

BENNETT ARBORETUM
PAST, PRESENT, AND FUTURE OF MICHIGAN'S OLDEST PUBLIC
ARBORETUM

by

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A project submitted
in partial fulfillment of the requirements
for the degree of Master of Landscape Architecture
at the University of Michigan
April, 2006

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Abstract

Established in 1934, Bennett Arboretum is the state of Michigan's oldest public arboretum. The Arboretum is located in western Wayne County and is managed by the Wayne County Department of Parks. The arboretum has experienced a decline in management activities since the middle of the 20th century and is hardly recognizable today. My goal for this project was to improve the image of the Arboretum in the context of this historical area of Metropolitan Detroit.

In order to understand the intentions of the Bennett Arboretum's founder J.M. Bennett, I conducted a historical review of Wayne County Michigan's early evolution and I focus on the early 20th century. This time period is significant because of the development of the automobile industry in the area and the direct influence that this industry had on the development of the park system. I then conducted a historical review of arboreta throughout the world tracing the origins of this style of planting to the Arboretum Trsteno, in Croatia. I then followed the development of arboreta as it moved to a symbol of national pride. I then looked at two highly successful arboreta in the United States: The Arnold Arboretum and the University of Wisconsin - Madison - Arboretum. These two arboreta represent distinctly different arboreta that have evolved over time.

In the summer of 2004 I surveyed Bennett Arboretum to determine what proportion of trees have survived since its establishment and evaluated each tree's condition. Of the nearly 470 trees originally planted, 103 trees remained from the original collection. The results of the survey formed the basis for a Master Plan for the Arboretum in 2005, created by myself and my peers in a Landscape Architecture Studio at the University of Michigan. The development of the Master plan created a mission statement which shifted the focus of the Arboretum to an ecosystem based approach for plant collection. I selected two significant areas of the Master Plan that required merging the historic collection with this new ecosystem approach. I created a planting plan for the Ornamental

and Maple Collections. These two plans create a framework that blends the different collection styles to create a seamless flow throughout and help strengthen Bennett Arboretum's visual image.

Acknowledgements

I would like to gratefully acknowledge the enthusiastic supervision of Dr. Larissa Larsen for her direction, assistance, and guidance during this work. I also wish to thank Dr. David Michener and Prof. Bob Grese for the technical discussion and review of the planting plan concepts presented in this project. Thanks are also due to Nancy Darga, Wayne County Park Historian, and Carol Clements, Park Naturalist for their time and knowledge of Wayne County history. I would also like to recognize Steve Alman of Wayne County Parks and Noel Mullett, Jr. of the Wayne County Department of the Environment for their assistance.

Special thanks should be given to my student colleagues who created the 2005 Bennett Arboretum Master Plan, an integral and complementary component to this project. Thanks to the Environmental Spatial Analysis Lab in the School of Natural Resources and Environment for the use of GPS equipment; in particular I would like to acknowledge the help of Shannon Brines, for his technical assistance many times over.

Finally, words alone cannot express the many thanks I owe to my family, Monique and Quinten Oxender, for their endless patience, encouragement, and support.

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Introduction

The Bennett Arboretum and surrounding areas along the upper-middle Rouge corridor are an incredible resource for residents of Wayne County and throughout southeast Michigan. The Arboretum has, to this day, a tremendous collection of hardy trees, a variety of landscape features, and open spaces that provide visitors with a diversity of spaces and settings to participate in a range of activities. However, the rich history surrounding the Arboretum as the state's oldest public arboretum is relatively unknown. Hundreds to thousands of daily commuters drive past on the adjacent scenic Hines Drive everyday and are completely unaware of its existence altogether.

My familiarity with the Bennett Arboretum has been centered on my Masters Degree project, consisting of three parts. First, I have conducted several historical reviews. I have surveyed a brief history of arboreta around the world in consideration of the origins of arboretum collections and have summarized how different styles of arboreta have evolved over time. I have provided examples of successful public arboreta in this country today that have taken very different approaches to their collection styles. Additionally, I have provided a historical account of Wayne County in the early 20th century, examined the significance the parks created in the county at that time, and explored the legacy of the supporters of the park system and founders of the Bennett Arboretum.

The second dimension of the Bennett Arboretum project, a complete tree inventory and corresponding results, was then placed within the context of this historical survey. The tree inventory was performed during the summer of 2004. The goal for this portion of the project was to create a current inventory or baseline for the established vegetation in the park in an attempt to determine appropriate future developments in the Bennett Arboretum. Discussion of the inventory includes a summary of a master plan created by myself and fellow graduate-level landscape architecture students at the University of Michigan's

School of Natural Resources and Environment (SNRE). The master plan was based on the inventory results and served to highlight and build upon the successes of the Arboretum.

In the third part of this project, I have used the master plan and chosen two highly visible and accessible areas of the Bennett Arboretum to create a planting plan. The areas are unique in that they are the areas in the master plan that have been chosen to blend a variety of ornamental and non-native tree species with natives. The resulting planting design is intended to be highly visible from a variety of locations, including the adjacent and highly-utilized Hines Drive. Together, these three parts of the project are intended to help restore an identity to the state's oldest public arboretum.

Past

Arboretum histories and types of collections

An arboretum is a botanical garden primarily devoted to trees and other woody plants, forming a living collection of trees intended, in part, for scientific study.¹ According to the Regius Keeper of the Royal Botanic Garden in Edinburgh, Professor Bayley Balfour, an arboretum is a living collection of species and varieties of trees and shrubs arranged in some purposeful method—this method may focus on properties, uses, or some other principle such as a natural likeness or common ancestry².

From the *Encyclopaedia Britannica*, the term 'arboretum' was first used by J.C. Loudon in a 1838 book titled *Arboretum et Fruticetum Britannicum* in which Loudon presented a list of all the trees and shrubs growing in Great Britain. Also presented was information on the natural history, drawings, and notes on superb examples found throughout the country. Other encyclopedic sources claim that Loudon first used the term 'arboretum' in an 1833 publication of *The Gardener's Magazine*, which he founded in 1826. Regardless of the date the term was coined by Loudon, the practice of plant collection and assemblage had long been established.

Among other accomplishments, Loudon established the design theory entitled *Gardenesque*. In this theory, attention was given to the individual plant and placement in the best conditions for it to grow to full potential.³ Nineteenth century thought was punctuated by the belief that gardens should not mimic nature, so *Gardenesque* offered a solution by introducing exotics into gardens and basing layouts on abstract shapes. According to this understanding, an arboretum is much like a *Gardenesque* planting on a much larger scale.

Loudon was very highly regarded as an English garden and villa designer as well as an advocate for urban green spaces. He was influential to many in the field of landscape design such as Andrew Jackson Downing, Calvert Vaux, as well as the first self-proclaimed professional landscape architect Fredrick Law Olmstead. In fact, Loudon was instrumental in the adoption of the term “landscape architecture” by the modern profession before Olmstead was actively designing. He took up the term from Gilbert Laing Meason and gave it publicity in his written works⁴.

The oldest recognized collection of trees to be deliberately designed and planted was the Arboretum Trsteno on the Adriatic Sea in southern Croatia (Figure 1). The Arboretum Trsteno was erected by a noble family in the late 15th century. The family designed and planted an area using exotic seeds and plants collected by ship captains from their travels upon returning to the port village.⁵ Although an exact establishment date is unknown, it was in existence before Europeans landed in the New World (1492).

The first public arboretum in England was Derby Arboretum, laid out by Loudon around 1840. Former Derby Mayor, Joseph Strutt, commissioned Loudon to design the park. Loudon adapted Strutt's plans for an immense garden and pleasure grounds with many landscaped walkways surrounded by gardenesque plantings. Also in 1840, the Royal Gardens at Kew in southwest London were adopted as a national botanical garden. This was a period in time when plant collections and botanical gardens were used to display the extent of a nation's power and might and its ability to make new discoveries - both scientific and economic. Essentially, the further away from one's own country a collection was made, the braver the explorer, the smarter the scientists, and the more powerful the country⁶. At this time, an area's native flora had considerably less value than exotic plant introductions.

In the United States, Harvard University's Arnold Arboretum is one of the oldest, largest, and most famous arboreta. It was established in 1872 on 125 acres of land in the Jamaica Plain section of Boston. The designers, Charles Sprague Sargent and Frederick Law Olmsted, were confronted with the question of how to arrange the collection of woody plants envisioned for the new Arnold Arboretum. Their goal was to show relationships among the various genera and families of plants by placing related groups in close juxtaposition, thereby enhancing the educational value of the collection and permitting easy botanical comparison. They followed the natural classification system of Bentham and Hooker, a method of plant systematics which was widely accepted by botanists of the time. A few exceptions were made to that overall planting scheme because ecological requirements of the plants were not met by the sequence of classification or for aesthetics reasons⁷. The present living collection includes nearly 14,400 individual plants representing over 4,200 taxa and occupying an area of 265 acres⁸. The Arnold Arboretum is undoubtedly one of the most valued arboreta in the world.

The taxonomic arrangement of individual representatives of different species certainly demonstrates our ability to understand and classify plant taxa. There remains a tremendous need for taxonomic study of remote geographical areas, particularly tropical floras, but the need for a narrowly taxonomic approach to collections of higher plants from temperate regions is now less pressing.⁹ More critical is an understanding of the functioning of plant communities and the working relationships between plants, biotic, and abiotic components of the surrounding environment.

As a contrast to the systematic method of specimen representation, the Arboretum at the University of Wisconsin in Madison is an example of a study collection devoted to the ecology of a region rather than plant systematics. Founded in the 1930s, it was a Civilian Conservation Corps project which restored a body of land to its presettlement state, making it the oldest and most varied collection of restored ecological communities in the world¹⁰. The path was

laid by Aldo Leopold's prairie restoration experiments in Wisconsin which focused on entire prairie plant communities. Leopold placed the highest value on native plants and considered non-native plants as an unwanted part of the flora. The arboretum now encompasses 1,260 acres and serves to exemplify a variety of native ecosystem types of Wisconsin such as tallgrass prairies, savannas, and a variety of forest types and wetlands.

This second type of collection marks the beginning of a slow shift in focus for many arboretum spaces throughout the world. Rather than having the individual species or a variety being the primary unit of collection, the plant community approach, with all of its complexities, has taken the leading role. Many contemporary public gardens attempt to blend these historical trends in different proportions in an effort to satisfy a variety of users. Arboreta - especially in the public realm - work hard to fill both roles of representing the cultural values of earlier plant collections with the more modern ecological perspective¹¹. As a result, a sort of eclectic hybrid of seemingly incompatible values has emerged. I wonder what this type of arrangement of plants means to collection visitors. Perhaps more important, what type of message does the collection convey? This question is exemplified in Bennett Arboretum; the oldest public arboretum in the state of Michigan located approximately 20 miles west of Detroit in western Wayne County.



Figure 1: Location of the Arboretum Trsteno in Croatia, the oldest recognized arboretum in the world¹²

History of Bennett Arboretum in context of Southeast Michigan

Bennett Arboretum was established in 1936 by forester Jesse Merle (J.M.) Bennett as a showcase for a variety of hardy ornamental and native trees. Grouped loosely in a systematic manner, the collection was a testing ground for street trees to be used in the county. It was also a demonstration to the public of the importance and beauty of individual tree specimens and, in particular, of the value that trees could provide to the surrounding public and private landscape.

Prior to today's dense habitation in Wayne County, the landscape was dominated by beech-sugar maple forests and hardwood swamps¹³ (Appendix A). As a resource-rich and highly-productive area the area was a target for settlement. Much of the timber was harvested and the lowlands were drained for agriculture. This area was one of the first to be settled in Michigan and consequently, one of the first to be depleted of its natural resources. Additionally, as the area grew in population and activity, severe erosion especially along the waterways became a consistent problem.

Along with the population boom of the area, came the popularity of personal transportation. In the late 19th century, the creation of County Road Commissions grew out of the Good Roads Movement. The impetus for this effort was provided in 1879 by a group of bicyclists called the League of American Wheelmen, concerned with the road conditions. In addition, the introduction of the gas powered vehicle in 1893 and the concern for safe, comfortable driving conditions further shaped the way transportation and roadside development occurred. Within a few years, Southeast Michigan became the experimental testing ground for automobiles created by Charles King, Henry Ford, and Ransom Olds. The Wayne County Parks System was developed hand-in-hand with the automobile industry during the late 19th and early 20th centuries. This unique relationship influenced the development pattern of the park system as it united rivers with roadways across the landscape¹⁴.

