estate taxes and special assessments. Buyer shall be entitled to possession of the Premises at the closing. However, Seller shall be granted until December 31, 2005 to remove equipment and personal belongings in the buildings located on the Premises. ^{Seller}Buyer shall also be permitted to remove the marketable fish inhabiting the pond located on the Premises. *until May 1, 2006,*

TRC
RAC

4. Buyer shall be charged with the Ohio transfer tax, the costs of preparing and recording the deed and one-half (1/2) of any escrow fee. Seller shall be charged with obtaining a title examination, a title commitment and title guarantee, one-half (1/2) of the escrow fee and costs, if any, to release any liens on the Premises. If the Buyer requires a title insurance policy, the Buyer shall be responsible for the additional premium in order to obtain a title insurance policy.

5. Real estate taxes, if any, and assessments shall be prorated as of the date of closing, including any and all delinquent taxes due and owing.

6. Seller represents and warrants to Buyer that to the best of Seller's knowledge, Seller has full authority to transfer the Premises, the Premises are free and clear from all liens or claims of any party, and Seller is not in default under any law or regulation or any order of any court and there are no claims, actions, or suits or proceedings threatened, instituted or filed against or affecting the premises. Seller further warrants that there are no leases, written or oral, in connection with the premises and no person has or claims to have any leasehold interest or rights of tenancy in the premises, except as permitted in Paragraph 3 hereof.

Seller further represents and warrants that to the best of Seller's knowledge, no environmentally polluting substances exist over, beneath, or on the Premises in an amount sufficient to cause Buyer to incur any liability, including but not limited to response cost or related expenses for removal, clean up, or remediation under CERCLA or any similar state or local laws for costs or expenses for a closure or closure plan under RCRA or any similar state or local laws.

7. Seller shall have access to the Premises until December 31, 2005 in order to remove any personal property or equipment located on the Premises. Seller agrees to indemnify and hold

Buyer harmless from any and all claims made for any injuries or damages caused by Seller's removal of the personal property or equipment from the Premises.

8. This agreement is subject to and contingent on approval by THE BOARD OF PARK COMMISSIONERS OF THE MILL CREEK METROPOLITAN PARK DISTRICT, at a properly called meeting of the Board. If such approval is not granted, this Agreement shall be null and void, and both Seller and Buyer shall be released from their respective obligations under this Agreement.

This Agreement is also subject to the Buyer obtaining the appropriate state grant in order to fund the purchase of the Premises. Buyer shall have until October 15, 2005 to obtain these funds or this Agreement shall become null and void.

9. This Agreement shall inure to the benefit of, and be binding on, the heirs, executors, administrators, devisees, legatees and assigns of Seller and Buyer.

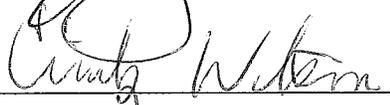
10. This Agreement and the documents delivered pursuant hereto constitute the entire Agreement between the parties. This Agreement may be modified or amended only by a written instrument executed by the parties.

11. This Agreement shall be governed by the laws of the State of Ohio.

IN WITNESS WHEREOF, the parties have set their hands this 23 day of August, 2005.

SIGNED IN THE PRESENCE OF:





SELLER:



Timothy R. Calvin


Richard A. Calvin

BUYER:
BOARD OF PARK COMMISSIONERS OF
THE MILL CREEK METROPOLITAN
PARK DISTRICT

Amanda B. Walker

Carol Porter

M. Virginia Dailey

M. Virginia Dailey

Carl Nunziato

Carl Nunziato

Rick Shale

Rick Shale

PARCEL #2: Being a part of Section #4 of said Township, bounded and described as follows:

Beginning at an iron pin on the South line of land now or formerly owned by E.M. Bieber and 1571.55 feet West of the East line of Section #3; said point also being the Northwest corner of a 30.513 acre parcel conveyed to Rosena Calvin by Deed recorded in Vol. 605, Pg. 473 of the Mahoning County Record of Deeds; thence South, along the West line of said 30.513 acre parcel 847.1' to an iron pin at a corner; thence West, 1029' to a point; thence North 846.15' but to the South line of the aforesaid Bieber land; thence East, 1029' along said Bieber line to the place of beginning, and containing within the above described bounds, 20.00 acres of land, be the same more or less, but subject to all legal highways.

