Klatt Environmental Associates LLC

ECOLOGICAL CHARACTERIZATION - HERITAGE SHOPPES ACQUISITION

Prepared For

Friends of Novi Parks
23837 West Lebost
Novi, MI 48375

Prepared by

Klatt Environmental Associates LLC
10868 Cartier
Brighton, MI 48114

www.klattenvironmental.com

8 March 2007

EXECUTIVE SUMMARY

The Friends of Novi Parks, along with the City of Novi and Heritage Shoppes LLC are in the process of developing a grant application to be submitted to the Michigan Natural Resources Trust Fund. The purpose of the application is to obtaining funding for the City of Novi to purchase a tract of land, herein referred to as the Heritage Property, for addition to the City of Novi parks system.

In support of this effort, the Friends of Novi Parks commissioned a study to evaluate the botanical, wildlife, and other ecological characteristics of the approximately 16-acre tract. The Heritage Property has been the subject of previous studies regarding wildlife and ecological value in which it was concluded that the Heritage Property, as part of a larger undeveloped area contains significant natural features and should be protected. These studies, conducted by a group of consultants and by the Michigan Natural Features Inventory of the Michigan Department of Natural Resources, designated the Heritage Property, along with the surrounding area as a "core reserve" area and a "priority one" area, respectively. Part of the current study, by Klatt Environmental Associates LLC, was to verify if the characteristics contributing to these designations remained generally still applicable to the site, especially with respect to wildlife corridors.

On behalf of the Friends of Novi Parks, Klatt Environmental conducted several visits to the site to conduct a Floristic Quality Assessment as well as surveys for: plant communities, game and non-game wildlife species, and other features contributing to the natural resource value of the site. The results of the surveys were:

- A total of 82 plant species were found on the Heritage Property
- Of the 82 species, 75 (91%) of the species are native
- A Floristic Quality Index of 31.41 was calculated for the property, indicating that the site scores well above the average undeveloped tract in Michigan and is approaching a level indicating that the site has state-wide significance with respect to native biodiversity
- The site supports a well-developed example of the Southern Swamp plant community, which is considered a rare community by the Michigan Natural Features Inventory
- Evidence of 29 species of game and non-game wildlife was found for the project area, including 10 mammal species and 19 bird species
- Clear evidence of an extensive system of wildlife corridors, linking the Heritage Property to the remainder of the "priority one" area, as well as the priority one area to other nearby natural areas, was found
- It was concluded that
    * the Heritage Property contains significant natural resources
    * descriptions of natural resources described in previous studies are still applicable to the area
    * as previously suggested, extensive wildlife corridors do, in fact, exist in the area and include the Heritage Property
    * loss of the Heritage Property due to future development would likely have a significant, negative impact on the ecological integrity of the MNFI priority one area

In the case of both the number of plant species, calculated FQI, and wildlife species observed, the results should be considered minimum values and that additional surveys are likely to significantly increase the values thus far found.

1.0 INTRODUCTION

The Friends of Novi Parks (the Friends) are working with the City of Novi and landowners to purchase, by means of a grant from the Michigan Natural Resources Trust Fund (MNRTF), a tract of land for incorporation into the City of Novi parks system. The City of Novi has been proactive in management and protection of its open space, having commissioned city-wide studies for wildlife habitat and wildlife corridor assessments and planning. Additionally, the City has both woodland- and wetland-protection ordinances. This demonstrated concern for the natural environment is further evidenced through a strong relationship between the City and the Friends of Novi Parks, a grassroots group that aids the City in its parkland acquisition efforts. These efforts have proved fruitful in acquiring and protecting properties in the City that are of high ecological value; whose protection provide value not only to the natural resources protected, but also to the residents of the City of Novi, which have access to these areas.

The Friends of Novi Parks and the City of Novi are building on their relationship and trying to expand their success by acquiring and adding to the City park system, a tract of land currently owned by Heritage Shoppes LLC (the Heritage property). In community support, Heritage Shoppes LLC is working closely with both the Friends and the City to develop a successful MNRTF grant application. The Heritage property is approximately 16 acres in size and is located between Nine and Ten Mile Roads and Beck and Napier Roads, in the City of Novi, Oakland County, Michigan (Section 29, T1N, R8E, Novi Township)(Figure 1).

The Heritage property is part of a larger undeveloped tract of land, which has been designated in earlier studies as a high quality “core reserve” wildlife area and thought to be an important link in local wildlife corridors (Wildlife Management Specialists 1993, Rogers, et al. 1996). This core reserve area includes Singh Trail to the west of the Heritage parcel, which is being developed into a nature trail connecting Nine and Ten Mile Roads and which passes through a variety of habitats.

The current study, commissioned by the Friends of Novi Parks and reported here, has several purposes:

1. Verify that the conditions described in the earlier reports, in general, remain valid

2. Evaluate whether the postulated corridor links through area in fact exist

3. Characterize the wildlife and wildlife habitat values of the Heritage property

4. Characterize the overall ecological quality of the Heritage property

5. Assess the importance of the natural resource aspects Heritage property within its landscape context

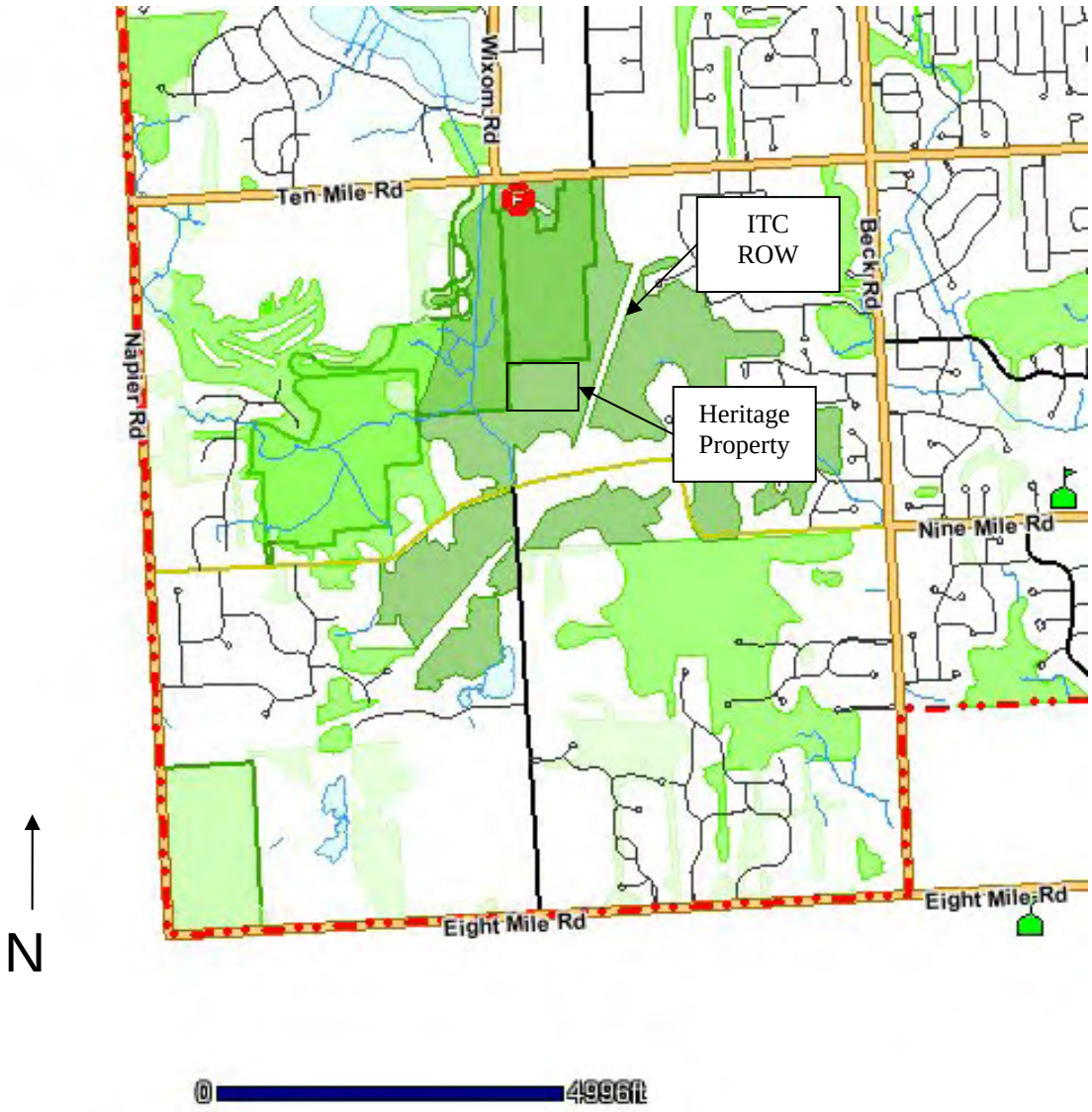


Figure 1. General vicinity map for Heritage Property based on City of Novi Woodlands Map (woodlands in green).

2.0 METHODS

The general approach to the wildlife and ecological characterization was one in which background information was reviewed, followed by field reconnaissance to verify the background information, development of new data pertaining to wildlife habitat and ecological resources on the site, and tabulation of survey lists of those plant and animal species occurring on the site.

2.1 Background Information Reviewed

Of particular note with respect to the background information review were two wildlife studies conducted specifically for the City of Novi:

Wildlife Habitat Plan: A Quality of Life for the 21st Century. City of Novi, Michigan. Wildlife Management Services; Brandon M. Rogers and Associates, P.C.; JCK & Associates, Inc. 1993.

Wildlife Habitat Master Plan. City of Novi, Michigan. Brandon M. Rogers and Associates, P.C.; JCK & Associates, Inc. 1996.

Other sources of background information addressing the Heritage property and adjacent areas included:

Hydric Soils List for Michigan. US Department of Agriculture, National Resource Conservation Service. ftp://ftp-fc.sc.egov.usda.gov/NSSC/Hydric_Soils/Lists/mi.xls. 2006.

Soil Survey – Oakland County, Michigan. U.S. Department of Agriculture, Natural Resource Conservation Service. 1981.

Potential Conservation/Natural Areas Report – Oakland County 2004. Michigan Natural Features Inventory. 2004.

Wetland Map – City of Novi. Interactive web-based, GIS maps. City of Novi website: http://cityofnovi.plansightgis.com/CXviewer.htm?ovrlay=grouped-wet. 2007

Woodland Map – City of Novi. Interactive web-based, GIS maps. City of Novi website: http://cityofnovi.plansightgis.com/CXviewer.htm?ovrlay=grouped-woods. 2007

Woodland Review Report – Quail Hollow Site Condominiums. City of Novi, Michigan. Vilican Leman, Inc. 2004.

Additional resources, as listed in the References section, were consulted in conducting the field reconnaissance and preparing this report.

2.2 Field Reconnaissance

To evaluate and verify information contained in the background documents, as well as to generate detailed information concerning variety and quality of wildlife, wildlife habitat, and other ecological resources on the Heritage property, the area was visited on various occasions from July 2006 through February 2007.

2.2.1 Floristic Quality Assessment (FQA)

A Floristic Quality Assessment is a relatively objective means of assessing the quality of the vegetation of a site, and making comparisons among various sites with respect to vegetation. The basis of the FQA is a survey of the plant species that occur on a site, typically compiled during a meander reconnaissance (i.e. walkover) of the site in question. From this inventory, a list of species found is tabulated.

Each plant species native to Michigan has been assigned a "coefficient of conservatism" or "C-value" by the MDNR. C-values range from 0 – 10 and represent *"an estimated probability that a plant is likely to occur in a landscape relatively unaltered from what is believed to be a pre-settlement condition."* In other words, plants with a low numerical rating can be found in a wide range of habitats and areas of disturbance, while those with a high number are *"almost always restricted to a pre-settlement remnant, i.e. a high quality natural area"* (Herman, et al., 2001).