With numerous engine-manufacturing plants and investment capital gained from the timber and agricultural industries, Michigan became the nation's center of car production. The Wayne County Road Commission influenced transportation immensely by revolutionizing paving techniques, resulting in the installation of the first mile of concrete pavement in 1909. The importance of developing standards for road construction and maintenance grew as more roads were needed. So too did the desires of the population for park and recreation spaces.

The Road Commission began purchasing lands for road development. One major concern for the Road Commission, however, was where to build the much needed roads. In 1915 a separate set of Park Trustees were created to survey the county for the creation of a comprehensive system of parks and roads on the best sites available – those that would be able to put people in close proximity to natural surroundings while creating protection by limiting development in the area. Specifically, the Park Trustees were concerned with the damage along the rivers and the widespread erosion that took place following the rampant development of the area. They recognized there was a need for protection of the rivers from sedimentation and pollution. These rivers serve a much larger area beyond Wayne County, providing drainage for a great portion of southeast Michigan (figure 2). The Park Trustees saw this as an opportunity to create protection in the riparian areas while providing places of respite and opportunities for recreation for the growing population.

Although the development of beautified roadways, recreational facilities lining roadways, and similar venues were not new concepts, two noteworthy individuals did a great deal to facilitate the advancement of these concepts in Wayne County. As the Road Commission continued to devise ways to develop the roadway network throughout the county, they hired Leroy C. Smith, an engineer for the State Highway Commission, to be acting manager for the Wayne County Road Commission in 1918. In 1922, the Road Commission hired J. M. Bennett as the director of Wayne County Parks and Forestry. Bennett was later appointed

Park Superintendent in 1925, fully establishing the Park Department through the Forestry Department of the Wayne County Road Commission. Together, these visionaries helped to shape the county in profound ways.

Transportation needs reflected the area's population growth and the emerging acceptance of the automobile. Between 1900 and 1920 the population in Wayne County increased by 828,000 people to a total of 1,177,645 people¹⁵. Throughout the 1920s, roadway planners recognized that the rise of the automobile industry would soon change the county's rural character. Parks and stops along the roads became increasingly desirable for users of the new roads and it fell on the Road Commission to provide those amenities. In 1925, the Commission acquired 16 acres west of Northville Road that would constitute portions of the Bennett Arboretum property and Cass Benton Park. This purchase marked the establishment of what later would be known as the Middle Rouge Parkway.

An advocate for parks and land preservation, Leroy Smith spoke out about his concerns over growth in the area. He warned that "an industrial center like Detroit is likely to place too much emphasis on the commercial highway and partially lose sight of the beautiful and restful places which still may be preserved."¹⁶ Smith also recognized the transportation and recreation opportunities presented by the rivers winding through the county. He persuaded the Road Commission that residents of the county could benefit from the rivers and tributaries by edging them with multiple-use parkways.

As the Road Commission manager, Smith promoted his idea while emphasizing the importance of balancing development beyond roads in those areas, with public access. In 1929, Wayne County Road Commissioner Edward Hines announced the development of a parkway on large sections of land along the Middle Rouge River between Plymouth and Northville already owned by the county. Planned development was a sign of good things to come at these park

sites. Due to their popularity, crowding and park over-use was becoming a problem (figures 3 - 4).

The development of parkways were gaining widespread support across the nation. Parkway are limited access highways that restrict commercial vehicle travel. Modeled after the 23.9 mile Bronx Parkway (figure 5) which opened in 1925, Wayne County was one of the first in the State to launch a parkway plan in an effort to support this new style of roadway. Many parkways had design requirements concerning elements such as views, capacity, architecture, and landscaping in an attempt to fully display the area's natural characters and minimize the effects of the road construction¹⁷. According to Smith, "Such a drive, winding through a valley flanked with wooded slopes and rolling hills will be unequaled as a parkway development." The purpose of the parkway was two-fold: to decrease traffic congestion on other routes, and to serve "the individuals who need fresh air, sunshine, and care free recreation" said Smith¹⁸.

After the Depression began in 1929, additional large tracks of land were acquired through delinquent property tax land turnover. Even though the Road Commission was financially strained at this time, Leroy Smith aggressively pushed for land acquisition following the parkway plan. He continued development of the parks through Work Relief Programs and the Civilian Conservation Corp¹⁹.

As Park Superintendent under the guidance of the Road Commission, J.M. Bennett helped the Wayne County Road Commission become the first in the country to institute a systematic program of roadside development by planting trees. Additionally he wrote several books on roadside planting and beautification that brought him national notoriety. Bennett completely reversed the traditional forester activities by planting trees instead of cutting them down – a position that eventually spread throughout the country. As the Director for the development of the park land in the county, Bennett arranged for the planting of an estimated

200,000 trees and shrubs along roads, boulevards, and parks. His contributions to the development of the area included the arboretum area to demonstrate to citizens the wide variety and importance of trees to be used in such applications. The arboretum, not unlike other arboreta in the country at that time, was intended to serve as an outdoor museum of trees for people to see specimens from around the world. Knowing that many native trees were not suited for urban conditions and roadside plantings, Bennett also looked to the arboretum as a testing ground where the performance of many non-native trees could be evaluated for their application to roadside planting²⁰.

Under Bennett's leadership the arboretum became a popular reality. Joseph Witwer, Assistant Director of the Parks Department, directed the planting of the trees and shrubs beginning in 1936. Originally, 475 trees were planted from Seven Mile Road to Reservoir Road on both sides of Hines Drive. Also in this area, Bennett initiated some of the first roadside comfort stations for travelers (figure 6). The comfort stations supported the high activity of park use and allowed for the extended stay of many of its users. These comfort stations, or "travel lodges" became the precedent for many of the freeway rest stops seen today.

As time went on and development in the area continued, the county transportation master plan was revised twice (1935 and 1939). New versions were more ambitious, larger in scope (including areas in four adjacent counties) and incorporated more greenway spaces. The 1939 plan proposed the connection of the three Rouge Parkways to the Huron Parkway forming a network of parklands running north and south through the county. The proposal to establish a regional park authority soon passed in the five counties. However, there were limited acquisitions of land in Wayne County and the full connection of a river and parkway system, as established in the 1939 Parkway plan, was never realized. Currently 13 Metroparks along the Huron and Clinton rivers cover almost 24,000 acres²¹.

At the same time as the road building program, Henry Ford was enthusiastically acquiring six old grain mills, along the Rouge to convert into "Village Industry Plants" or machine shops for automobile production bases around small communities. The Wayne County Road Commission made road improvements and constructed new dams in four areas between 1920 and 1933. Those mills were later incorporated into the park system between 1937 and 1944.

For decades, the upper Middle Rouge Parkway and Arboretum were used as a destination place for recreation. In the Arboretum, the variety of trees began to mature and Bennett's idea of creating a living museum and testing ground for trees tolerant of urban conditions was a reality. The area was an immensely popular get-away for many people in Wayne and surrounding counties. At the same time that many villages and towns in Wayne County were growing, county park land was being neglected and just a handful of parkland advocates continued to fight for the continued acquisition and upkeep of county owned land. A lack of dedicated funding for park development limited the county's ability to fulfill its improvement plans and maintain its existing grounds.

According to park historians, in the mid-1960s the management of services became hampered by political deals that, over time, hindered park operations; staffing and equipment were cut time after time. In the decade following, the parks began to develop a negative reputation and were often avoided. In November 1979, following major recessions, increased rates of unemployment, and decreases in population, the Wayne County Road Commission cut all funding to county park operations and closed the parks.

Following a Home Rule Charter vote in 1982, which changed the Parks Department to a non-mandated department in the county, the parks continued to struggle. Two years later the Road Commission was eliminated and control over the parks shifted to the Department of Public Service, where funding became a lower priority behind other social services in the county²². Eventually, an organization, the Friends of Wayne County Parks, was formed to raise funding

and awareness of the park. Unfortunately however, all parkland in the County is zoned as “surplus property” with no deed restrictions. This makes it an easy target for development²³.

In August of 1996, a millage passed, marking the first time in the 81-year history of the parks that dedicated funding was secured. As a result, some renovations are taking place throughout the parks. Sports fields, picnic centers, restrooms, and the like have been constructed and repaired. One of the biggest success stories is the Nankin Mill. The former gristmill, which dates to 1843, was closed for an extended period of time and has been restored and converted to a Nature Center with interpretive outreach programs that is open to the public.

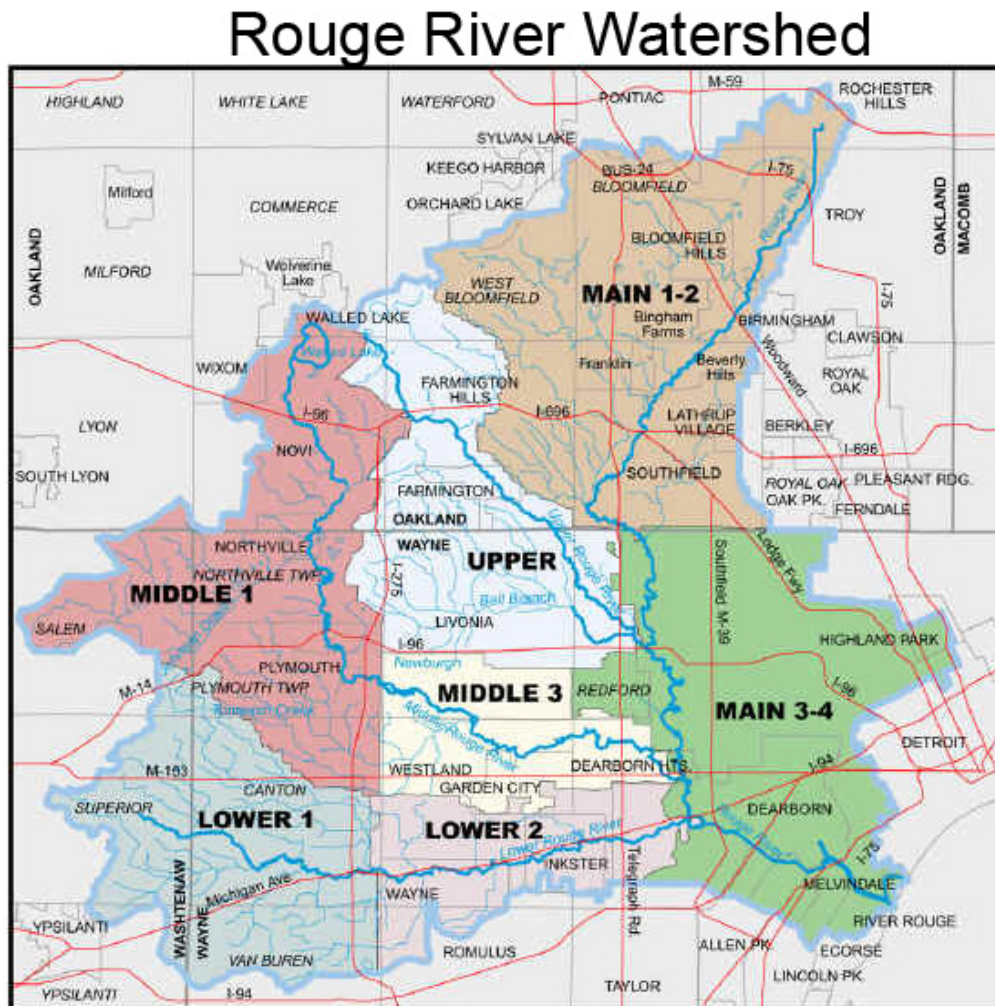


Figure 2: Rouge River Watershed in southeast Michigan²⁴



Figure 3: Early 20th Century activity in the Wayne County Parks is linked with the development of roads and the automobile



Figure 4: Wayne County parks as a destination and center of activity in the early 20th Century²⁵



Figure 5: Bronx River Parkway in the early 20th Century: A model for development of a parkway²⁶



Figure 6: A comfort station in Wayne County intended to provide necessary services to motorists and park users²⁷

Present

Bennett Arboretum Today

An incredible framework for linked parks was established by the early members of the Wayne County Road Commission, yet it has never been fully achieved. In order for a sorely needed revitalization of the park to take place, there needs to be specific plans put in place to gain community support. However, it is important to consider that these plans will take time to establish and maintenance will be an ongoing responsibility. Maintenance recommendations appropriate for the Bennett Arboretum are included in the 2005 Master plan.

With the growth of the Detroit suburbs, Hines Drive has evolved into an extremely popular commuter route. People traveling from Northville to Dearborn, for example, use it as a way to avoid the state freeways and the stop-and-go of the "mile"²⁸ roads*. Today, more than 22,000 vehicles use Hines Drive each day²⁹. Many of these users however, have no idea of the rich history of the area, or even of the existence of the state's oldest public arboretum.