Parcel I.D. #104-0-001

PARCEL #3: Being a part of Section #3 of said Township, bounded and described as follows:

Beginning at an iron pin in the Easterly line of Section #3 at the Southeast corner of lands now or formerly owned by Curtis A. Beiber, thence 5° 02' W. along the Easterly line of Section #3 a distance of 848.5' to the Northeasterly corner of lands of Rosena and Richard Calvin; thence N. 85° 38' W. along the Northerly line of the Calvin land a distance of 1564' to an iron pin in the Northwesterly corner of the Calvin land; thence N. 4° 31' E. a distance of 847.1 feet to an iron pin in the Southerly line of the Beiber land; thence S. 85° 34' E. along the southerly line of Beiber land a distance of 1571.55' to the place of beginning and containing within said boundaries 30.513 acres more or less.

Parcel I.D. #104-0-002

PARCEL #4: Being a part of Section #4 of said Township, bounded and described as follows:

Beginning at an iron pin in the centerline of the Calla Rd., that is S. 85° 30' E. a distance of 300' from the Southeast corner extended of Lot #6 in the Paradise Acres Plat #1 as shown in Mahoning County Record of Plats, Vol. 43, Pg. 34; thence N. 4° 30' E. along the Easterly line of lands of R.&M. Dorman a distance of 335.6' to a point; thence N. 40° 30' W. a distance of 141.42' to a point; thence N. 85° 30' W. and parallel to the centerline of the Calla Rd. a distance of 200' to the Easterly line of lands of Mildred J. Jacobs; thence North along the Easterly line of lands of Mildred J. Jacobs a distance of 1621.31' to the Southerly line of lands of R.F.&J. Calvin and the Southerly line of the Haus Plat #3; thence Easterly along the Southerly line of the Haus Plat #3 and the Southerly line of the R.F.&K. Calvin lands a distance of 2210.34' to the Westerly line of lands of R.&R. Calvin a distance of 2062.03' to the centerline of the Calla Rd.; thence Westerly along the centerline of the Calla Rd. a distance of 1910.34' to the place of beginning, and containing within said boundaries 101.445 acres more or less, but subject to all legal highways.

Parcel I.D. #105-0-001

PARCEL #5: Being a part of Section #4 of said Township, bounded and described as follows:

Commencing at an iron pin on the South line of said Section, 54 Chains and 36 Links East to the Southwest corner of said Section; thence East, 23 Chains and 42 Links to a point on bridge above corner stone in creek (Point on bridge being 30' East of an iron pin on said South line and 4.8' West of the East edge of stone abutment of said bridge); thence North 40' East 31 Chains and 15 Links to a stone in the center of the creek 30' East of an iron pin on the North line of the within described tract; thence West 23 Chains and 79 Links to an iron pin; thence South 31 Chains and 15 Links to an iron pin and place of beginning and containing 73.521 acres of land, be the same more or less, but subject to all legal highways.

Parcel I.D. #105-0-002

PARCEL #6: Being a part of Section #4 of said Township, bounded and described as follows:

Beginning at an iron pin at the Southeast corner of Lot #26 of Haus Plat #3 as recorded in Vol. 42, Pg. 108, Mahoning County Records of Plats.

Thence North along the East line of said Plat to the South line of land now or formerly owned by E.M. Bieber a distance of 846' to an iron pin.

Thence East along said Bieber line 875' to an iron pin at the Northwest corner of a 20 acre parcel owned by Richard Calvin and Rosena Calvin.

Thence South along said Calvin line 846.15' to the Southwest corner of said 20 acre parcel.

Thence West along the South line of land of grantor 875' to the place of beginning and containing within the above bounds 17 acres of land, be the same more or less, but subject to all legal highways.

Parcel I.D. #137-0-014

TAX OK

EXHIBIT

A

tabbles

PURCHASE AGREEMENT

THIS AGREEMENT is made and entered into this 23 day of May, 2002, by and between TIMOTHY R. CALVIN AND RICHARD A. CALVIN, hereinafter referred to as Seller, and THE BOARD OF PARK COMMISSIONERS of the MILL CREEK METROPOLITAN PARK DISTRICT, hereinafter referred to as Buyer.