From the coefficients of conservatism for the species found on a site, an index, referred to as the Floristic Quality Index (FQI), can be calculated as follows:

$$FQI = [(\Sigma C_i)/n]\sqrt{n}$$

Where:

C_i – the coefficient of conservatism of each of the native species found on the site

n – the number of species found on the site

The calculation can be done by considering either only those species on the site which are native to Michigan, or by considering all of the species found, whether native or non-native. The latter approach helps to differentiate between sites with similar numbers of native species, but differing numbers of non-native species, thus providing a more objective measure of the floristic quality of a site.

The Michigan Department of Natural Resources provides the following guidance with respect to FQIs: "*Most of the remaining undeveloped land registers floristic quality*

indices (FQI) of less than 20 and has minimal significance from a natural quality perspective. Areas with a FQI higher than 35 possess sufficient conservatism and richness that they are floristically important from a statewide perspective."

In addition to the Coefficient of Conservatism, ecological information concerning plant species can also be gleaned from the "wetland indicator status" of a species. Herman, et al. (2001), present the wetland indicator status for each plant species native to, or naturalized in, Michigan. Species assigned a wetland indicator status of:

- OBL (Obligate Wetland) almost always occur in wetlands under natural conditions (more than 99% probability);
- FACW (Facultative Wetland) plants usually occur in wetlands, but occasionally are found in non-wetlands (67% - 99% probability);
- FAC (Facultative) plants are equally likely to occur in wetlands or non wetlands (34% - 66% probability);
- FACU (Facultative Upland) plants occasionally occur in wetlands, but usually occur in non-wetlands (estimated 1% - 33% probability); and
- UPL (Upland) plants almost never occur in wetlands under natural conditions (less than 1% probability).

Floristic surveys of the Heritage property were conducted in July and October 2006, by Dr. Brian Klatt, of Klatt Environmental, who was accompanied during the July visit by Ms. LuAnne Kozma of The Friends of Novi Parks. During the surveys, a list of all plant species observed was compiled. The plant species surveys were limited to the Heritage property itself and did not include species found on the adjacent City-owned property. This list was then used to calculate an FQI for the Heritage property following the procedures of Herman, et al. (2001).

2.2.2 Wildlife and Wildlife Corridor Assessment

In addition to the floristics recorded for the site during the July and October 2006 surveys, observations were made for both game and non-game wildlife species and wildlife habitat. The survey relied on observation of mammals and birds and their sign, such as, tracks, scat, nests, burrows, feathers, vocalizations, *etc.* Search of specific structures, such as fallen logs, hollow trees and muddy areas was conducted during all of the plant reconnaissance efforts. In order to take advantage of fresh snowfall, and the associated increased probability of finding wildlife tracks, focused wildlife surveys were conducted in February 2007, for the Heritage property. Because many wildlife species are highly mobile, these wildlife surveys addressed not only the Heritage property *per se*, but also included the City-owned areas both north and the west of the Heritage property. The survey route included a meander along the ITC transmission right-of-way bordering the east side of the Heritage property, the Heritage property itself, and the route of the Singh Trail. Additionally, to evaluate the role of the Heritage property and

adjacent land as wildlife corridors, a walking survey of the boundaries of the Heritage property and adjacent area were conducted. This survey paid particular attention to the ITC corridor bordering the Heritage property, Davis Creek, and the areas along Nine and Ten Mile Roads.

3.0 FINDINGS

3.1 General

Background information indicates that the Heritage property is a very important tract from a natural resource perspective. The Wildlife Management Services, et al. (1993) report indicates that the Heritage property is part of one of only two "core reserve" areas within the City of Novi. Based on the methodology used in developing the report, core reserve areas are "*of unusually high conservation values which span the entire range of biological hierarchy, as well as particular physical habitats. They contain a diversity of species which are interdependent upon large tracts particularly during the breeding season.*" The report additionally notes that, "*Some species also utilize the Core Reserve as a base and move by linkages (Wildlife Movement Corridors) between other smaller areas sometimes miles away*."

The contention that the core reserve, of which the Heritage property is a part, can be part of a functionally larger system, providing wildlife habitat and acting as a link between other areas of wildlife habitat was further reinforced in the Rogers, et al. (1996) *Wildlife Master Plan* for the City of Novi, which depicted the area as being connected to other natural areas by a variety of "apparent" and "possible" linkages both north of Ten Mile Road and south of Nine Mile Road.

While the 1993 and 1996 reports are both at least a decade old, more recent information continues to indicate that the importance of the Heritage property, and the core reserve area in general, remains high. The Michigan Natural Features Inventory (MNFI 2004) shows the Heritage property as part of a "Priority One" natural area. Similarly, the current City of Novi Geographic Information System maps show the Heritage property to considered 100% wooded wetland.

3.2 Floristic Quality Assessment

A total of 82 plant species were found during the reconnaissance of the Heritage property; 75 (91%) of the species are native to Michigan. Based on the data, a FQI of 31.41 was calculated for the property using the values for native species. Appendix A, Table 1 presents the list of plants found on the site, as well as the summary FQA information.

The Michigan Department of Natural Resources (Herman, *et al*., 2001) provides the following guidance with respect to FQIs: "*Most of the remaining undeveloped land registers floristic quality indices (FQI) of less than 20 and has minimal significance from a natural quality perspective*". By this measure alone, the floristic quality of the Heritage property is well above average for undeveloped property in Michigan, and is approaching the value indicating state-wide significance for the site. However, several factors indicate that the floristic and ecological quality of the Heritage property is even greater than the current, simple measure of the FQI would indicate.