Currently, there are a large number of users of the park and Arboretum. These users include local residents, Arborists, Soil Conservationists, School Cross Country teams, tree and garden clubs, universities, area industries, school groups and the like. However, the Bennett Arboretum remains a hidden treasure to many who quickly drive by along Hines Drive.

The importance of this area is especially critical as the rural landscape in the county continues to be consumed by residential development. The importance of green space and opportunities for recreation in people's lives has long been

* The mile roads are a series of East-West Roads which delineate parts of southeast Michigan based on an 18th century Public Land Survey System used to develop townships. The road names are based on distance north of intersections of Woodward Ave. and Michigan Ave. in the Detroit City Center.

known. “Despite the fact that humans have created massive technological landscapes, many cross-cultural studies show that we instinctively crave natural features in our surroundings.”³⁰

Tree Inventory of 2004 – Establishing a baseline

In 2003, Wayne County District 10 Commissioner, Lynn Banks approached faculty members of the School of Natural Resources and Environment (SNRE) at the University of Michigan in an attempt to establish a collaborative relationship with the school. Aware of the University of Michigan's Nichols Arboretum, Commissioner Banks hoped to involve the expertise of faculty and students in an updated conditions inventory of the Bennett Arboretum.

Beginning in the fall of 2003 Assistant Landscape Architecture Professor Larissa Larsen inquired about student interest in conducting a survey of the overstory tree population on the original property of the Bennett Arboretum, along the historic Hines Drive. I was immediately interested in the prospect of participating in such a task.

The primary source of information used to navigate through and inventory the Arboretum area was a four-part, hand-drawn, 1934 planting plan provided by the Wayne County Parks (figure 7). The planting plan identified the location of approximately 465 trees scheduled to be planted at the Arboretum's origin. After making several trips to the site in the late fall of 2003, I realized that the inventory was going to be a difficult task for a number of reasons. First, the area is large and part of the much larger Middle Rouge park system. The lack of delineation between different areas of the park and the Arboretum made it difficult to discern the extent of the area to be inventoried. Second, the Arboretum now included additional trees from the original planting plan. Trees that were part of the original planting sometimes varied in their location from the original planting plan. This difference indicates that the scale of the plans did not seem to be entirely accurate or consistent. Other reasons for the discrepancies between the plan locations and field placement could include unsuitable or physically difficult conditions for the installation of particular specimens.

By the summer of 2004 I had developed a systematic method for surveying the property. Using GPS equipment and GIS software provided by the Environmental Spatial Analysis Lab (SNRE) I created a spatially accurate baseline inventory of the major groups of plantings of the Bennett Arboretum. I focused on locating and documenting the conditions of the original plantings. Throughout the months of June, July, and August 2004, the inventory was conducted when the weather permitted the efficient use of the GPS equipment.

During my investigation of historical documents provided by the Wayne County Parks it was difficult to find any records of the intention behind the loosely systematic arrangement of plants (ecologically, aesthetically, educationally, or otherwise) in the Arboretum. No records of the success and survivorship rates of trees originally planted in the area. Additionally, little is known about the history of the maintenance regimes established by the Road Commission or the Parks Department for the Arboretum. Records do reveal that shortly after the development of the Arboretum, there was a relationship between students from the University of Michigan and the park that permitted the students to help maintain the original collection. Over time that relationship weakened and with declining budgets, the Arboretum collection has seen little management.

The 2004 survey focused on the areas of the Bennett Arboretum between 7 Mile Road to the north, 6 Mile Road to the south, Northville Road to the east, and Sheldon Road to the west. The survey took place along the Hines Drive Parkway, an area the Wayne County Park System today has identified as: Northville Recreation Area; Waterford Bend; Cass Benton Recreation Area, and the Bennett Arboretum. Samples were taken at the base of the presumed tree, or as close to the base of the tree so that the GPS unit could receive satellites signals. For consistency purposes priority was given to areas of each sample tree in the following order – South first, then East. The GPS unit (Trimble GeoExplorer 3) was used to record location information for each point sampled and information on the identification of the sample to the level of genus, species

and subspecies/variety. Additional observations noted included: date; sample tree condition; height; and any additional comments made by the observer - such as immediately surrounding conditions that may affect the tree itself. The predefined range of conditions observed for each sampled tree is summarized in table 1.

As illustrated by aerial photos (1964-2000) of the region, a tremendous amount of change had occurred over time in terms of land use and vegetation (figure 8). More specifically, the photos showed a clear difference in the number of trees present on the Arboretum property. As a result, there was an attempt on my part to establish the condition of trees from the original collection. Each of the trees sampled was believed to be either part of the original planting plan or had displaced a tree that was part of the original planting (and could therefore be assumed that the original tree no longer existed). Beyond that, other vegetation sampled included well-established and maturing vegetation that was in close proximity to areas that had once been planted with arboretum specimens. Much of the area was filled in with encroaching vegetation from woodlots to the north and south, but certain trees or groups of vegetation were distinctly separated. In most cases this separation meant the surrounding area had been mowed with a brush-hog style mower.

Based on the inventory results, a master plan was created in a design studio by myself and fellow graduate-level landscape architecture students in the spring of 2005 (figure 9). Following discussions and presentations with County representatives, the resulting master plan served to highlight and build upon the successes of the Arboretum and integrate the perspectives of those most familiar with it. The master plan documented the desires of the county and users which, in turn, helped the group of students recognize appropriate direction for the future of the Arboretum. The master plan provided a framework for the establishment of native ecosystem-based collections, capitalizing on the variety of topographic and microclimatic variations at the site. The master plan also sought to increase

the visibility of the Arboretum and explored a variety of ways to make the user's experience more enjoyable.



Figure 7: 1934 Planting Plan for Bennett Arboretum area

<u>Condition level classifications:</u>	
<i>Good Condition</i>	The original tree or offspring of the tree is doing well - less than ~10% dieback
<i>Pruning Required/</i>	The original tree or offspring of the tree is doing surviving, but dieback ~10-40% or the tree is doing well but more aggressive
	vegetation is encroaching as indicated by additional notes
<i>Removal/poor invasive</i>	The original tree or offspring of the tree is doing poorly, much of the crown or root system
	has been compromised or the plant is aggressively altering the site
<i>Removal/dead</i>	The original tree or offspring of the tree is dead and is a hazard if near a trail or where people congregate/gather
<u>Additional Notes:</u>	
<i>Surrounded by invasive</i>	Indicates that the trees health is being compromised by the encroaching vegetation, in some cases so much so that
	identification was not possible

Table 1: Condition level classification used during the 2004 inventory of the Bennett Arboretum



Figure 8: A series of aerial photos of the area surrounding the Arboretum: 1964 (top), 1980 (middle), 2000 (bottom)

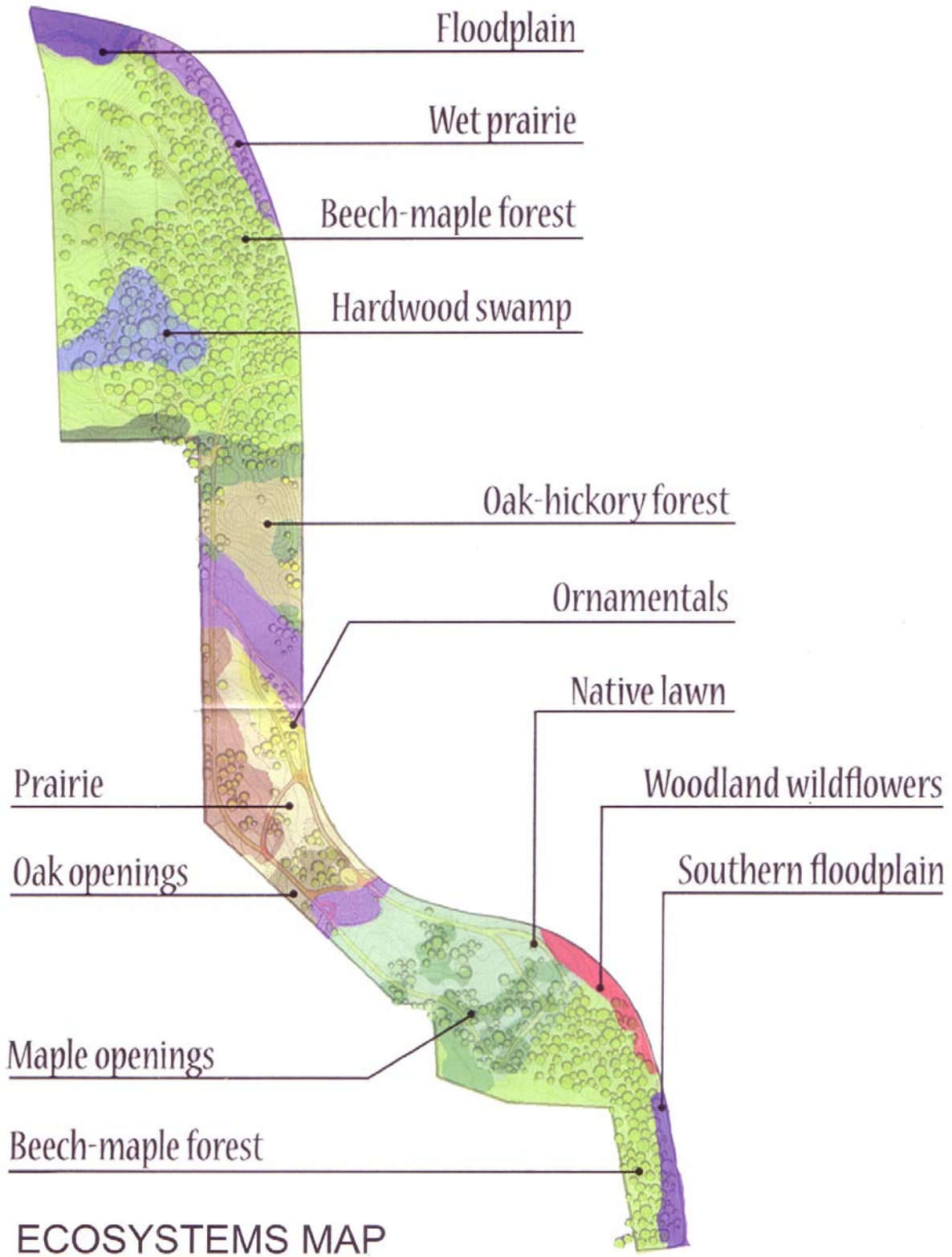


Figure 9: Ecosystem Map from 2005 Master Plan

Results of the 2004 Inventory – Current conditions compared to original planting

498 individual trees or small groups of trees were sampled, of which, 103 trees were identified as being associated with the original planting plan from 1934 (figures 10 & 11). These represented either trees that were originally planted or their offspring (in the case of plants that are typically short lived and reaching reproductive maturity at a relatively young age). The complete results of the 2004 summer inventory are summarized in appendix B.

Of the 103 trees identified as being part of the original collection, 30 require maintenance in the form of pruning, six of the remaining original collections were considered in poor condition, and seven additional trees were being threatened by encroaching vegetation. This encroaching vegetation should be removed quickly as it is both aggressively invading the area and, in general, is non-native and dispersing seed rampantly, presenting a severe threat to the integrity of the remainder of the Arboretum and the surrounding park areas. The remaining 60 trees (58%) considered parts of the original collection were considered in good health.

Often, but not always, the trees were grouped by relationship although not necessarily in a taxonomic order. For example, there is a very nice representation of the order *Fagales*, including representatives from the following genera: *Fagus*, *Quercus*, *Carpinus*, *Ostrya*, *Betula*, *Juglans*, and *Carya*. However, these plants were located in close proximity to the *Pinales*, a much more primitive order. Figure 12 shows the location by genus and health conditions of the trees of the original collection.

Additional tree data that was collected during the survey demonstrates change in composition and structure and the evolution of the site over time. This is significant especially when considering both the change in density of trees and

previously open character of vegetated spaces. It is important to consider these changes in composition and structure when considering future action. More specifically, it is important to note which of the original plantings and the additional vegetation are surviving and thriving. This indicator predicts how future trees will respond to the site. Figures 13 & 14 show the composition and health conditions of the additional vegetation that was not part of the original collection.