WITNESSETH

In consideration of their mutual promises contained in this Agreement, it is agreed by and between the Seller and Buyer as follows:

1. The Seller agrees to sell to the Buyer, and the Buyer agrees to purchase from the Seller the real estate described in Exhibit A ("Premises") upon the terms and conditions hereinafter stated.

2. The Purchase price of the property shall be Thirty-four Thousand Dollars (\$34,000.00), the entire amount of which is payable in cash at the closing.

3. At the closing, which shall occur no later than ~~May 17~~ ^{June 15}, 2002, Seller shall furnish to Buyer a duly executed Warranty Deed in proper form conveying title to the Premises in fee simple to Buyer and showing the property to be marketable and free and clear of all liens and encumbrances except acceptable easements, leases and restrictions of record, current real estate taxes and special assessments. Buyer shall be entitled to possession of the Premises at the closing.

4. Buyer shall be charged with the Ohio transfer tax, the costs of preparing the deed and the costs of obtaining a title examination and title guarantee and all other costs associated with closing.

5. Real estate taxes, if any, and assessments shall be prorated as of the date of closing, including any and all delinquent taxes due and owing.

6. Seller represents and warrants to Buyer that Seller has full authority to transfer the Premises, the Premises are free and clear from all liens or claims of any party, and Seller is not in default under any law or regulation or any order of any court and there are no claims, actions, or suits or proceedings threatened, instituted or filed against or affecting the premises. Seller further warrants that there are no leases, written or oral, in connection with the premises and no person has or claims to have any leasehold interest or rights of tenancy in the premises, except as permitted in Paragraph 3 hereof.

Seller further represents and warrants that no environmentally polluting substances exist over, beneath, or on the Premises in an amount sufficient to cause Buyer to incur any liability, including but not limited to response cost or related expenses for removal, clean up, or remediation under CERCLA or any similar state or local laws for costs or expenses for a closure or closure plan under RCRA or any similar state or local laws.

7. This agreement is subject to and contingent on approval by THE BOARD OF PARK COMMISSIONERS of the MILL CREEK METROPOLITAN PARK DISTRICT, at a properly called meeting of the Board. If such approval is not granted, this Agreement shall be null and void, and both Seller and Buyer shall be released from their respective obligations under this Agreement.

8. This Agreement shall inure to the benefit of, and be binding on, the heirs, executors, administrators, devisees, legatees and assigns of Seller and Buyer.

9. This Agreement and the documents delivered pursuant hereto constitute the entire Agreement between the parties. This Agreement may be modified or amended only by a written instrument executed by the parties.

10. This Agreement shall be governed by the laws of the State of Ohio.

IN WITNESS WHEREOF, the parties have set their hands this 23 day of May, 2002.

SIGNED IN THE PRESENCE OF:

Dolores Bernuseck

Jason E. Duke

As to Seller

SELLER:

Timothy R. Calvin

Timothy R. Calvin

Richard A. Calvin

Richard A. Calvin

BUYER:

BOARD OF PARK COMMISSIONERS
OF THE MILL CREEK
METROPOLITAN PARK DISTRICT

Jason E. Duke

Stephen Army
As to Buyer

Harry Meshel

Jac Lynn Ridel

JacLynn Ridel

M. Virginia Dailey
M. Virginia Dailey

LEASE AGREEMENT

This Lease Agreement is made and entered into this 23 day of August, 2005, by and between THE BOARD OF PARK COMMISSIONERS OF THE MILL CREEK METROPOLITAN PARK DISTRICT (hereinafter referred to as "Lessor") and TIMOTHY R. CALVIN and RICHARD A. CALVIN (hereinafter referred to collectively as "Lessee").

WITNESSETH

In consideration of the mutual covenants and agreements set forth herein and for other good and valuable consideration, Lessor does hereby demise and lease unto Lessee and Lessee does hereby lease from Lessor upon the terms and conditions described below, a residential structure and two (2) adjacent out-buildings consisting of a nearby, detached, two-car garage and a 30 x 50 foot pole building, located on the property situated in Canfield Township, Mahoning County, Ohio (hereinafter referred to as "the Leased Premises"), and more fully described in Exhibit "A" attached hereto.

ARTICLE I--TERM AND RENEWAL

1.01. The term of this lease shall be for the duration of the lifetime of the last survivor of Lessee from the commencement date, which date shall be the 23 day of August, 2005.