As the FQI calculation is based simply on the list of plant species observed, any factor affecting the compilation of the list can affect the resultant value. The FQI calculated for the Heritage property is based on visits to the site in mid-summer and fall. Many species of plants are observable or identifiable at only particular times of the year. For example, some species grow, bloom, and return to dormancy in the spring and would not likely be found in July or October, even if the species are present on the site. Thus, additional reconnaissance of the site during spring and early-summer is likely to result in a higher FQI than presented here.

Additionally, FQIs are dependent on the size of a site as well as the number of plant communities present at a site. For example, Meadowbrook Park, also located in the City of Novi, consists of 50 acres and was found to have an FQI of 41.41. Thus, for a site the size of the Heritage property (one third the size of Meadowbrook Park) the FQI is quite high.

It is significant to note that the vegetation of the Heritage property basically consists of a single plant community, namely Southern Swamp. The MNFI (2006) has assigned a "State Element Ranking" of S3 to this community. The S3 ranking indicates that the community is "*rare or uncommon in [the] state (on the order of 21 to 100 occurrences*)".

The MNFI (2006) describes Southern Swamp as a deciduous-forest, wetland community which occurs south of the transition zone in Michigan. It is typically found on pH-neutral to acid, loam, silt loam, and sandy loam soils (site soils frequently include a clay layer) in depressions and channels of ground moraines, on glacial lake plains, and in depressions of glacial outwash, especially near moraines. Typical plant species include: silver maple (*Acer saccharinum*), red maple (*Acer rubrum*), red ash (*Fraxinus pennsylvanica*), black ash (*F. nigra*), American elm (*Ulmus americana*), and swamp white oak (*Quercus bicolor*)(MNFI 2006).

The plant community as represented on the Heritage property fits this idealized description extremely well and the property, in general, appears to be remarkably intact, showing little evidence of human disturbance (Appendix B - Photo 1). The canopy is dominated by mature silver maple, red maple and cottonwood, many of which are of truly magnificent size. A number of the multi-boled silver maples had diameters at breast height of individual boles of over 20 inches (Photo 2), with some multi-boled trees (which did not split until above breast height) having dbh of nearly 60 inches;

mature cottonwoods exceeded 30 inches dbh. The few non-native species found on the site were located primarily on the very eastern edge of the property where human activities on neighboring properties have encroached. Similarly, the soils, which included not only loams, but also mucks (the area is mapped as Houghton and Adrian Mucks (USDA 1981) appear to be the native soils and completely un-impacted by human activity. A problem common to undeveloped properties in urban areas, namely the dumping and abandonment of trash and other items, was completely lacking at the Heritage property. Thus, not only is the plant community occupying this site considered rare by the MNFI, but in my experience, it is unusual to find in an urban area an un-fragmented plant community of this extent and in such good condition as is found on the Heritage property.

3.3 Wildlife and Wildlife Habitat

Observations during the site visits indicate that the flora supports a varied fauna. Deer sign was extremely abundant throughout the site (Photos 3 & 4). Two species of hawk were observed in the area: red-tailed hawk and broad-winged hawk. Overall, evidence of 29 species of animal was found during the site visits, including 10 mammal species and 19 bird species. A complete list of animals observed is presented in Table 1. As with the plant surveys, the wildlife surveys should be considered as lower estimates of the true number of wildlife species using the Heritage property and surrounding area. For example, the best time to survey for bird species in forested areas is during late-spring or early-summer when males are singing, and the surveyor does not need to depend on visual observation. Also, the many depressions and ponds likely support a variety of frogs and toads, though site visits were not conducted at optimal times for observing amphibians.

The physical and botanical features of the Heritage property and adjoining area combine to provide abundant wildlife habitat. For example, small mammals such as voles and white-footed mice which were taking advantage of habitat provided in the area such as dense cover of grasses in the ITC ROW and hollow logs on the Heritage property (Photos 5). Davis Creek provides a ready water supply during much of the year. Though not surveyed itself, Davis Creek appears to also provide food resources for predators in the area, as evidenced by mink tracks found along the creek during one of the February 2007 site visits (Photo 6). The forest itself provides shelter and food for wildlife, as exemplified by the squirrel nests on site, many hollow logs, as well as standing, dead trees. The dead trees provide nesting sites directly if hollow (Photo 7), or allow for woodpeckers to excavate nests (Photo 8), as well as the insects and fungi contributing to the tree's demise providing food for birds and small mammals (Photo 9). The understory of the woods contains a variety of shrub species that provide nesting sites for birds, as well as food in the form of fruits (Photo 10). Additionally, the high water table on the Heritage property, results in areas of open water during winter (Photo 11).

Table 1. Wildlife Associated with the Heritage Property.	
Common Name	***Scientific Name***
MAMMALS	
coyote	*Canis latrans*
deer, white-tailed	*Odocoileus virginianus*
mink	*Mustela vison*
mouse, white-footed	*Peromyscus sp.*
rabbit, eastern cotton-tail	*Sylvilagus floridanus*
raccoon	*Procyon lotor*
squirrel, fox	*Sciurus niger*
squirrel, red	*Tamiasciurus hudsonicus*
vole, meadow	*Microtus pennsylvanicus*
woodchuck	*Marmota monax*
BIRDS	
Cardinal, Northern	*Richmondena cardinalis*
Chickadee, Black-capped	*Parus atricapillus*
Crow, American	*Corvus brachyrhynchus*
Goldfinch, American	*Carduelis tristis*
Hawk, Red-tailed	*Buteo jamaicensis*
Hawk, Broad-winged	*Buteo platypterus*
Jay, Blue	*Cyanocitta cristata*
Nuthatch, White-breasted	*Sitta carolinensis*
Pewee, Eastern Wood-	*Contopus virens*
Pheasant, Ring-necked	*Phasianus colchicus*
Phoebe, Eastern	*Sayornis phoebe*
Robin, American	*Turdus migratorius*
Sparrow, House	*Passer domesticus*
Thrush, Wood	*Hylocichla mustelina*
Towhee, Rufous-sided	*Pipilo erythrophthalmus*
Veery	*Hylocichla fuscescens*
Vireo, Red-eyed	*Vireo olivaceous*
Woodpecker, Downy	*Picoides pubescens*
Woodpecker, Red-bellied	*Melanerpes carolinus*

Thus, the mosaic nature of the plant communities of the area provides a variety of habitats and complementary resources for wildlife. For example, during the reconnaissance, evidence of coyote was found in an upland area. While coyote require well-drained soils for their dens, wetlands provide a ready source of water and will support a greater abundance of prey items than will forest. Similarly, the deciduous forest throughout the site provides winter cover from predators for hawks and other species, nesting structure and food for squirrels and canopy nesting birds.