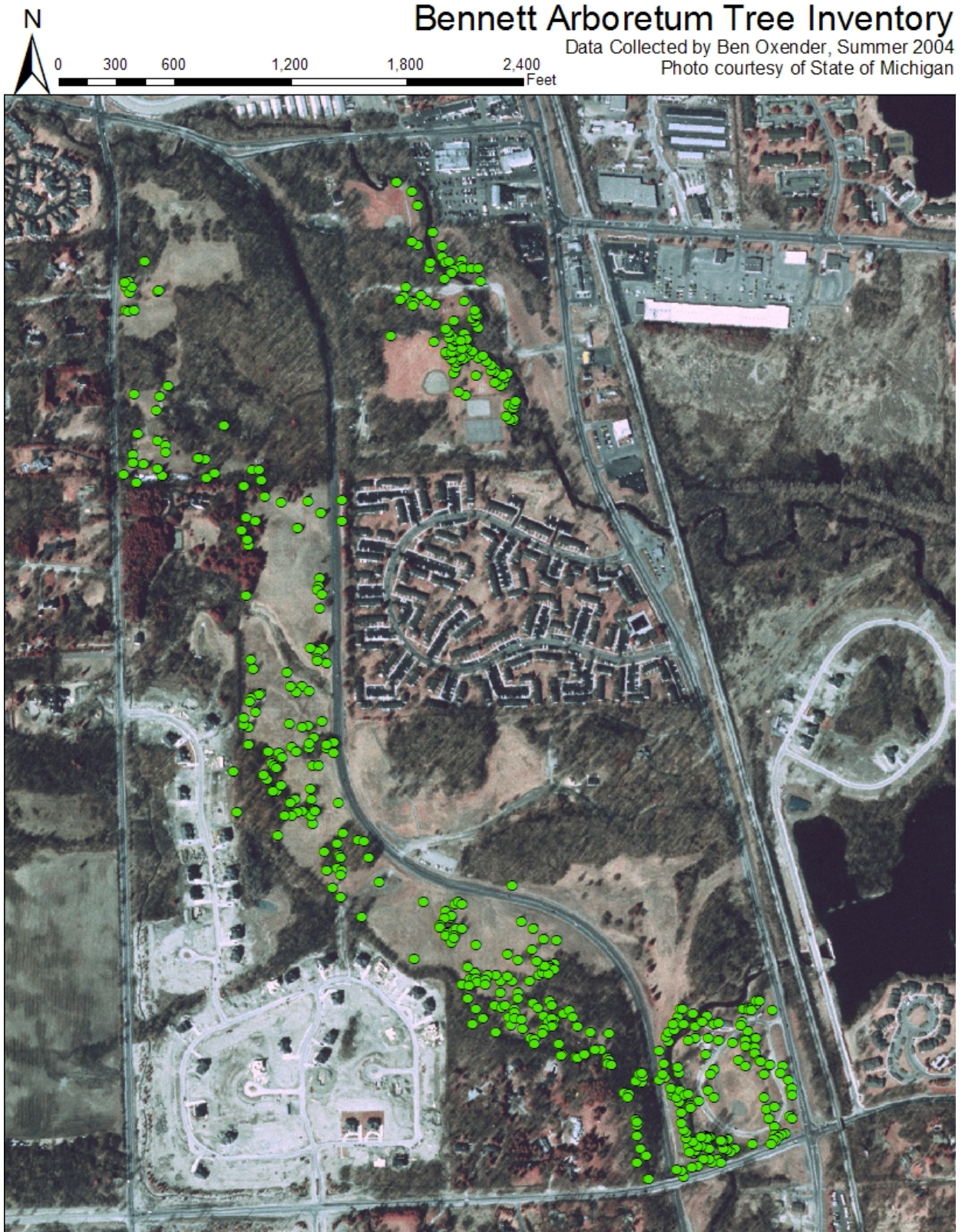


Figure 10: 2004 Inventory collection points

Bennett Arboretum Tree Inventory

Data Collected by Ben Oxender, Summer 2004
Photo courtesy of State of Michigan

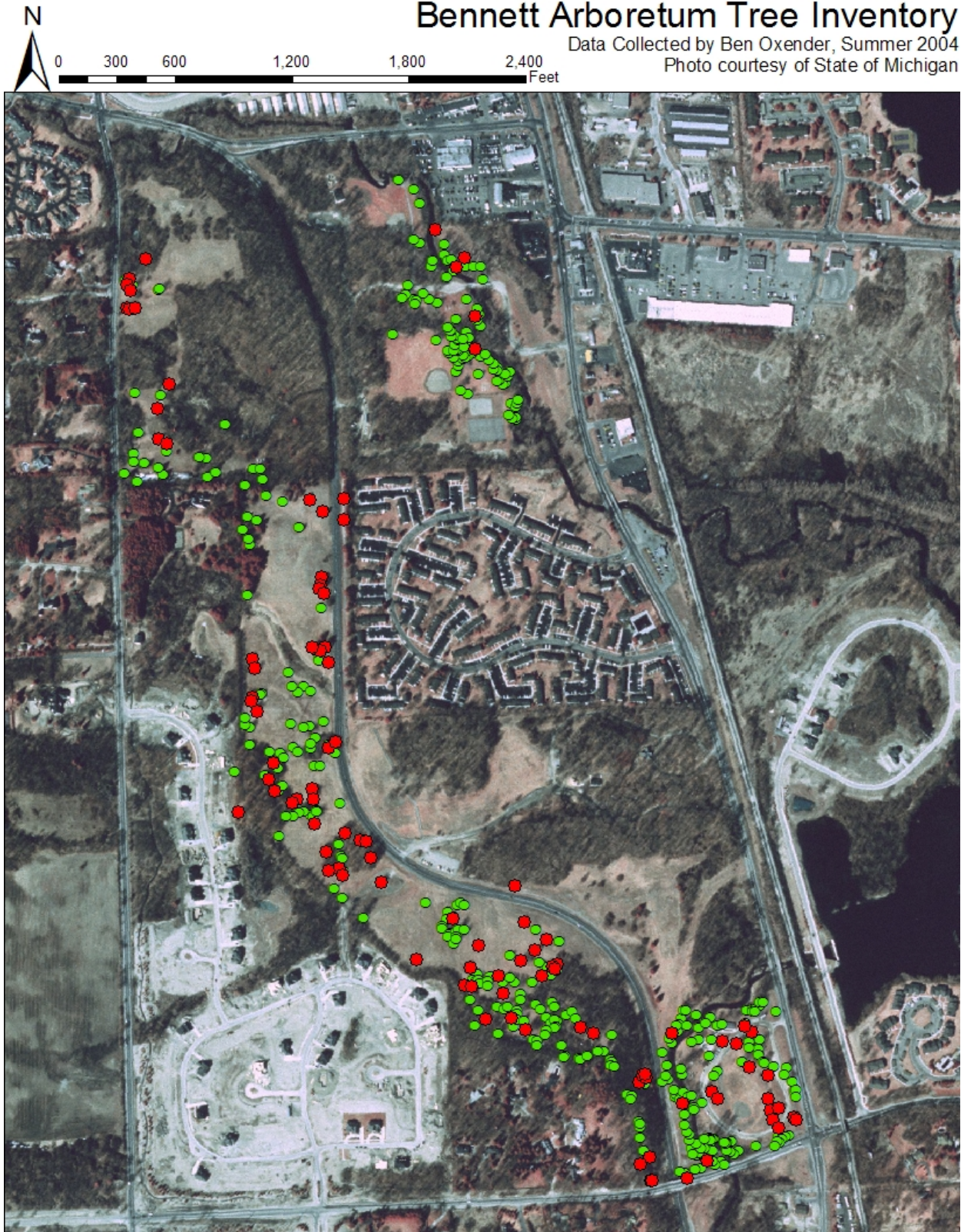


Figure 11: Trees part of the original collection (red) and total inventory collection points (green)

Bennett Arboretum Tree Inventory

Data Collected by Ben Oxender, Summer 2004
Photo courtesy of State of Michigan

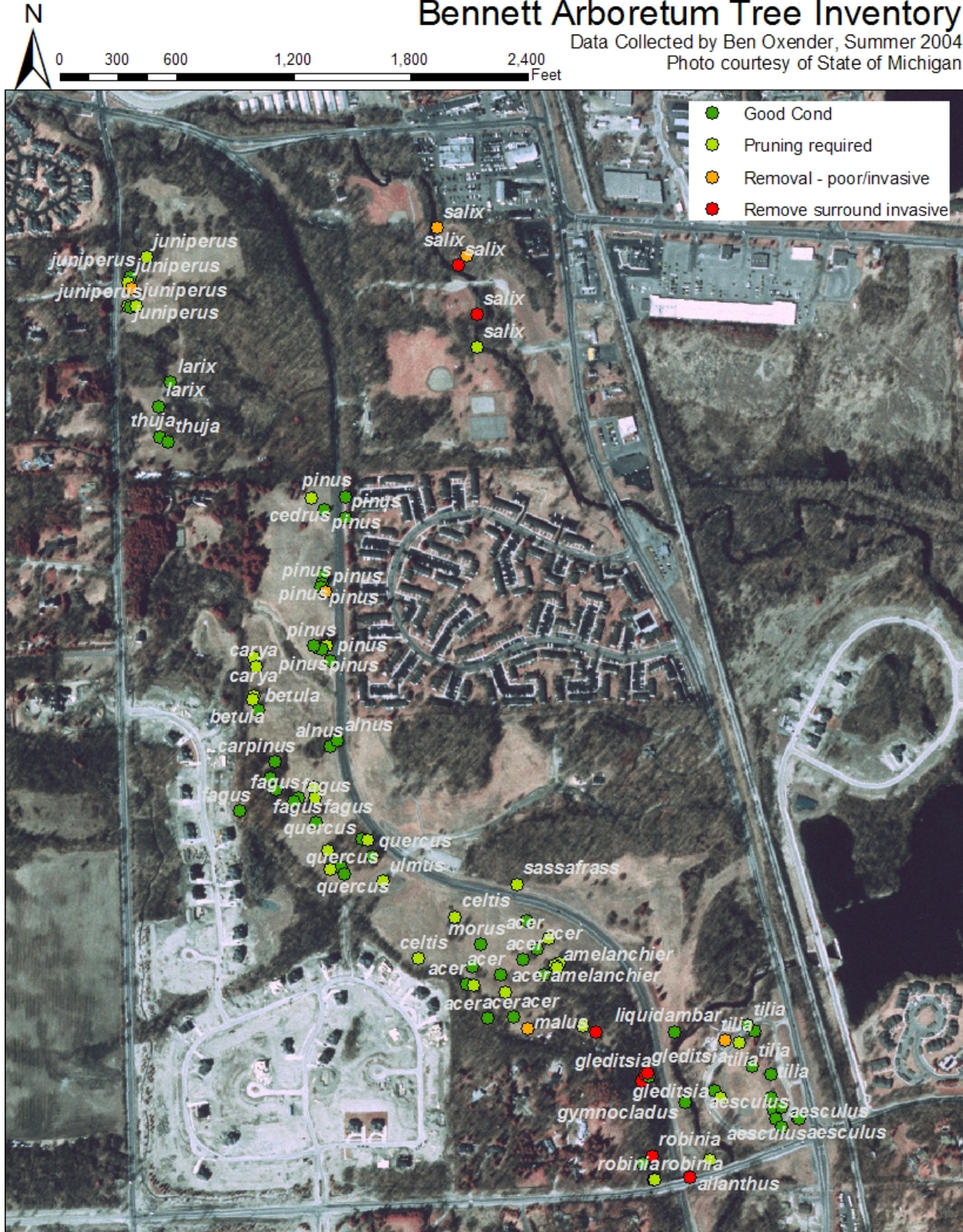


Figure 12: Trees part of the original collection identified by genus and health condition