ARTICLE II--RENT

The Lessee shall pay to the Lessor, without any prior demand, annual rent in the amount of One Dollar (\$1.00). All rent shall be paid to the Lessor on an annual basis on the first day of each year at Lessor's office at 7574 Columbiana-Canfield Rd., Canfield, OH 44406.

ARTICLE III- USE OF PREMISES

3.01. During the term of this Lease, the Lessee shall use and occupy the Leased Premises for residential purposes. Lessee shall not use the Leased Premises or permit others to use the Leased Premises for any other purpose without the prior written consent of Lessor, and in no event shall Lessee permit the property to be used or occupied by any private for-profit entity.

3.02. The Lessee agrees to maintain the premises and to occupy the premises in a careful, safe and proper condition, and the Lessee agrees not to commit or cause to be committed any waste upon the premises or any nuisance or other act or thing which may disturb the quiet enjoyment of any adjacent property owners or any other tenants of the Lessor. The Lessee further agrees not to use or occupy the premises for any unlawful purpose and agrees to conform to and obey any present and future rules, regulations, ordinances and laws of any governmental authority.

3.03. The Lessee shall not make alterations or structural changes or additions to the premises or any of the structures located thereon, without the prior notification to the Lessor. Lessor agrees to approve or disapprove in writing any proposed alterations or structural changes or additions within thirty (30) days of receipt of a written request for approval of such proposal, together with all documentation necessary for Lessor to review the proposed alterations or structural changes or additions. Approval by Lessor shall not be unreasonably withheld. All improvements or alterations made by the Lessee shall become part of the Leased Premises at the termination of the Lease and shall not be removed without the prior written consent of the Lessor. Any contract

entered into by Lessee for the construction of any improvements on the Leased Premises shall contain no-lien contract provisions in substantially the form as follows:

Contractor, on its own behalf, and on behalf of all of its subcontractors, their subcontractors, its materialmen, the materialmen of its subcontractors, its laborers and the laborers of its subcontractors, and on behalf of all contractors, materialmen and laborers claiming by, through or under it, by reason of this contract, specifically waives, relinquishes and releases any and all rights to claim a mechanic's lien under Chapter 1311 of the Ohio Revised Code and specifically waives, relinquishes and releases any and all rights to make any claim whatsoever against Mill Creek Metropolitan Park District, its successors or assigns, including, but not limited to, any claim for unjust enrichment. Contractor agrees to cause any contract entered into by it with regard to this improvement to contain a similar provision.

If any subcontractor, laborer, or materialmen of contractor, or any other person directly or indirectly acting for or through contractor, files or attempts to file a mechanic's lien against the property of the Mill Creek Metropolitan Park District, for or on account of any work, labor, services, materials, equipment, or other items furnished in connection with the work or any change order, contractor agrees to satisfy, remove, or discharge such lien or claim at its own expense by bond, payment or otherwise within twenty (20) days of the filing thereof.

Lessee further agrees to indemnify and hold Lessor harmless from any claims brought or asserted against Lessor or any of Lessor's property arising from or in any way related to the construction of any improvements on the Leased Premises and to discharge any lien or claim at its own expense within twenty days (20) after demand in writing by Lessor.

3.04. The Lessee agrees to repair and maintain all structures, improvements and/or alterations made on the Leased Premises.

3.05. The Lessee shall be responsible for the utility costs incurred by it for any necessary connections and in the operation of the premises.

ARTICLE IV--INSURANCE AND INDEMNITY

4.01. The Lessee shall, during the entire term of the Lease, keep in full force and effect a policy of renter's insurance and a policy of general liability insurance with respect to the Leased Premises and the operation therein by the Lessee. The rental insurance policy shall stipulate the

coverage to be full replacement value of the Leased Premises and the operation therein, and the general liability insurance shall be in an amount of at least \$1,000,000. Both the Lessor and the Lessee shall be named as the insured in the aforesaid insurance policies. Such policies shall provide that they shall not be canceled without thirty (30) days prior written notice to Lessor, and the policies shall be subject to future adjustments mutually agreed upon by the Lessor and the Lessee. A copy of such policies or certificates of insurance shall be delivered to the Lessor.