As noted above, the shrubs in the Heritage property provide food in the form of fruits or nuts and nesting areas for small birds and winter browse for deer. The wetlands provide habitat for frogs, which can be presumed to be present in at least some of the various wetlands. The frogs, in turn, can provide food for birds, such as great blue herons, or for mammals, such as raccoons and opossum. The grassy areas bordering the east side of the Heritage property (i.e. the ITC ROW) provide excellent habitat for voles and other small mammals, which are some of the primary prey items for predatory mammals and hawks.

The role of the many plant species occurring on the property in providing food for wildlife can hardly be overstated. For example, one of the tree species at the Heritage property was swamp white oak. *American Wildlife and Plants* (Martin, Zim, and Nelson 1951), list 18 species of birds and 14 species of mammals that occur in southern Michigan that are known to feed on acorns. Similarly, they list 25 species of birds and 14 species of mammals that feed on wild cherry, another plant at the Heritage property. For the dominant species of tree on the Heritage property, red and silver maple, Martin, Zim, and Nelson (1951), list 10 mammal species and 7 bird species from southern Michigan that use these species for food. Thus, the combination of uplands, wetlands, forests, shrubs and open areas provide a wide array of resources for wildlife use throughout the Heritage property and adjoining area.

While the many wildlife resources present on the Heritage property is important, what is more important is the context in which the Heritage property is located. As noted earlier, the property is part of a larger, undeveloped area within a suburban/urban area. Previous and recent evaluations (Wildlife Management Services, et al. 1993, Rogers et al. 1996, and MNFI 2004) have recognized the wildlife and wildlife habitat significance of the Heritage property and adjoining area, designating it a “core reserve” and a “priority one” area. Both designations indicating that the area should be considered a high priority for preservation and conservation efforts due to the high quality of the natural resources the area represents.

A significant consideration in attaching such a high importance to the area is its areal extent and lack of habitat fragmentation when the overall landscape-level setting of the property is considered. It is well established that habitat fragmentation is associated with decreased species diversity. That is, a one-acre area of continuous (*i.e.,* non-fragmented) habitat will support more species than one acre of habitat comprised of a

number of fragments, all other things being equal. The greater the degree of fragmentation, the fewer the species (plant and animal) the site is likely to support. This is an especially important consideration in the case of the Heritage property. As can be seen in Figure 1, the Heritage property is located at a critical point in the landscape. If the Heritage property is not protected and is developed at some point in the future, removal of that property as habitat will result in effectively cutting the MNFI (2004) Priority One area in half. The term "effectively" is used because loss of that area will greatly increase the "edge effect" in that portion of the priority one area. Edge effect is a term used to describe the fact that many forest-dwelling species actively avoid the edges of the forest; basically requiring a buffer area between their activity area and the edge of the forest. For forest-interior species, the MNFI recommends that a buffer of at least 300 feet is necessary. Clearly, loss of the Heritage property as habitat would allow a significant intrusion of edge effect into the core reserve/priority one area; likely turning it into two smaller areas with respect to forest-interior animals.

3.3 Wildlife Corridors

Not only is the Heritage property and the adjoining area significant as an independent suite of wildlife resources, but the area also represents an important link to other natural areas. Wildlife Management Specialists (1993) suggested that the core reserve area (which contains the Heritage property) acts as a link in a chain of wildlife habitat areas. They stated, "*Some species also utilize the Core Reserve as a base and move by linkages (Wildlife Movement Corridors) between other smaller areas sometimes miles away*." This contention was repeated by Rogers et al. (1996) and incorporated as a working assumption into the 1996 *Wildlife Master Plan* for the City of Novi. The primary map from that master plan is presented in Appendix C. Basically, the plan indicates that, in addition to the core area acting as part of a corridor itself, there are several wildlife corridors connecting to/from the core area. These corridors were purported to include the ITC ROW area to the east of the Heritage property, a woodlot north of Ten Mile Road, and part of the core area connecting additional habitat south of Nine Mile Road.

Part of the purpose in performing the site reconnaissance reported herein was to assess the validity of these areas as wildlife corridors. During the reconnaissance clear evidence of wildlife corridors, in the form of deer, and other mammal, trails was found:

1) Linking the Heritage property to the ITC ROW and other portions of the Priority One area in all four directions

2) Running through the ITC ROW paralleling the Heritage property

3) Along and over the ice of Davis Creek

4) Linking areas east and west of Davis Creek (along XX feet of Davis Creek 11 crossing areas, perpendicular to Davis Creek were found)

5) Connecting the Priority One area to areas north of Ten Mile Road (six crossing areas observed)

6) Connecting the portions of the Priority One area north and south of Nine Mile Road

Thus, ***all*** of the suggested wildlife corridors connecting the Heritage property area to other wildlife habitat areas as proposed in the 1996 *Wildlife Master Plan* were verified in the field during February 2007. Photos 12-16 present visual evidence of these corridor linkages.