Bennett Arboretum Tree Inventory

Data Collected by Ben Oxender, Summer 2004
 Photo courtesy of State of Michigan

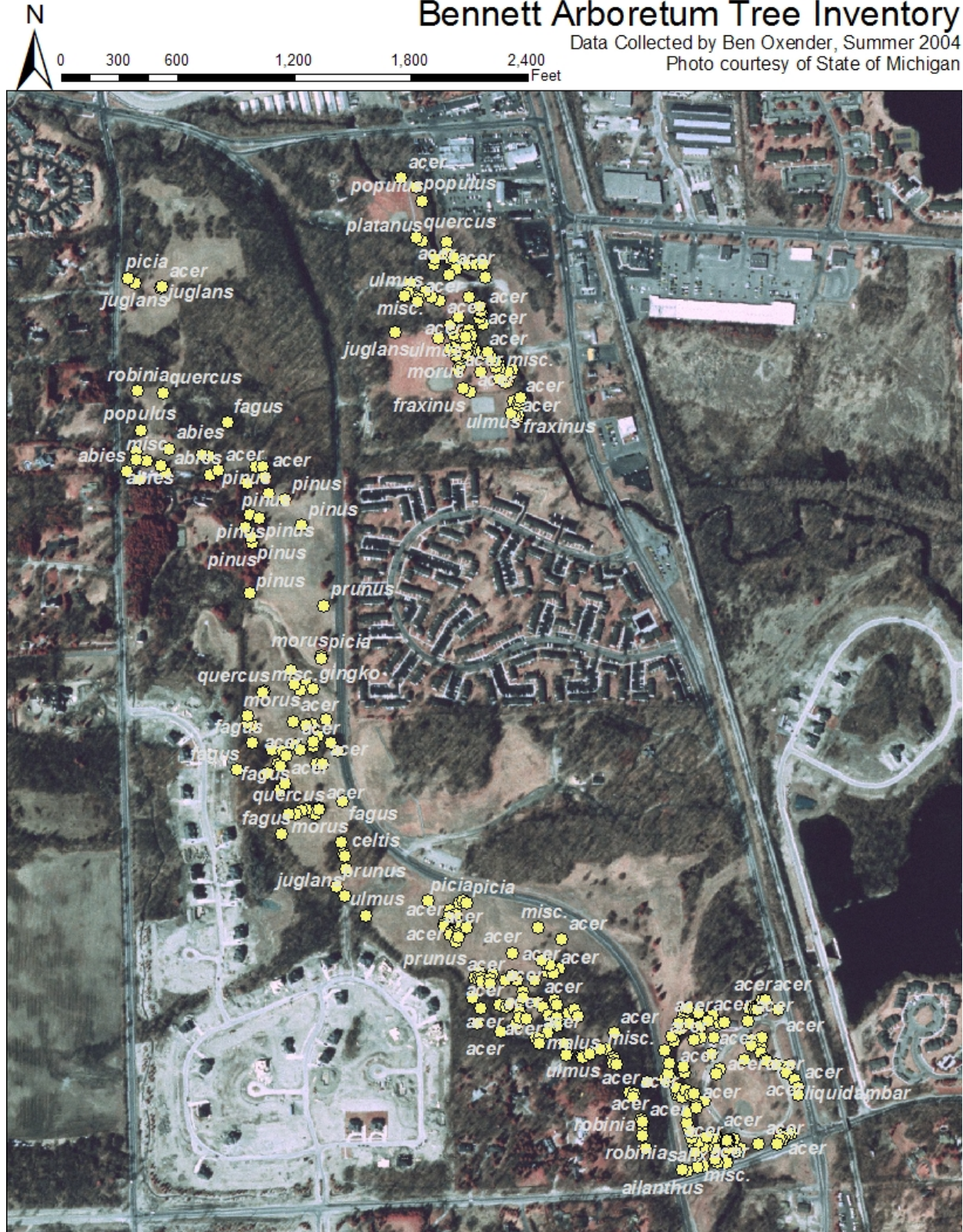


Figure 13: Inventoried trees not part of the original collection identified by genus. For a complete list see appendix B

Bennett Arboretum Tree Inventory

Data Collected by Ben Oxender, Summer 2004

Photo courtesy of State of Michigan

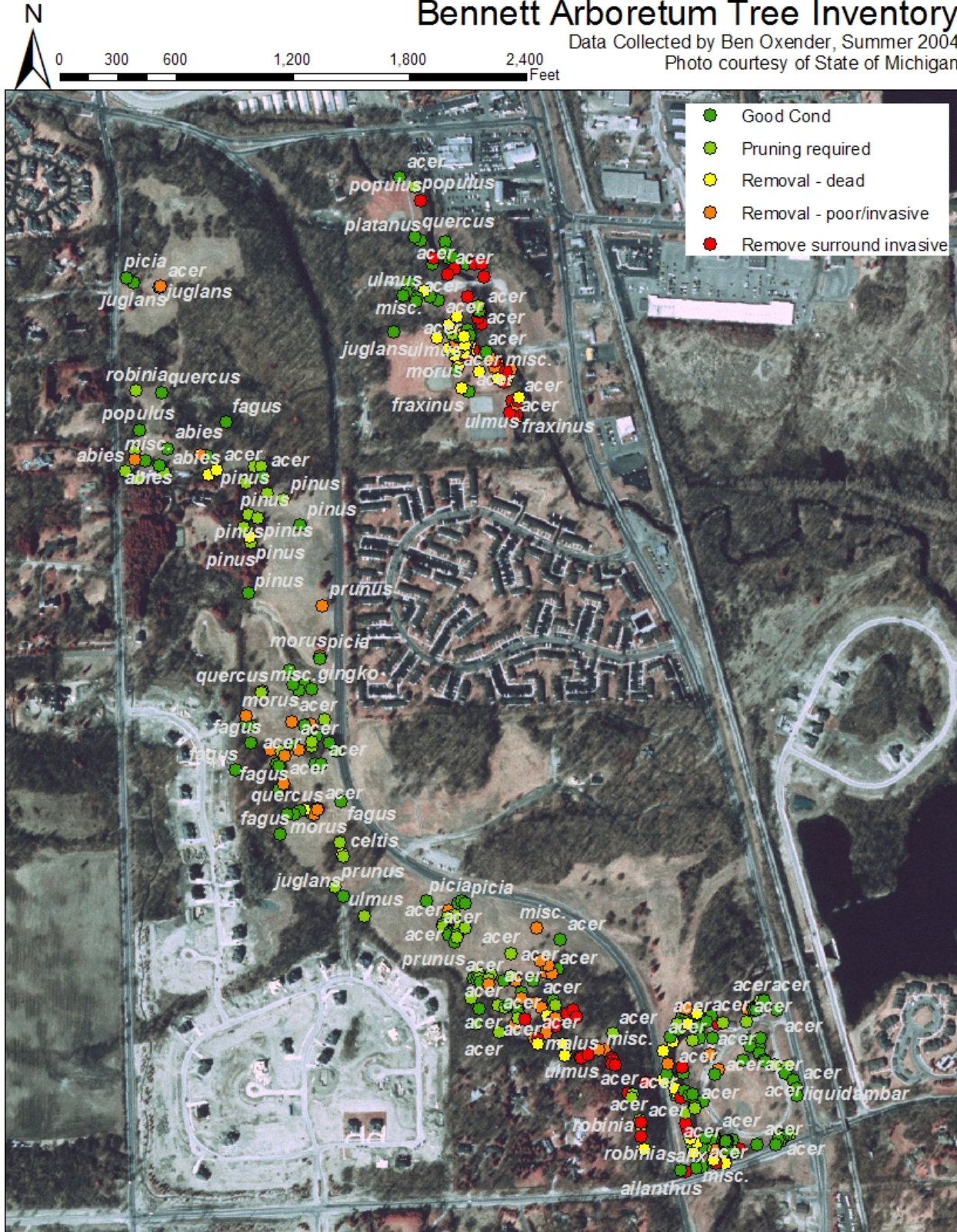


Figure 14: Inventoried trees not part of the original collection identified by health condition

Future

Planting Plan

I selected two areas of the Bennett Arboretum to include in a planting plan for the final portion of this project (figure 15). The areas were chosen based on a number of criteria including: importance to the future structural component to the 2005 Master Plan, high visibility and accessibility within the park, and the complex mix of species which requires the creative blending of numerous ornamentals into the context of an otherwise native ecosystem approach in the Arboretum. A second major element of the planting plan is to showcase a variety of both native and non-native plants that could easily be used in residential landscapes. Each of the trees will be labeled with information that will help visitors identify and understand the important characteristics of the vegetation such as: name, height, spread, moisture and light tolerances, flower time, and persistence of winter fruit. Intended to be viewed from a variety of locations within the park and from the adjacent Hines Drive, the designed areas have the potential to help restore an identity to the arboretum and create a popular destination for a higher number of area residents and visitors throughout the year.

In order to understand the individually design areas of the planting plan, it is important to look at the current use and hierarchy of spaces existing within the framework of the Arboretum. Stretching along the west of Hines Drive, the area covers a variety of topography and moisture conditions in a relatively small area. Additionally, there is a mixture of densely planted vegetation and open, park-like areas covered in turf, a feature enjoyed by many of the users. The linear shape naturally facilitates people's movement in the directions of north and south, with relatively little movement across the width of the Arboretum, except in a few notably wider spaces. The openness helps create both a repeatable pattern in the landscape and separates the different areas of mature trees. My planting design seeks to maintain the open park like settings of these highly accessible

areas and encourage the expansive views of other parts of the Arboretum. It also helps facilitate some of the major uses, including trail running and hiking.

The most consistently used trail runs almost entirely along the western edge of the property and then creates a loop to the north. The current trail location provides little opportunity for additional looping without either doubling back on a trail or crossing Hines Drive, taking the user out of the Arboretum. Until recently, this has not been an issue, as so few users of the Arboretum recognized that they were in a designed space. Certainly movement between parks for those interested should and will be encouraged; and existing trails will not be altered. However, for those wanting to stay in the Arboretum or not wanting to cross the busy Hines Drive, there should be a variety of options. By adding new trails in the proposed planting areas, users are presented with more opportunities to create loop trails for the variety of activities bring them to the Arboretum - whether it is running, dog walking, or exploring the amazing variety of vegetation present in the Arboretum.

Another consideration of the re-designed areas is the maximum utilization of successful existing vegetation. A strong legacy of existing tree species creates a structure for the new planting design. Including initial plantings from the 1930's and other vegetation that has emerged since the Arboretum was established, vegetation that is not aggressively invading the collection is incorporated and helps provide a framework for the proposed additions. This is integral to the success of the design as it transitions over time, both in terms of habitat creation for the newly planted species, and respect for the Arboretum's history.

Though the Arboretum is experiencing a shift in focus which will highlight ecosystem centered collections of native Michigan vegetation types, there is a secondary focus on the historical method of highlighting groups of natives, ornamental, and non-native (non-invasive) plants. As a result, there are two areas within the Master Plan which integrate this second focus into their design;

the Ornamental and Maple Collections. These plantings also serve to showcase a variety of hardy vegetation and educate and inspire gardeners and homeowners to use natives and carefully selected ornamentals in their home landscape. Non-natives, though potentially problematic to ecosystem health, can be used in landscapes to educate and delight senses if chosen carefully. The species selected for the re-designed planting areas are meant to compliment the existing vegetation and create a harmonious flow of vegetative structure enhancing the legibility of the space.

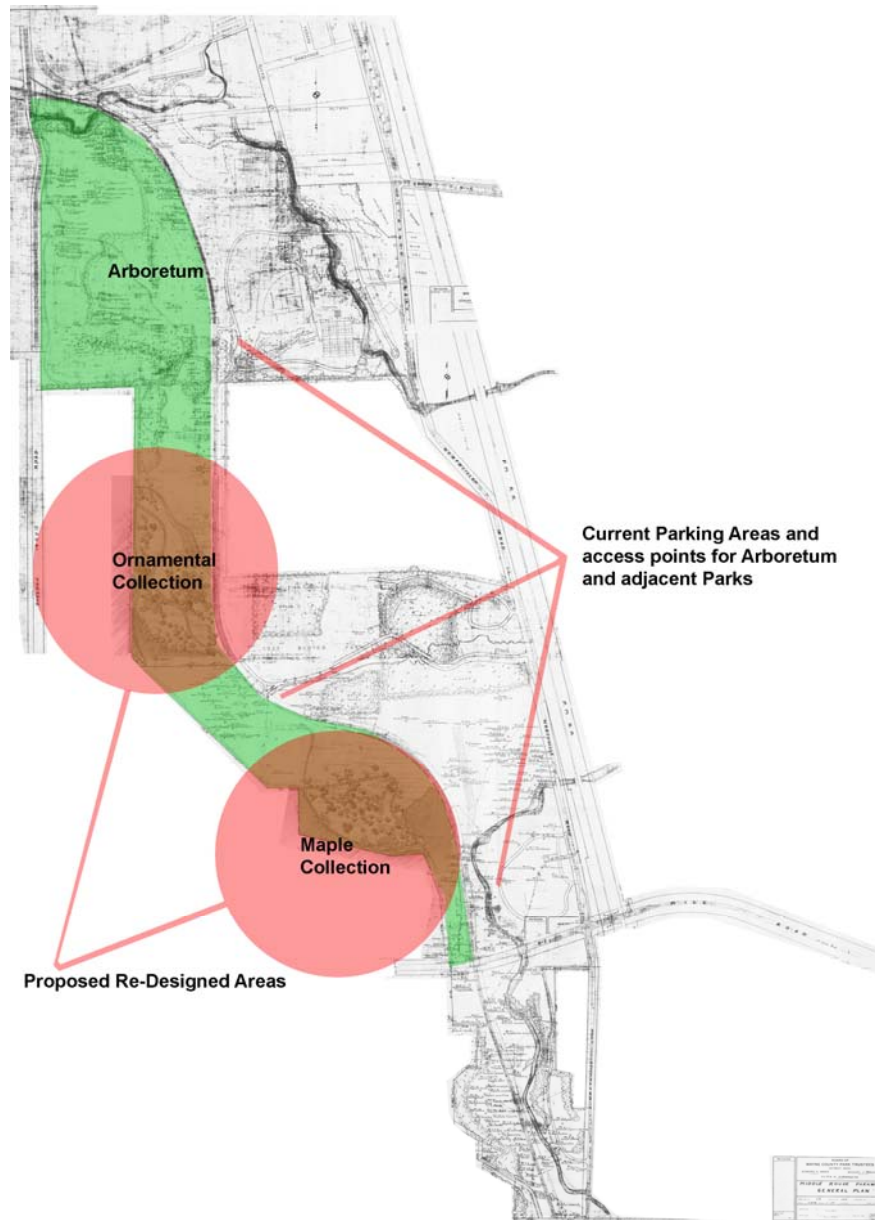


Figure 15: Proposed re-designed areas and current parking and access points

Ornamental Collection

The focus of this design is to capitalize on existing resources provided by the arboretum in creating a series of intimate spaces and views from the proposed trail system. Additionally there are expansive views to the north into the area previously planted with many evergreens. The views into the intimate spaces and along the north axis to the densely forested area are the basis for the users' experience in this area (figure 16). Individual spaces surrounding the plantings and paths are to be mown turf, which will help to create a focus on the specimens or groups and encourage users to openly use and recreate in the spaces in and around the plantings. No trails are recommended.