4.02. The Lessee agrees to indemnify and hold the Lessor harmless for any and all claims, demands, damages, costs and expenses, including reasonable attorney fees for the defense thereof, arising from or out of any occurrence upon or at the Leased Premises or the occupancy or use by the Lessee or any other person of the Leased Premises or any part thereof or occasioned in whole or in part by any act or omission of the Lessee, its agents, licensees, permittees, or any other person, including, but not limited to, any violation of any state, federal or local environmental laws, ordinances or regulations. In case of any action brought against the Lessor by reason of any such claim, the Lessee covenants to aid the Lessor and fully cooperate in the defense of such action or proceeding, and will, upon written notice from the Lessor and at the Lessee's sole cost and expense, report such action or proceeding to the insurance carrier and resist or defend such proceeding by counsel approved by such insurance carrier or Lessor.

ARTICLE V – TAXES

5.01. Lessee shall pay all real and personal property taxes, including real estate taxes and assessments, both general and special, imposed by federal, state or local governmental authorities or other taxing authorities having jurisdiction over the Leased Premises. Lessor will make a good faith effort to apply for tax exemption status for the Leased Premises to the Ohio Department of Taxation

for the tax year beginning 2006 and all subsequent years. Lessee will be responsible for all tax due and owing for tax year 2005.

In the event the Department of Taxation denies Lessor's application for exempt status, the parties agree that Lessor will employ Lessee in a caretaker capacity for an annual compensation in the amount equal to the annual taxes on the Leased Premises. The remaining terms of employment will be set out in an agreement to be negotiated in good faith by the parties at a later date if tax exempt status is denied.

ARTICLE VI--DEFAULT

6.01. In the event that the Lessee fails to pay any rental installment or other charge required by the terms of this Lease within sixty (60) days after it becomes due; or if the Lessee fails to perform any other of the terms, conditions or covenants of this Lease for more than thirty (30) days after written notice of such default is given to the Lessee by the Lessor, the Lessor may, at its option, terminate this Lease and may relet the premises or any part thereof for such term or terms and at such rent or rentals and upon such other terms and conditions as the Lessor may deem proper. The termination process aforesaid shall be initiated by the Lessor giving the Lessee Five (5) days' written notice of his intention to terminate the Lease.

6.02. All rights and remedies of the Lessor under this Lease shall be cumulative and none shall exclude any other right for remedy provided by law. Such rights and remedies may be exercised and enforced concurrently and whenever and as often as occasion therefore arises.

ARTICLE VII--ASSIGNMENT OR SUBLEASE

7.01. Except as provided in Sections 7.02 and 7.03, Lessee may not assign this Lease, in whole or in part, or sublet all or any part of the Leased Premises.

ARTICLE VIII – OIL AND GAS LEASES

8.01. Lessee acknowledges that the Leased Premises are subject to oil and gas leases as described in the attached Exhibit C. Lessee agrees to accept the Leased Premises subject to such leases, rights of way and easements, and agrees to comply with all restrictions identified in Exhibit C or contained in such leases, rights of way and easements or any provisions contained therein regarding use of the Leased Premises.

8.02. Lessor agrees to permit Lessee to retain all royalty rights arising from any existing oil and/or gas leases currently existing on the Lease Premises during the term of this Lease. Following the termination of this Lease, all rights to any and all oil and gas royalties shall be transferred and assigned by Lessee's successors, heirs and assigns to Lessor.

ARTICLE IX--MISCELLANEOUS

9.01. If the whole of the Leased Premises is taken or condemned by any competent public authority for any use or purpose during the term of this Lease, the Lessee's rights and obligations under this Lease will terminate. The Lessee may prosecute its own claim for any award as a result of such condemnation provided it does not detract from nor interfere with any of the Lessor's rights. In the event that only a part of the Leased Premises is taken or condemned and that part so taken creates a situation where the Lessee's use of the Leased Premises becomes uneconomical or impractical, the Lessee may at any time either prior to or within a period of Sixty (60) days after the date when possession of the Leased Premises shall be required by the condemning authority, elect to terminate this Lease.