4.0 CONCLUSION

The Heritage property represents a not only a key natural resource in its own right, but taken in a landscape context, it represents a very significant suite of botanical, wildlife, wildlife habitat, and wildlife corridor resources, more so because of its location in an urban/suburban setting. In summary, it is my opinion that the Heritage property represents a very significant natural resource based on objective measures and aspects and on verification of previous assessments by private consultants and a state agency that also concluded that the property and surrounding area is an important natural resource area. Notably, the Heritage Property has the following characteristics:

- An FQI substantially above average for undeveloped lands in Michigan
- Presence of a well-developed, intact S3 community (Southern Swamp)
- Mature, if not old-growth, canopy trees
- A variety of both game and non-game wildlife and wildlife habitats
- It is part of a larger natural area complex/wildlife corridor within an urban area
- Loss of the Heritage Property itself would result in significant degradation of the ecological value of the area in general due to increased edge effects, splitting a MNFI Priority One area effectively into two smaller areas

I whole-heartedly support the grant application of the Friends of Novi Parks for obtaining the Heritage Property it under the management of the City of Novi Parks and Recreation system.

Brian J. Klatt

Brian J. Klatt, Ph.D.
Certified Senior Ecologist

5.0 REFERENCES

Barnes, Burton V. and Warren H. Wagner. 2004. Michigan Trees. University of Michigan Press, Ann Arbor, MI.

Brandon M. Rogers and Associates, P.C.; JCK & Associates, Inc. 1996. *Wildlife Habitat Master Plan.* City of Novi, Michigan.

Burt, William. H. and Richard P. Grossenheider. 1976. A Field Guide to the Mammals (Petersen Field Guide Series). Houghton-Mifflin Co., Boston, MA.

City of Novi. 2007. *Wetland Map – City of Novi.* Interactive web-based, GIS maps. City of Novi website: http://cityofnovi.plansightgis.com/CXviewer.htm?ovrlay=grouped-wet.

City of Novi. 2007. *Woodland Map – City of Novi. Interactive web-based, GIS maps.* City of Novi website: http://cityofnovi.plansightgis.com/CXviewer.htm?ovrlay=grouped-woods.

Gleason, Henry A. and Arthur Cronquist. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada. New York Botanical Garden, Bronx, New York.

Harlow, William H. 1941. Fruit Key and Twig Key to Trees and Shrubs. Dover Publications, New York, NY.

Herman, K. D., L. A. Masters, M. R. Penskar, A. A. Reznicek, G. S. Wilhelm, and W. W. Brodowicz. 2001. Floristic quality assessment with wetland categories and computer application programs for the State of Michigan, Revised, 2nd Edition. Michigan Department of Natural Resources, Wildlife Division, Natural Heritage Program. *Lansing, MI. 21 pp. + Appendices.*

Holmgren, Noel H. 1998. The Illustrated Companion to Gleason and Cronquist's Manual. New York Botanical Garden, Bronx, New York.

Martin, A. C., H. S. Zim, and A. L. Nelson. 1951. American Wildlife & Plants. McGraw-Hill Book Company, Inc. New York.

Michigan Natural Features Inventory. 2004. Potential Conservation/Natural Areas Report – Oakland County 2004. Michigan Department of Natural Resources, Natural Features Inventory. Lansing, Michigan.

Michigan Natural Features Inventory. 2006. *Michigan's Natural Communities: Draft List and Descriptions*. Michigan State University Extension, Michigan Natural Features Inventory, Lansing, Michigan.

Mohlenbrock, R. H. 1999. *Illustrated Flora of Illinois – Sedges: Carex.* Southern Illinois University Press, Carbondale and Edwardsville, Illinois.

Murie, Olaus J. 1974. Animal Tracks. Houghton-Mifflin Co. Boston, MA. (A Petersen Field Guide)

Newcomb, Lawrence. 1977. Wildflower Guide. Little, Brown, & Co., Boston, MA.

Sibley, David Allen. 2000. The Sibley Guide to Birds. Alfred A. Knopf, New York, NY.

Soper, James H. and Margaret L. Heimburger. 1982. Shrubs of Ontario. Royal Ontario Museum, Toronto, Canada.

U.S. Geological Survey, Washington, D.C. 1980. *U.S. Geological Survey Topographic 7.5 Minute Map – Salem Quadrangle.*

US Department of Agriculture, Natural Resource Conservation Service. 2006. *Hydric Soils List for Michigan.* US Department of Agriculture, National Resource Conservation Service. ftp://ftp-fc.sc.egov.usda.gov/NSSC/Hydric_Soils/Lists/mi.xls

US Department of Agriculture, Natural Resources Conservation Service. 1981. *Soil Survey Maps - Oakland County Michigan*. US Department of Agriculture, Natural Resources Conservation Service.

Vilican Leman, Inc. 2004. *Woodland Review Report – Quail Hollow Site Condominiums.* City of Novi, Michigan.

Voss, Edward G. 1996. Michigan Flora Parts I, II & III. Cranbrook Institute of Science Bulletin 61, Bloomfield Hills, Michigan.

Wildlife Management Services; Brandon M. Rogers and Associates, P.C.; JCK & Associates, Inc. 1993. *Wildlife Habitat Plan: A Quality of Life for the 21st Century.* City of Novi, Michigan.

APPENDIX A – PLANT LIST

Table 1. Plant Species and Floristic Quality Index for Heritage Parcel.

(Scientific names in all capitalized letters indicate non-native species; C – Coefficient of Conservatism; Wet Coeff – Wetland Coefficient; W. I. – Wetland Indicator Status)