There are a variety of growing conditions in this portion of the Arboretum, ranging from well drained soils in higher elevations of the south to the wetter drainage area occurring in the northern portion of the area. This moisture gradient provides a variety of conditions and a foundation for the installation of a range of moisture tolerant plants. Each of the spaces serves to provide for the user a variety of experiences that highlight different features of both native and non-native ornamental plants. Each of the spaces are segmented and framed by evergreen trees which signify the entrance and exit from each distinct space. Additionally, the presence of the evergreen trees provides a cadence through the site and provides a consistent matrix of structural elements repeated in areas of the north and the south. Figure 17 represents the structural framework for a planting plan for the Ornamental Collection while figure 18 provides an example for detailed arrangement of groups of plants held together by a range of common characters. The detailed planting plan serves only as an example for the planting scheme for the entire collection area.

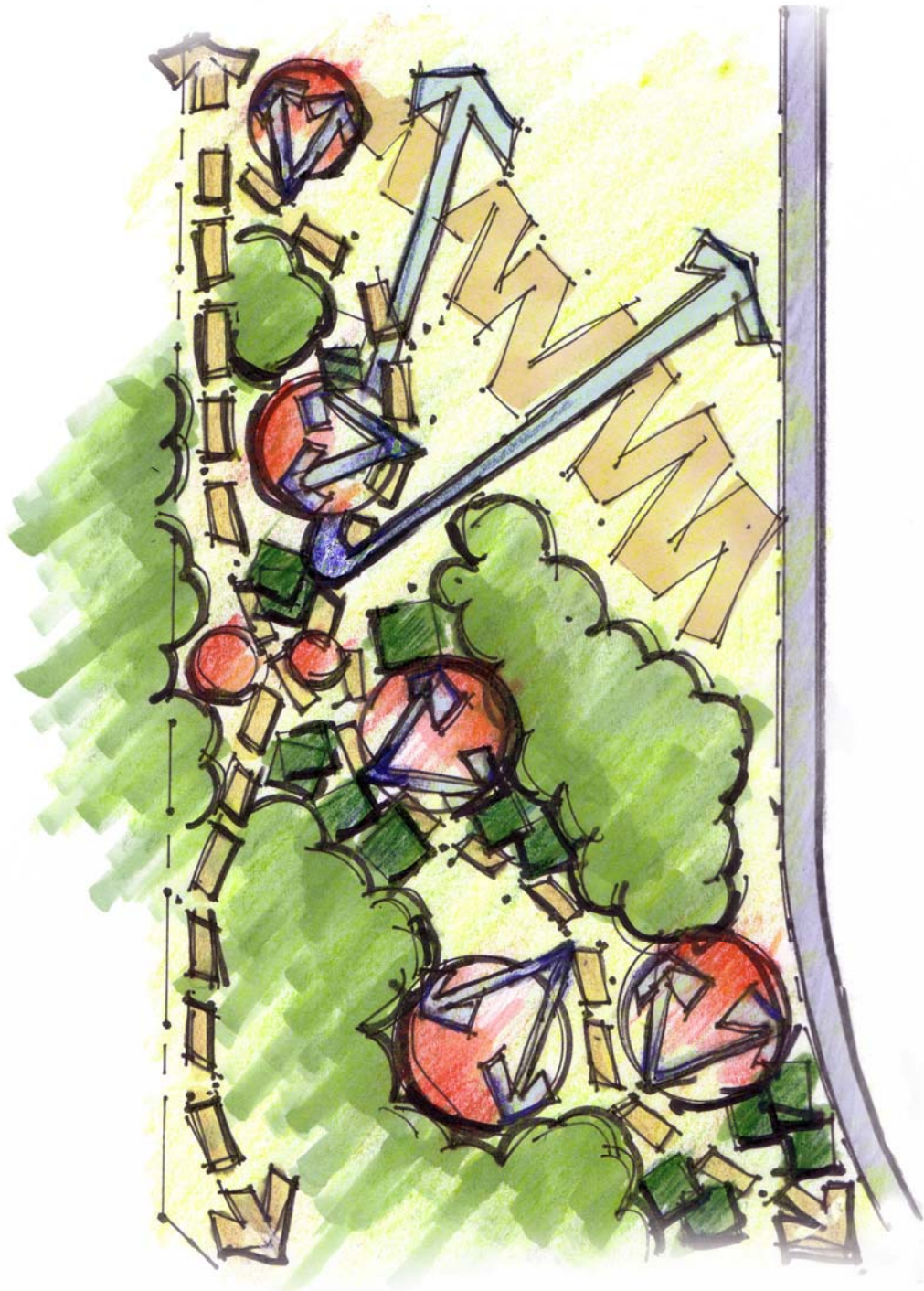


Figure 16: Highlighted views and movement through proposed Ornamental Collection. Views (blue) serve to highlight intimate spaces (red) as well as long views to the north

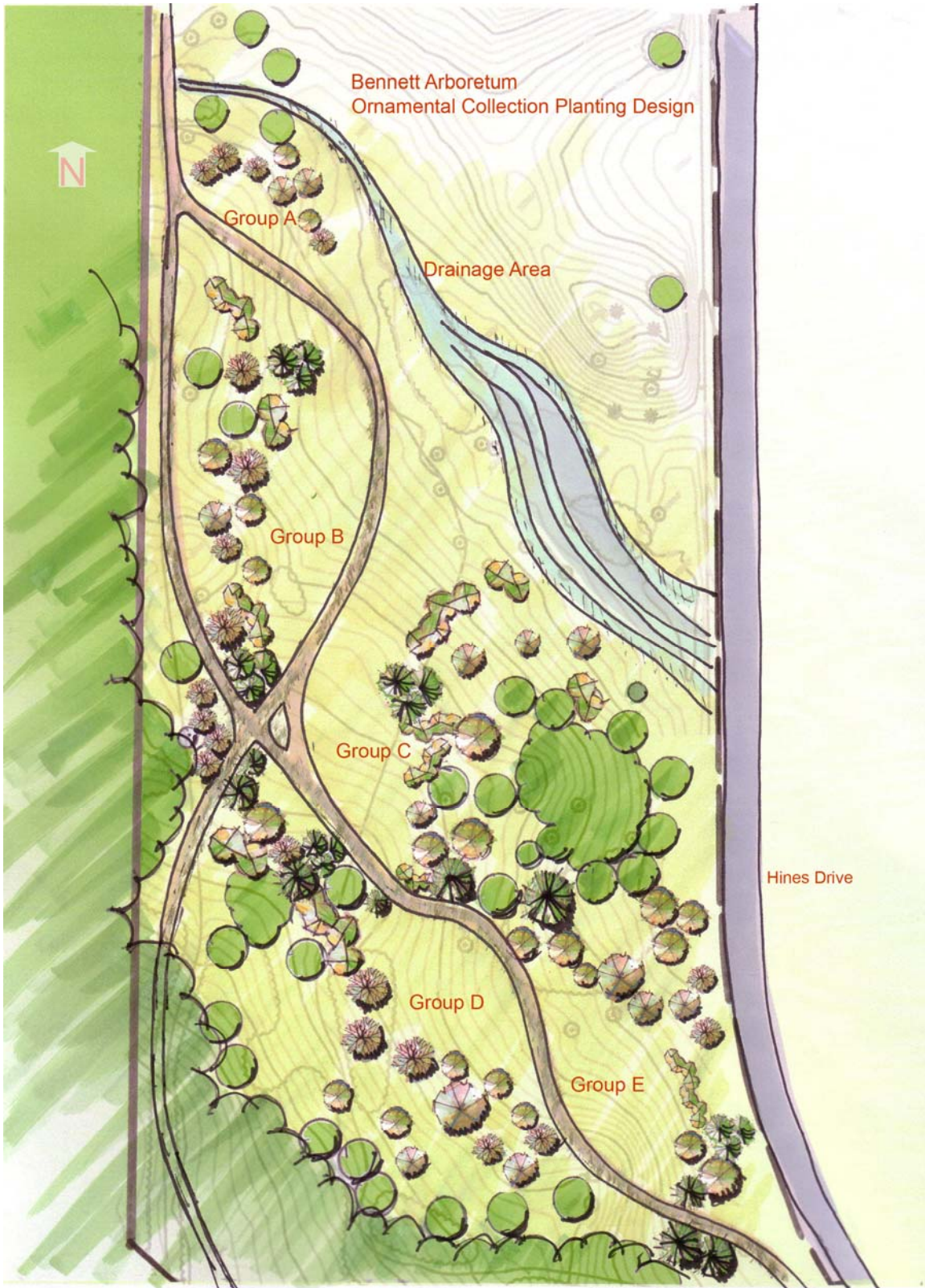


Figure 17: Proposed structure for planting plan in Ornamental Collection. Existing vegetation is solid green

Group B Detail

Moist to well-drained soils

White spring and early-summer flowers

Simple leaves

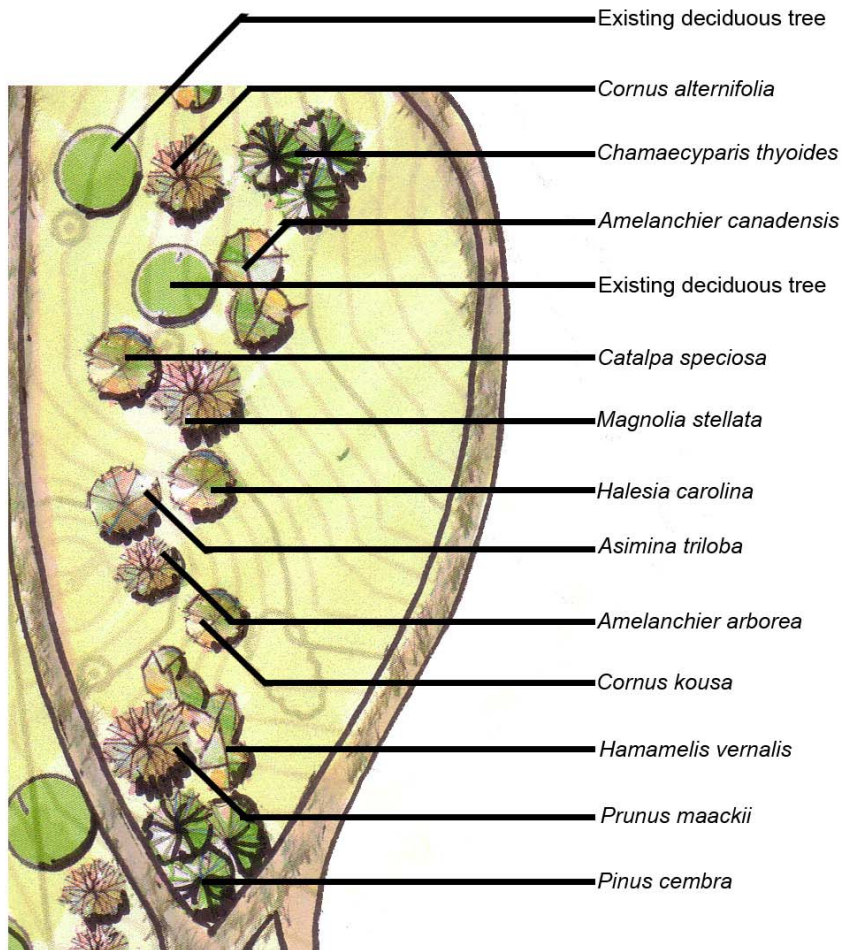


Figure 18: Proposed detailed planting plan for Group B of the Ornamental Collection as an example for organization of intimate spaces and viewpoints

Maple Collection

This collection is based upon the opportunity to represent diversity and variety within the maple genus, *Acer*, drawing upon inspiration from the historical intentions of J.M. Bennett. Currently a number of maples exist in this area, though growing conditions have changed greatly. The succession and infill of forested conditions in the south of this area have altered light conditions and is currently harboring a number of invasive non-native understory trees. The management of this vegetation is paramount to the success of this collection as well as other collections in the area. The mixed upland forest creates a backdrop and enclosure which will generate an intimate feeling while on the trails moving around the collection. However, encroaching invasive vegetation must be kept in check in order to maintain an open understory and decrease competition for the establishment of the Maple Collection.