9.02. In the event of destruction or damage of any kind to the Leased Premises by reason of fire, the elements, or other casualty, to the extent that the premises are unfit for the intended use, the Lessee shall have the option to restore or repair the premises and utilize all insurance proceeds for

such purposes or terminate the Lease. The Lessee must exercise its option to restore or repair by notifying the Lessor in writing, within Ninety (90) days of the date of destruction or damage, of its intent to repair or restore the Leased Premises. In the event that the Lessee does not exercise such option within Ninety (90) days, or if it elects to terminate the Lease, its liability for any obligations subsequent to the date of the destruction or damage shall cease. In such event, the Lessor shall be entitled to all insurance proceeds and may use the same for any purpose.

9.03. The Lessee acknowledges that it is aware of the condition of the Leased Premises and accepts the same in its present condition. Lessor makes no warranties or representations whatsoever with regard to the condition of the Leased Premises or any of the structures or improvements located thereon.

9.04. This Lease and the agreement contained herein shall insure to and be binding on the successors and assigns of the Lessee and the Lessor.

9.05. Upon the expiration or termination of this Lease, the Lessee shall surrender the premises to the Lessor in good condition and repair, excepting ordinary wear and tear, loss by fire, or other casualty, and destruction or damage by the elements or by an act of God.

9.06. Any notice, demand, request or other instrument which may or is required to be given under this Lease shall be delivered in person or sent by certified mail, postage prepaid, to the following:

As to the Lessor:

The Mill Creek Metropolitan
Park District
Attn: Executive Director
7574 Columbiana-Canfield Rd.
Canfield, OH 44406

As to the Lessee:

Timothy R. Calvin and
Richard A. Calvin
2705 W. Cella Rd.
Canfield, OH 44406

ARTICLE X--ENTIRE AGREEMENT

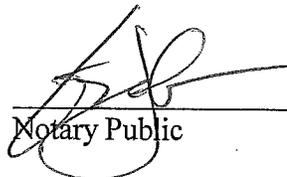
10.01. This Lease contains all of the terms, conditions and agreements made between the parties hereto and may not be modified orally or in any manner other than by agreement in writing signed by all of the parties hereto or their respective successors in interest. It is mutually understood and agreed that there are no verbal or other understandings of any kind or nature whatsoever between the parties.

[Remainder of Page Left Intentionally Blank]

[Signature Pages to Follow]

STATE OF OHIO)
) SS:
COUNTY OF MAHONING)

Before me, a notary public in and for said county and state, personally appeared the above-named TIMOTHY R. CALVIN and RICHARD A. CALVIN, who acknowledged that they did sign the foregoing instrument and that the same is their free act and deed.



Notary Public

This Instrument Prepared By:
Martha L. Bushey, Esq.
MANCHESTER, BENNETT, POWERS & ULLMAN
The Commerce Building – Atrium Level Two
201 E. Commerce Street
Youngstown, OH 44503
330/743-1171



ERIC C. JOHNSON
Notary Public - State of Ohio
Lifetime Commission
Section 147-03 O.R.C.

200500046512
Filed for Record in
MAHONING COUNTY, OHIO
RONALD V. GERBERRY
12-13-2005 At 11:44 am.
DEED 68.00
DR Book 5583 Page 2262 - 2268

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS that Timothy R. Calvin and Richard A. Calvin (hereafter "Grantors") who claim title by or through instrument previously recorded in the Official Records of Mahoning County, Ohio recorded in Volume 2570, Page 30, and Volume 5221, Page 2386 for the consideration of One Dollar and Other Valuable Consideration (\$1.00 + o.v.c.) received to his full satisfaction of Board of Commissioners of the Mill Creek Metropolitan Park District, whose tax mailing address will be 7574 Columbiana-Canfield Road, Canfield, Ohio 44406, do give, grant, bargain, sell and convey unto the said Grantee, its successors and assigns to have and to hold forever the described premises attached as Exhibit A.

The Grantors do for themselves and their heirs, successors and assigns, covenant with the Grantee, its successors and assigns, that they are well seized of the described premises as a good and indefeasible estate in fee simple and have good right to bargain and sell the same in the manner and form as written above, and that the same is free from all encumbrances whatsoever except for conditions, easements, encumbrances and restrictions of record, zoning ordinances and regulations and real estate taxes and assessments that are a lien, but are not yet due and payable, and that they will warrant and defend the above-described premises, with the appurtenances thereunto belonging, to the Grantee, its successors and assigns, against all lawful claims and demands whatsoever except as stated above.

Executed this 8th day of December, 2005.