Scientific Name	Common Name	C	W.I.	Growth Form
Acer rubrum	RED MAPLE	1	FAC	N Tree
Acer saccharinum	SILVER MAPLE	2	FACW	N Tree
Actaea pachypoda	WHITE BANEBERRY; DOLL'S-EYES	7	UPL	N Forb
Actaea rubra	RED BANEBERRY	7	UPL	N Forb
ALLIARIA PETIOLATA	GARLIC MUSTARD	*	FAC	A Forb
Amphicarpaea bracteata	HOG-PEANUT	5	FAC	N Forb
ARCTIUM MINUS	COMMON BURDOCK	*	UPL	A Forb
Arisaema triphyllum	JACK-IN-THE-PULPIT; INDIAN-TURNIP	5	FACW-	N Forb
Aster lateriflorus	SIDE-FLOWERING ASTER	2	FACW-	N Forb
Athyrium filix-femina	LADY FERN	4	FAC	N Fern
BERBERIS VULGARIS	COMMON BARBERRY	*	FACU	A Shrub
Betula alleghaniensis	YELLOW BIRCH	7	FAC	N Tree
Boehmeria cylindrica	FALSE NETTLE	5	OBL	N Forb
Carex bebbii	SEDGE	4	OBL	N Sedge
Carex hystericina	SEDGE	2	OBL	N Sedge
Carex lacustris	SEDGE	6	OBL	N Sedge
Carex lupulina	SEDGE	4	OBL	N Sedge
Carya ovata	SHELLBARK or SHAGBARK HICKORY	5	FACU	N Tree
Chelone glabra	TURTLEHEAD	7	OBL	N Forb
Cicuta maculata	WATER HEMLOCK	4	OBL	N Forb
Cinna arundinacea	WOOD REEDGRASS	7	FACW	N Grass
Circaea lutetiana	ENCHANTER'S-NIGHTSHADE	2	FACU	N Forb
Cornus amomum	SILKY or PALE DOGWOOD	2	FACW+	N Shrub
Cornus foemina	GRAY DOGWOOD	1	FACW-	N Shrub
Echinocystis lobata	WILD CUCUMBER	2	FACW-	N Vine
Equisetum arvense	COMMON or FIELD HORSETAIL	0	FAC	N Fern
Equisetum hyemale	SCOURING RUSH	2	FACW-	N Fern
Eupatorium perfoliatum	COMMON BONESET	4	FACW+	N Forb
Fagus grandifolia	AMERICAN BEECH	6	FACU	N Tree
Fraxinus nigra	BLACK ASH	6	FACW+	N Tree
Fraxinus pennsylvanica	RED ASH	2	FACW	N Tree
Galium palustre	MARSH BEDSTRAW	3	[OBL]	N Forb
Geum canadense	WHITE AVENS	1	FAC	N Forb
Glyceria striata	FOWL MANNA GRASS	4	OBL	N Grass
Hackelia virginiana	STICKSEED; BEGGAR'S LICE	1	FAC-	N Forb
Ilex verticillata	WINTERBERRY; MICHIGAN HOLLY	5	FACW+	N Shrub
Impatiens capensis	SPOTTED TOUCH-ME-NOT	2	FACW	N Forb
Leersia oryzoides	CUT GRASS	3	OBL	N Grass

Table 1. Plant Species and Floristic Quality Index for Heritage Parcel.

(Scientific names in all capitalized letters indicate non-native species; C – Coefficient of Conservatism; Wet Coeff – Wetland Coefficient; W. I. – Wetland Indicator Status)

Scientific Name	Common Name	C	W.I.	Growth Form
Lycopus uniflorus	NORTHERN BUGLE WEED	2	OBL	N Forb
Lysimachia ciliata	FRINGED LOOSESTRIFE	4	FACW	N Forb
LYTHRUM SALICARIA	PURPLE LOOSESTRIFE	*	OBL	A Forb
Menispermum canadense	MOONSEED	5	FAC	N Vine
Onoclea sensibilis	SENSITIVE FERN	2	FACW	N Fern
Osmunda cinnamomea	CINNAMON FERN	5	FACW	N Fern
Osmunda regalis	ROYAL FERN	5	OBL	N Fern
Parthenocissus quinquefolia	VIRGINIA CREEPER	5	FAC-	N Vine
Pilea pumila	CLEARWEED	5	FACW	N Forb
Podophyllum peltatum	MAY APPLE; MANDRAKE	3	FACU	N Forb
Polygonum virginianum	JUMPSEED	4	FAC	N Forb
Populus deltoides	COTTONWOOD	1	FAC+	N Tree
Populus tremuloides	QUAKING ASPEN	1	FAC	N Tree
Prenanthes alba	WHITE LETTUCE; RATTLESNAKE-ROOT	5	FACU	N Forb
Prunus serotina	WILD BLACK CHERRY	2	FACU	N Tree
Quercus bicolor	SWAMP WHITE OAK	8	FACW+	N Tree
RHAMNUS CATHARTICA	COMMON BUCKTHORN	*	FACU	A Tree
RHAMNUS FRANGULA	GLOSSY BUCKTHORN	*	FAC+	A Shrub
Ribes americanum	WILD BLACK CURRANT	6	FACW	N Shrub
Ribes cynosbati	PRICKLY or WILD GOOSEBERRY	4	UPL	N Shrub
Rosa palustris	SWAMP ROSE	5	OBL	N Shrub
Rubus allegheniensis	COMMON BLACKBERRY	1	FACU+	N Shrub
Rubus occidentalis	BLACK RASPBERRY	1	UPL	N Shrub
Rubus strigosus	WILD RED RASPBERRY	2	FACW-	N Shrub
Salix eriocephala	WILLOW	2	FACW	N Shrub
Salix nigra	BLACK WILLOW	5	[OBL]	N Tree
Sambucus canadensis	ELDERBERRY; COMMON ELDER	3	FACW-	N Shrub
Sium suave	WATER-PARSNIP	5	OBL	N Forb
Smilacina racemosa	FALSE SPIKENARD	5	FACU	N Forb
Smilax tamnoides	BRISTLY GREEN-BRIER	5	FAC	N Vine
SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	*	FAC	A Vine
Solidago altissima	TALL GOLDENROD	1	FACU	N Forb
Solidago rugosa	ROUGH GOLDENROD	3	FAC+	N Forb
Thelypteris noveboracensis	NEW YORK FERN	5	FAC+	N Fern
Thelypteris palustris	MARSH FERN	2	FACW+	N Fern
Tilia americana	LINDEN; BASSWOOD	5	FACU	N Tree
Toxicodendron radicans	POISON-IVY	2	FAC+	N Vine
Ulmus americana	WHITE or AMERICAN ELM	1	FACW-	N Tree
Urtica dioica	NETTLE	1	FAC+	N Forb
Verbena urticifolia	WHITE VERVAIN	4	FAC+	N Forb
Viburnum cassinoides	WITHE-ROD; NORTHERN HAW	6	FACW	N Shrub
Viburnum opulus americanum	HIGHBUSH CRANBERRY	5	FACW	N Shrub

Table 1. Plant Species and Floristic Quality Index for Heritage Parcel.