Like the Ornamental Collection, the Maple collection organizes vegetation into groups or spaces that retain complimenting characters. One of the most outstanding qualities of many species of this genus is the beauty of the autumn leaf color. Though there are optimal views that occur from the trail around the collection, users are encouraged to ramble through the clustered collection of trees to discover spaces that are not presented from the trail. Additionally, there are fantastic views of this collection while driving along Hines Drive (Figure 19). The variety of topography in this area allows the collection to be displayed above many other parts of the Arboretum, creating spectacular views when traveling both to and from the area, especially in the fall when the leaves change to a bright yellows and fiery reds. Specimens will be arranged according to a variety of factors, such as coordination of fall color, leaf shape, and habit. The ground cover surrounding the collection and openings inside the trail loop should be a native low growing grass. Evergreen trees are used to frame views, create sequence as one moves past or around the collection and creates contrast to the collection, both in terms of color and form. A suggested structural planting plan

and a detailed planting plan are given in figures 20 & 21. The detailed planting plan serves only as an example for the planting scheme for the entire collection area.

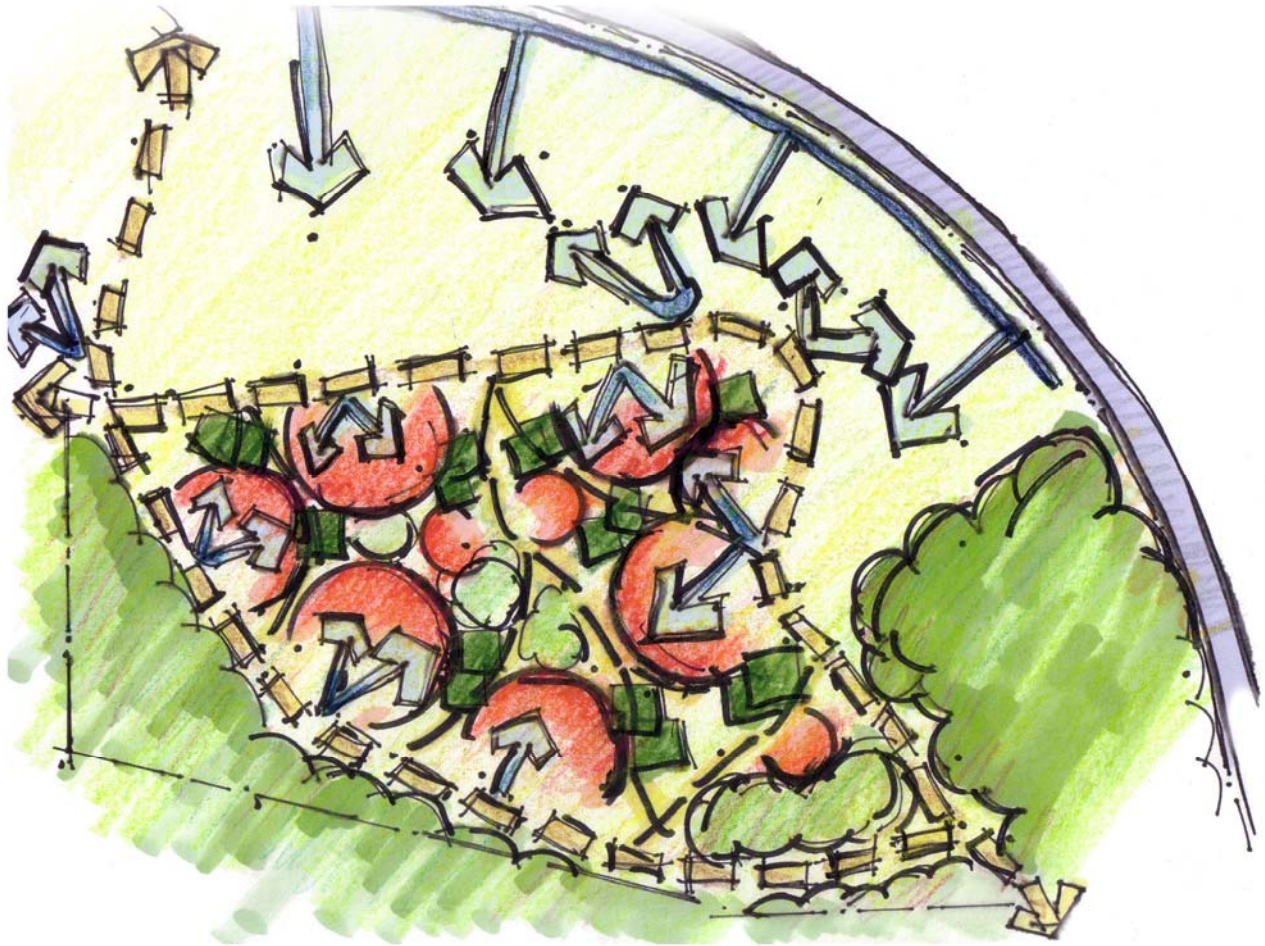


Figure 19: Highlighted views and movement through proposed Maple Collection. Views (blue) from the trail and adjacent Hines Drive serve to highlight individual spaces (red) and longer views from the road and to the north

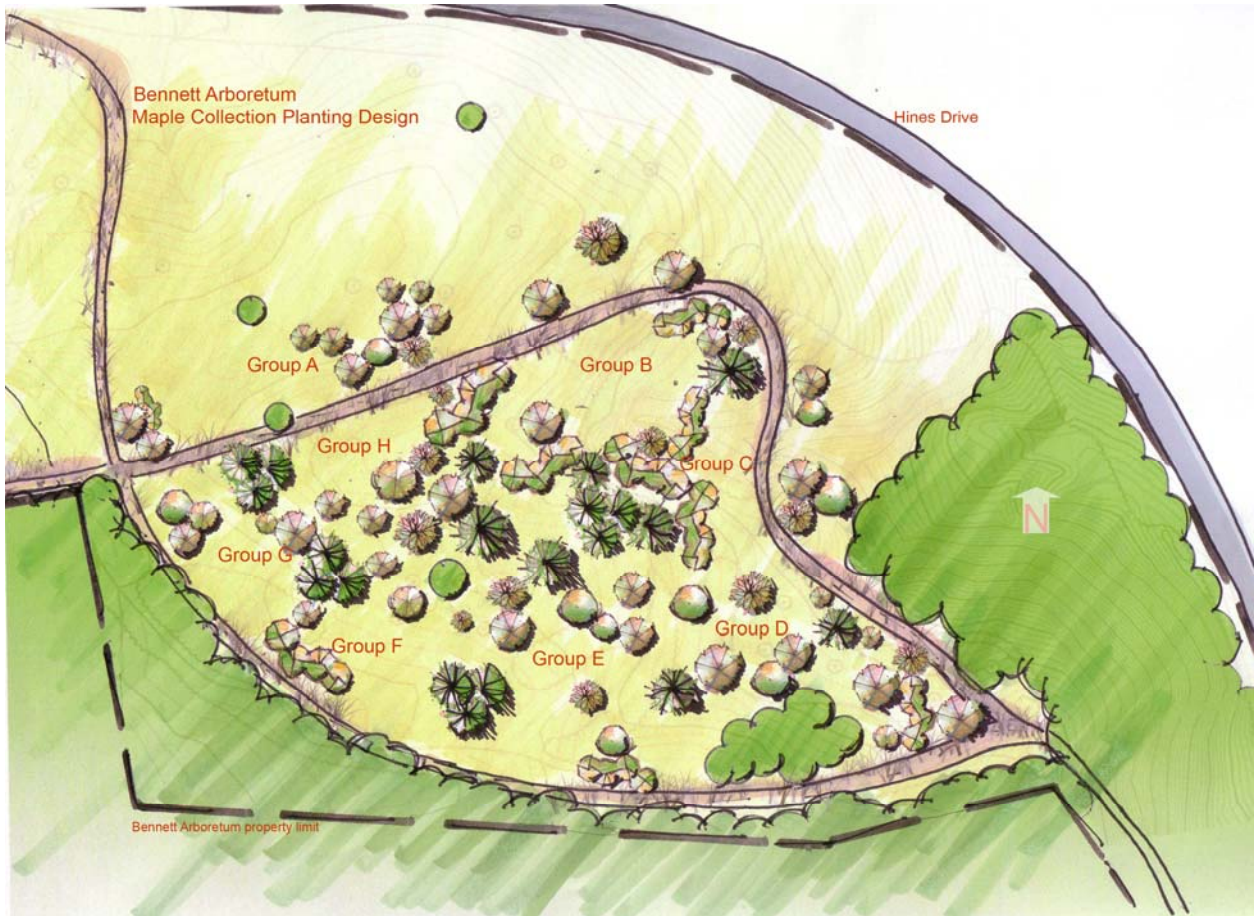


Figure 20: Proposed structure for planting plan and trails in Maple Collection. Existing vegetation is solid green

Group H Detail
 Full sun to part shade
 Strongly lobed leaves
 Yellow and red fall colors

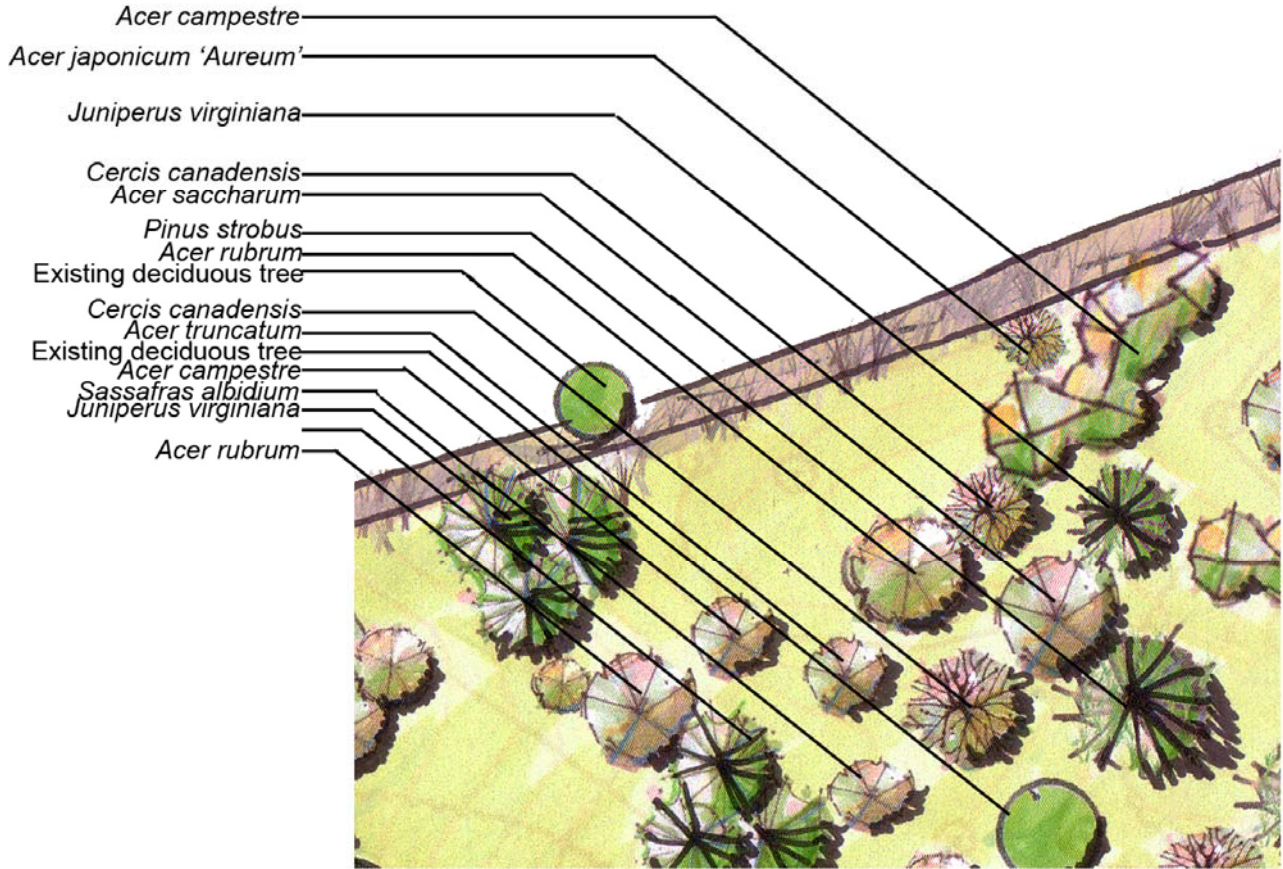


Figure 21: Proposed detailed planting plan for Group H of the Maple Collection as an example for organization of individual spaces based on unifying characters

Conclusion

The historical research for the origin and development of arboreta throughout the world informed my perspective on the importance of plant collections to people over time. By reviewing the different types of arboreta, their historical and present day intentions, and their evolving roles in society, I better understand the implications of my work within the Bennett Arboretum. The initial planning and design process focused heavily on the ability of the arboretum to sustain itself with minimal maintenance of Wayne County Park Staff while creating a destination for users and providing an educational venue for visitors to better understand native ecosystems. Later, the detailed planting design shifted the design focus on user experience of individual spaces within the Arboretum.