This Conveyance has Complied with Section 315.202

Fee \$ 500.00 Receipt # 6446

Permissive Tax 1500.00

Exempt _____ Date 12-13-05

By M. Tate Deputy

MICHAEL V. SCIORTINO
MAHONING COUNTY AUDITOR

Timothy R. Calvin
Timothy R. Calvin

Richard A. Calvin
Richard A. Calvin

EXHIBIT A

Situated in the Township of Beaver, County of Mahoning and State of Ohio:

PARCEL I

Known as being a part of the Northwest quarter of Section No. 9 in said Township, and more particularly described as follows:

Beginning at a monument at the intersection of the centerline of New Buffalo Road with the centerline of Calla Road;

Thence South 85 deg. 25' 20" East, along the centerline of Calla Road a distance of 1115.73 feet to the true point of beginning of the parcel herein described;

Thence continuing along the centerline of Calla Road South 85 deg. 25' 20" East, a distance of 1573.47 feet to a point;

Thence South 5 deg. 03' 06" West, along the Westerly line of lands now or formerly owned by W.T. & L.H. Powers, as recorded in Off. Rec. 1972, Page 198, Mahoning County Record of Deeds, and passing over an iron pin at 27.21 feet, a total distance of 745.73 feet to an iron pin;

Thence North 85 deg. 15' 25" West, along lands now or formerly owned by W.R. & D.M. Hartman, as recorded in Volume 1035, Page 628, Mahoning County Record of Deeds, a distance of 879.52 feet to a 5/8" capped rebar;

Thence North 5 deg. 28' 01" East, a distance of 183.18 feet to a 5/8" capped rebar;

Thence North 85 deg. 25' 20" West a distance of 690.63 feet to a 5/8" capped rebar;

Thence North 4 deg. 34' 40" East, a distance of 560.00 feet to the centerline of Calla Road, and the place of beginning over a 5/8" capped rebar at 30.00 feet, and containing within said bounds 23.9196 acres of land; be the same more or less, but subject to all legal highways and easements on record, and containing a 6.103 acre parcel of land and a 17.816 parcel of land. As surveyed by Alan N. Ewing, Registered Surveyor No. 6341, in April, 1995.

2705 West Calla Road
Canfield, Ohio 44406

PPN: 05-135-0-002.01-0 &
05-135-0-002.02-0

TAX MAP DEPT
OK BY

PARCEL II

Being a part of Section No. 3 of said Township, bounded and described as follows:

Beginning at an iron pin in the Easterly line of Section No. 3 at the Southeast corner of lands now or formerly owned by Curtis A. Beiber,

Thence 5 deg. 02' West along the Easterly line of Section No. 3 a distance of 848.5' to the Northeasterly corner of lands of Richard Calvin;

Thence North 85 deg. 38' West along the Northerly line of the Calvin land a distance of 1564' to an iron pin in the Northwesterly corner of the Calvin land;

Thence North 4 deg. 31' East a distance of 847.1 feet to an iron pin in the Southerly line of the Beiber land;

Thence South 85 deg. 34' East along the Southerly line of Beiber land a distance of 1571.55' to the place of beginning and containing within said boundaries 30.513 acres more or less.

V/L New Buffalo
Canfield, Ohio 44406

PPN: 04-104-0-002.00-0

TAX MAP DEPT.
OK BY DM
NEXT TRANSFER
NEEDS NEW SURVEY

PARCEL III

Known as being part of Section 4 in said Beaver Township and being further bounded and described as follows:

Commencing at a monument found on the centerline of Calla Road at its intersection with the centerline of New Buffalo Road;

Thence along said Calla Road centerline, South 88 deg. 30' 00" East a distance of 1378.45 feet to the Southwesterly corner of lands now or formerly of J.M. & J.E. Mahood;

Thence along said Mahood lands and other lands of T.R. & R.A. Calvin, North 01 deg. 32' 32" East a distance of 2060.68 feet to an iron pin found on the Southerly line of the Haus Plat No. 3;

Thence along said Southerly line and lands of the Mill Creek Metropolitan Park District; South 88 deg. 25' 31" East a distance of 834.22 feet to an iron pin set at the Southeasterly corner of said Mill Creek Parks lands and the true Point of Beginning;

Thence by the next two courses along said Mill Creek Metropolitan Park District lands, North 01 deg. 26' 00" East a distance of 745.00 feet to an iron pin set;

