# BIRD HILLS NATURE AREA STEWARDSHIP PLAN

## SITE OVERVIEW

### Geographic Information

Bird Hills Nature Area is located on the west side of the Huron River, bounded by Bird Road to the north, M14 to the south, Newport Road to the west and Huron River Drive to the east. It is the largest park in the city, measuring 146 acres and has several miles of trails running up and down its hilly interior.

### Geology and Physiography

Bird Hills is a glaciated landscape. It is located at the northern tip of the Fort Wayne Moraine, which was created by the retreat of the Wisconsin glacier approximately 14,000 years ago. The park is hilly and bisected by a predominant north-south ridge, with two large knolls in the southeast and southwest corners of the park. These knolls are the park's highest points. Steep slopes fall off toward the Huron River on the east. Overall, there is a 176-foot elevation change within the park.

### Biotic Communities

Bird Hills is predominantly a forested ecosystem. Its overstory plant species are comprised of both late successional and early successional hardwood trees that are typically found in forest communities known as central hardwood forests. Although mature woods dominate the landscape, disturbed edge environments can also be seen. Much of the disturbance caused by humans is evident by the predominance of non-native plant species in certain parts of the park. Other areas have evolved in a relatively natural condition. In general, the park contains five natural communities: oak-hickory woods, beech-sugar maple woods, old field, emergent marsh, and intermittent wetland. These communities are incredibly rich in diversity, with 100 woody species and 358 total plant species found on site – 278 of them native.

1. Late successional **oak-hickory woods** (dry-mesic forest) are found on the ridges and high points in the southern portion of the park. Dry forest such as this one can be found growing on sites with very good drainage, usually in areas with a layer of glacial outwash underlying the soil. The dominant tree species found here are pignut hickory (*Carya glabra)*, black oak (*Quercus velutina)*, white oak (*Quercus alba)*, black walnut (*Juglans nigra)*, and flowering dogwood (*Cornus florida)*. In fact, this southern portion of Bird Hills supports one of the largest displays of flowering dogwood in the city. Equally spectacular are the carpets of large-flowered trillium (*Trillium grandiflorum)* and wild geranium (*Geranium maculatum)* found here every spring.

2. **Beech-maple woods** (mesic forest) are found in the southern and western portion of the park on the slopes between the pine plantations and the intermittent drainage. This community can also be found on the eastern slope of the ridge, in a series of forested ravines leading down to Huron River Drive. Many of these ravines are watered by seeps, or springs, coming out of the slope. These seeps are formed when rainwater percolating down through more porous soil hits an impermeable layer and follows that layer horizontally to the side of the slope. This creates a moist environment, which supports a diversity of ferns and wildflowers. The dominant tree species found in these mesic woods are sugar maple (*Acer saccharum)*, red maple (*Acer rubrum)*, beech (*Fagus grandifolia)*, white ash (*Fraxinus americana)*, and tulip tree (*Liriodendron tulipifera)*. These ravines are also home to the state listed Special Concern plant species, Twinleaf (*Jeffersonia diphylla)* and James' sedge (*Carex jamesii)*.

3. An **intermittent wetland** community winds its way through the entire length of the park. Flowing from the south to the north, it crosses Bird Road and eventually empties into the Huron River. Bottomland plant species such as eastern cottonwood (*Populus deltoides)*, boxelder (*Acer negundo)*, and American elm (*Ulmus americana)* are common throughout this wet area. In addition, skunk-cabbage (*Symplocarpus foetidus)*, golden ragwort (*Senecio aureus)*, and the delicate orange flowers of spotted touch-me-not (*Impatiens capensis)* can be found growing near the small intermittent stream.

4. To the north of Bird Road, close to the border of the park, exists an **old field** community. It is a somewhat open site with a mixture of wildflowers, grasses and shrubs. While this area is quickly becoming overgrown with trees and shrubs, thimbleweed (*Anemone virginiana)*, smooth aster (*Aster laevis)*, big bluestem (*Andropogon gerrardii )* and other field community plants thrive in the more open sunny areas.

5. An **emergent marsh** represents the remaining natural community in Bird Hills. It forms a geographical transition between the mesic forest to the north and the upland portions of the park. The marsh provides a buffer on three sides of a small pond near Huron River Drive. Wet loving silky dogwood (*Cornus amomum)*, elderberry (*Sambucus canadensis)* and marsh marigold (*Caltha palustris)* can be found growing near the pond. It is also home to a variety of wildlife.