(Scientific names in all capitalized letters indicate non-native species; C – Coefficient of Conservatism; Wet Coeff – Wetland Coefficient; W. I. – Wetland Indicator Status)

Scientific Name	**Common Name**	**C**	**W.I.**	**Growth Form**
Vitis riparia	RIVERBANK GRAPE	3	FACW-	N Vine
Zanthoxylum americanum	PRICKLY-ASH	3	UPL	N Shrub
	Floristic Quality Assessment			
Mean Value of Index of Conservatism =	3.63			
Native Species Count =	75			
Total Species Count =	82			
Square Root of Native Species Count =	8.66			
Floristic Quality Index =	31.41			

APPENDIX B – PHOTOGRAPHS

Photo 1. Southern Swamp.

Photo 2. Mature Silver Maple

Photo 3. Deer trail through the Heritage property

Photo 4. Deer bed.

Photo 5. White-footed mouse tracks leading to hllow log

Photo 6. Mink tracks along Davis Creek.

Photo 7. Standing, hollow tree.

Photo 8. Excavated nest sites in standing, dead tree.

Photo 9 . Woodpecker feeding sign.

Photo 10. Highbush cranberry fruits.

Photo 11. Open water in Southern Swamp of Heritage property.

Photo 12. Wildlife trails through ITC ROW.

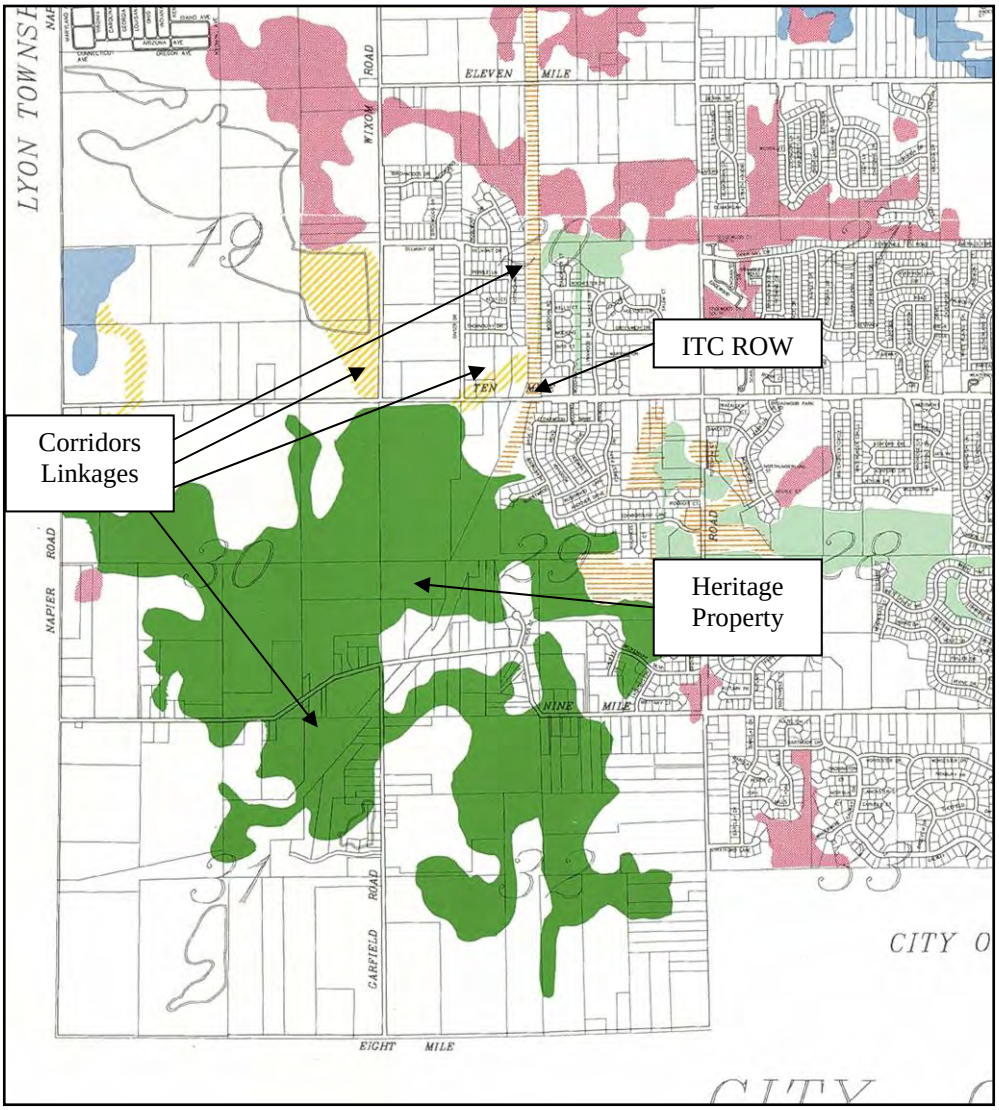
Photo 13. Wildlife trails through Heritage property.

Photo 14. Wildlife trails running into Heritage property.

Photo 15. Wildlife trails crossing Nine Mile Road toward south.

Photo 16. Wildlife crossing area at Ten Mile and Milford Roads.

APPENDIX C – 1996 Wildlife Master Plan (excerpt)


ITC ROW
Corridors
Linkages
Heritage
Property
ELEVEN MILE
NINE MILE
EIGHT MILE
WIXOM ROAD
NAPIER ROAD
CARFIELD ROAD