Thence North 88 deg. 25' 31" West a distance of 526.23 feet to an iron pin set on the Easterly line of Lot 25, in said Haus Plat No. 3;

Thence along said Lot 25, North 01 deg. 26' 00" East a distance of 102.10 feet to an iron pin found on the Southerly line of lands now or formerly of O.C. Bieber, Trustee;

Thence along said Bieber lands, South 88 deg. 31' 26" East a distance of 1903.83 feet to an iron pin found at the Northwesterly corner of other lands of Timothy R. Calvin and Richard A. Calvin;

Thence by the next two courses along said Calvin lands, South 01 deg. 32' 00" West a distance of 850.37 feet to an iron pin set;

Thence North 88 deg. 25' 31" West a distance of 1376.12 feet to the point of beginning.

The above described parcel is a landlocked parcel which contains within said bound 28.080 acres of land, as surveyed under the supervision of Haven R. Grover, Registered Surveyor No. 6971, of Western Reserve Land Consultants, Inc., on May 6, 2002, but subject to all legal highways and easements of record. Basis of Bearing of the above described parcel being the centerline said Calla Road, held at North 88 deg. 30' 00" West, as recorded in Volume 43 at Page 348 of the Mahoning County Record of Plats. All iron pins set are 5/8" rebar with identification cap.

This landlocked parcel shall only be transferred to an adjoining land owner.

Be the same more or less, but subject to all legal highways.

V/ L Haus Boulevard
Canfield, Ohio 44406

PPN: 04-137-0-014.00-0

TAX MAP DEPT

OK BY dm

PARCEL IV

Being a part of Section No. 4 of said Township, bounded and described as follows:

Commencing at an iron pin on the South line of said Section, 54 chains and 36 links East to the Southwest corner of said Section;

Thence East, 23 chains and 42 links to a point on bridge above corner stone in creek (point on bridge 30' East of an iron pin on said South line and 4.8' West of the East edge of stone abutment of said bridge);

Thence North 40' East 31 chains and 15 links to a stone in the center of the creek 30' East of an iron pin on the North line of the within described tract;

Thence West 23 chains and 79 links to an iron pin;

Thence South 31 chains and 15 links to an iron pin and place of beginning and containing 73.521 acres of land.

Be the same more or less, but subject to all legal highways.

V/L Calla Road
Canfield, Ohio 44406

PPN: 05-105-0-002.00-0

TAX MAP DEPT.
OK BY DM
NEXT TRANSFER
NEEDS NEW SURVEY

PARCEL V

Being a part of Section No. 4 of said Township, bounded and described as follows:

Beginning at an iron pin in the centerline of the Calla Road, that is South 85 deg. 30' East, a distance of 300' from the Southeasterly corner extended of Lot No. 6 in the Paradise acres Plat No. 1 as shown in Mahoning County Record of Plats, Volume 43, Page 34;

Thence North 4 deg. 30' East along the Easterly line of lands of R. and M. Dorman a distance of 335.6' to a point;

Thence North 40 deg. 30' West a distance of 141.42' to a point;

Thence North 85 deg. 30' West and parallel to the centerline of the Calla Road, a distance of 200' to the Easterly line of lands of Mildred J. Jacobs;

Thence North along the Easterly line of lands of Mildred J. Jacob's a distance of 1621.31' to the Southerly line of lands of R. F. and J. Calvin and the Southerly line of the Haus Plat No. 3;

STATE OF OHIO)
) SS
COUNTY OF MAHONING)

The foregoing instrument was acknowledged before me this 8th day of December, 2005 by Timothy R. Calvin and that the same is his free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my name and official seal at Youngstown, Ohio.



Notary Public

STATE OF OHIO)
) SS
COUNTY OF MAHONING)

The foregoing instrument was acknowledged before me this 8th day of December, 2005 by Robert A. Calvin and that the same is his free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my name and official seal at Youngstown, Ohio.



Notary Public



ERIC C. JOHNSON
Notary Public-State of Ohio
Lifetime Commission
Section 147-03 O.R.C.



ERIC C. JOHNSON
Notary Public-State of Ohio
Lifetime Commission
Section 147-03 O.R.C.

THIS INSTRUMENT PREPARED BY:
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