**Wildlife**

Bird Hills is home to a wide variety of birds, and is one of the few confirmed nesting spots for turkey vultures in Ann Arbor. An overview of the bird species nesting in or moving through Bird Hills include: Red-eyed Vireo, Downy Woodpecker, Eastern Wood-Pewee, Baltimore Oriole, Hairy Woodpecker, Great Blue Heron and the Cooper's Hawk. This list is by no means exhaustive of the species found in Bird Hills, but instead, represents those species most commonly found here. More unique species to the park include the Black-throated Green Warbler, Blackburnian Warbler, Chimney Swift, and Common Nighthawk.

Although a quantitative mammal trapping study has not yet been conducted in Bird Hills, one might expect to find a variety of species inhabiting the site, including: gray squirrel, fox squirrel, raccoon, opossum, white-tailed deer, red fox, Eastern chipmunks and Eastern cottontail rabbit.

## LAND USE HISTORY

Bird Hills has an interesting and varied land use history that adds to its significance as a park. Historical records in the form of old photographs or written and verbal descriptions of the property are the basis for what we know about this park today. Old photos indicate that the property was logged in the late 1800's. The central ridge and slopes were barely spotted with trees and were heavily grazed by cattle. Some remnants of the park's agricultural past are still visible today. Old concrete tracks mark the site of a farm road designed to fit the wheels of a wagon while letting the horse or ox pulling the wagon walk on softer ground between the tracks. The northwest portion of the park was used as a terraced fruit orchard.

In the early 1900's, the Graves family bought the property as a potential development site. At this time much of the main ridge in the park was still cattle pasture and was nearly treeless. The absence of plant cover increased the amount of runoff from the high ridge after a rain event. This caused severe erosion in the steep ravines running down to the river.

To make the land more appealing for development, Henry Graves planted a variety of trees on the open site. This contributes to the diversity of woody plants in Bird Hills today, and explains why many non-

native trees such as Scots pine, Douglas fir, and white fir can be found there. However, these development plans never came to be.

In 1967, the City bought the majority of the land from the Graves family to be used as a park. In the 1970's, when plans to create a condominium complex next to the park surfaced, neighbors and other citizens rallied and raised enough money to help buy the land. Again in 1990, more land adjacent to the now-larger park was threatened by development, and again the citizens and City teamed up to buy the land to add to the park.

It is likely that the overstory, and certainly the understory, that existed at Bird Hills 200 years ago was somewhat different than it appears today. In addition to the introduction of non-native species, such as buckthorn (*Rhamnus sp.)* and honeysuckle (*Lonicera sp.)*, the composition of flora has also been influenced by fire suppression over the last century. As fires regularly moved through Washtenaw County prior to European settlement, the forest understory was thinned, and the overstory was more open. For this reason, oaks and hickories, which are fire tolerant and shade sensitive, were able to compete successfully.

With continued fire suppression, however, some of the forested areas of Bird Hills have become better suited for shade tolerant species such as Norway maple (*Acer platanoides)*, white ash and buckthorn. If the forest is allowed to develop in the absence of fire, these species will begin to dominate and out compete the native plants for light, space and nutrients. This may prevent the historically dominant forest species of oak and hickory from being established.

## CURRENT LAND USE

Currently, Bird Hills is a nature area with many trails that wind throughout it. Its primary users are recreational hikers, walkers, runners, nature enthusiasts and some cross-country skiers in the winter. Mountain bikes have been banned from the site since 1992, although some illegal use still exists.

The rich diversity of native plant species found in Bird Hills ranks the park second highest overall in the City's Floristic Quality Assessment of its natural areas. This high value gives an indication of how "natural" the site is (approximating the vegetative conditions present prior to European settlement in the early 1800's). A higher value reflects a higher coefficient of conservatism for the species growing in that area. These conservative species have become so highly adapted to a specific set of biotic and abiotic conditions (including soil condition, temperature, moisture, humidity, presence of fire, etc.) that they cannot exist if these conditions are modified evenly slightly. So, when you encounter these species in the wild, as you do in some of the biological communities at Bird Hills, you can be fairly confident that you have come across an area that is relatively "natural" and undisturbed.

## CONSERVATION TARGETS AND GOALS

### I. Oak-Hickory/Dry-Mesic Forest (SW & SE)

- Restore and maintain high quality, mature forest with diverse native shrub and groundcover layers.

### II. Beech-Sugar Maple/Mesic Forest

- Restore and maintain mature forest with diverse native shrub and groundcover layers.

### III. Forested Ravines

- Preserve high quality ravines with diverse native ground flora, making a concerted effort to protect Special Concern species *Carex jamesii* and *Jeffersonia diphylla*.

### IV. Old Field

- Restore and maintain old prairie remnant with diverse array of native prairie species.

## STRESSES AND CONSERVATION STRATEGIES

### I. Oak-Hickory Woods

**Stresses:**

(a) Invasive plant species which compete with native plants for light, space, and nutrients.
- Buckthorn (*Rhamnus sp*.)
- Honeysuckle *(Lonicera sp*.)
- Norway maple (*Acer platanoides)*
- Privet (*Ligustrum vulgare*)
- Dame's rocket (*Hesperis matronalis*)
- Multiflora rose (*Rosa multiflora*)

(b) Fire suppression

(c) Soil erosion due to trail disturbance and intensive use.

(d) Trampling of vegetation due to off trail hiking.

**Strategies:**

(a) Reduce invasive plant species
- Actively manage invasive vegetation using the most effective, efficient and appropriate control method to date depending on the species. Methods might include: hand pulling young seedlings, herbicide application, girdling and burning.
- Educate neighbors and the public regarding the benefits of native landscaping.

(b) Reintroduce fire into the ecosystem
- Conduct prescribed burns to release nutrients back into the soil, and reduce competition for native plant species that rely on periodic burning to create favorable growing conditions.

(c) Minimize soil erosion
- Install and maintain water bars and trail liners where needed to reduce erosion.
- Enforce no biking ordinance in Bird Hills. Erect more visible signs at park entrances to inform park users of this policy.

(d) Minimize trampling of vegetation through education.
- Erect signs informing people to stay on the trails so as not to compact soil or trample native vegetation.
- Line trails with fallen logs to more clearly delineate formal paths.

### II. Beech-Sugar Maple/Mesic Forest

**Stresses:**

(a) Invasive plant species
- Buckthorn

- Honeysuckle
- Privet
- Norway maple
- Garlic mustard (*Alliaria petiolata*)
- Vinca (*Vinca minor*)

**Strategies:**

(a) Reduce invasive plant species
- Actively manage invasive vegetation using the most effective, efficient and appropriate control method to date depending on the species. Methods might include: hand pulling young seedlings, herbicide application, girdling and burning.
- Educate neighbors and the public regarding the benefits of native landscaping.

## III. Forested Ravines

**Stresses:**

(a) Invasive plant species
- Buckthorn
- Honeysuckle
- Norway maple
- Garlic mustard
- Vinca
- Dame's rocket

(b) Soil erosion due to steep grade, trail disturbance, and excessive shade.

(c) Trampling of vegetation due to informal trails

**Strategies:**

(a) Reduce invasive plant species
- Actively manage invasive vegetation using the most effective, efficient and appropriate control method to date depending on the species. Methods might include: hand pulling young seedlings, herbicide application, girdling and burning.
- Educate neighbors and the public regarding the benefits of native landscaping.

(b) Minimize soil erosion
- Maintain current water bars and trail liners and install more as needed to reduce erosion.

(d) Minimize trampling of vegetation through education
- Erect signs informing people to stay on the trails so as not to compact soil or trample native vegetation.
- Line trails with fallen logs to more clearly delineate formal paths.

## IV. Old Field

**Stresses:**

(a) Invasive shrubs
- Buckthorn
- Honeysuckle
- Black locust (*Robinia pseudo-acacia*)

(b) Fire suppression

**Strategies:**

(a) Reduce invasive plant species

- Actively manage invasive vegetation using the most effective, efficient and appropriate control method to date depending on the species. Methods might include: hand pulling young seedlings, herbicide application, girdling and burning.
- Educate neighbors and the public regarding the benefits of native landscaping.

(b) Reintroduce fire into the ecosystem

- Conduct prescribed burns to reduce the build up of fuel on the forest floor, release nutrients such as nitrogen back into the soil, and reduce competition for native plant species that rely on periodic burning to create favorable growing conditions.