The results of the tree inventory of 2004, which highlighted the success of the original planting from 1934 and the flourishing recruitment of vegetation since, were used as the basis for the Master Plan created in 2005. The plan carried forth the ecosystem-based intention by instituting primarily native vegetation well suited to local conditions, while displaying diversity on a variety of landscape positions. This focus on native plants is a trend being displayed by many arboreta undertaking revitalization campaigns. This educational display is significant at a time when the general population is beginning to understand and recognize the importance of local biodiversity, the minimal management requirements of native vegetation, and the destructive nature of many non-native invasive plants.

The results of the tree inventory helped me to understand the legacy of the original plants existing on the site. Approximately 20% of trees planted in the mid 1930's are still part of the collection today. Although some of the short-lived collections are completely gone, many groups have remained relatively intact, including representatives from the Oak, Pine, and Maple groups. Site visits

helped me to observe the cultural significance of certain legacy trees to groups of users, such as the 'shoe tree', a maple tree in the southern portion of the Arboretum that cross country runners traditionally threw their shoes into following the last race of the season.

The site itself is a beautiful mix of vegetation and rolling topography providing distant views and offering a variety of opportunities for people to recreate and explore. But the Bennett Arboretum is more than another beautiful park. The diversity of vegetation and the intentions of its founders offer an opportunity for users to reflect upon the past, educate themselves about different parts of the world, and understand options for creating beautiful spaces, on a variety of scales. The proposed planting plan fully utilizes the diversity of microclimatic conditions occurring on the site to supplement the foundation of diverse plants that remain from the original collection. Additionally, the specific areas chosen to re-design, the Ornamental and Maple Collections, serve as the connection between the historical foundations of the original planting plan with its display of many non-native plants, and the revised native ecosystem oriented mission for the future of the Arboretum.

After only a short time of working at the Bennett Arboretum I recognized that it is a special place. So too did a number of visitors that I talked to who traveled many miles to use the trails of the Arboretum for an afternoon jog or chance to unwind from the stress of a workday. Also, at township meetings, where master plan ideas were presented, voices of those who used and maintained a deep relationship with the area were presented in vivid tones, ringing with sentiment and concern for change in a place so deeply engrained in their lives. Only after researching the history of the area was I able to begin to understand how easily its rich history could be lost if the story of the Arboretum was not retold to this generation.

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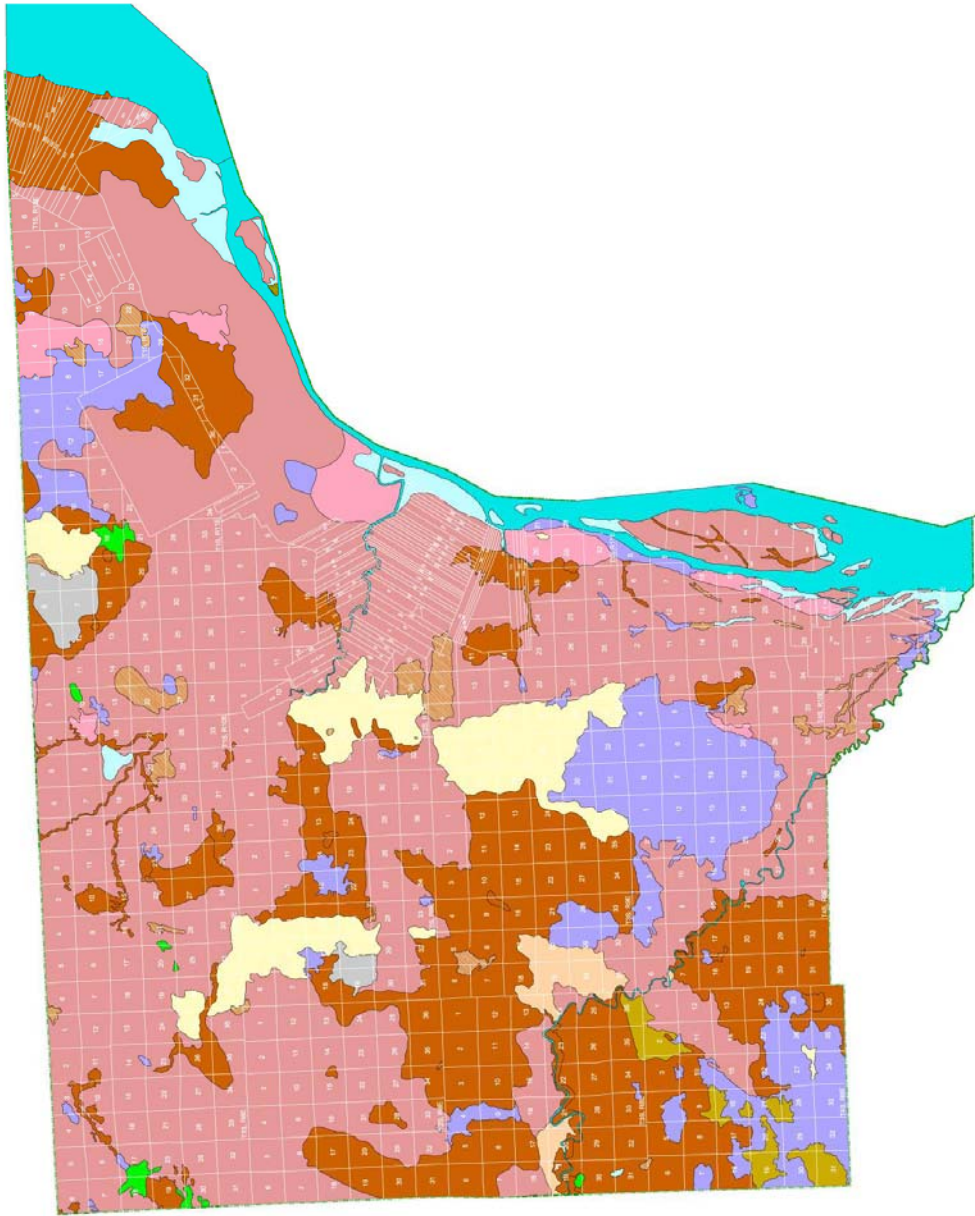
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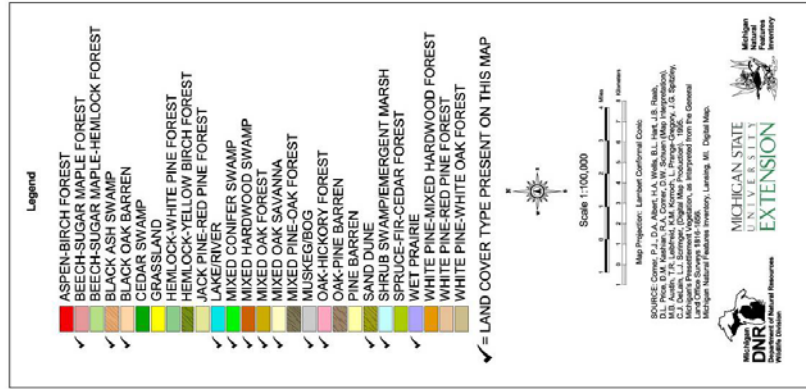
Vegetation circa 1800 of Wayne County, Michigan

An Interpretation of the General Land Office Surveys

By P. J. Corner and C. A. Albert
Michigan Natural Features Inventory
1997



Appendix A



Appendix B

BENNETT ARBORETUM TREE INVENTORY SUMMER 2004

Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
6/16/2004	1000	Quercus	macrocarpa	Good Cond		
6/16/2004	1003	Quercus	macrocarpa	Good Cond		
6/16/2004	1004	Quercus	coccinia	Pruning req'd		
6/16/2004	1005	Quercus	sp.	Pruning req'd		
6/16/2004	1006	Quercus	prinus			
6/16/2004	1007	Quercus	prinus	Good Cond		
6/16/2004	1008	Quercus	sp.	Pruning req'd		
6/16/2004	1009	Quercus	palustris	Good Cond		
6/16/2004	1010	Fagus	sylvatica	Good Cond		
6/16/2004	1011	Quercus	rober	Good Cond		
6/16/2004	1012	Prunus	avium	Removal - poor/inv		
6/16/2004	1013	Fraxinus	sp.	Removal - poor/inv		Surrounded by invasives
6/16/2004	1014	Fagus	sp.	Good Cond		
6/16/2004	1015	misc.		Removal - dead		Surrounded by invasives
6/16/2004	1016	Quercus	sp.	Good Cond		Surrounded by invasives
6/16/2004	1017	Quercus	sp.	Good Cond		
6/16/2004	1018	Prunus	serotina	Good Cond		
6/16/2004	1019	Fagus	sylvatica laciniata	Good Cond		
6/17/2004	1021	Juniperus	squamata	Pruning req'd		
6/17/2004	1022	Juniperus	virginiana cult.	Good Cond		
6/17/2004	1023	Juniperus	sp.	Pruning req'd		Surrounded by invasives
6/17/2004	1024	Juniperus	sp.	Removal - poor/inv		
6/17/2004	1025	Juglans	nigra	Good Cond		
6/17/2004	1026	Picea	pungens	Good Cond		
6/17/2004	1027	Juniperus	sp.	Pruning req'd		Surrounded by invasives
6/17/2004	1028	Juniperus	sp.	Good Cond		Surrounded by invasives
6/17/2004	1029	Juglans	nigra	Good Cond		
6/17/2004	1030	Acer	negundo	Removal - poor/inv		
6/17/2004	1031	Juniperus	horizontalis	Pruning req'd		
6/17/2004	1032	Robinia	pseudoacacia	Pruning req'd		
6/17/2004	1033	Larix	dehurica	Good Cond		Surrounded by invasives
6/17/2004	1034	Larix	lacina	Good Cond		Surrounded by invasives
6/17/2004	1035	Quercus	macrocarpa	Good Cond		

BENNETT ARBORETUM TREE INVENTORY SUMMER 2004

Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
6/17/2004	1036	Thuja	sp.	Good Cond		Surrounded by invasives
6/17/2004	1037	Thuja	sp.	Good Cond		
6/23/2004	1038	Pinus	strobus	Good Cond		
6/23/2004	1039	Pinus	resinosa	Pruning req'd		
6/23/2004	1040	Pinus	strobus	Removal - dead		
6/23/2004	1041	Quercus	rubra	Pruning req'd		
6/23/2004	1042	Pinus	banksiana	Pruning req'd		
6/23/2004	1043	Pinus	resinosa	Pruning req'd		
6/23/2004	1044	Pinus	resinosa	Pruning req'd		
6/23/2004	1045	Abies	concolor	Pruning req'd		Surrounded by invasives
6/23/2004	1046	Abies	homolepis	Pruning req'd		
6/23/2004	1047	Picea	sp.	Good Cond		
6/23/2004	1048	Abies	balsamea	Pruning req'd		
6/23/2004	1049	Abies	concolor	Pruning req'd		
6/23/2004	1050	Abies	firma	Good Cond		
6/23/2004	1051	Picea	sp.	Good Cond		
6/23/2004	1052	Populus	deltoides	Good Cond		
6/23/2004	1053	Robinia	pseudoacacia	Pruning req'd		
6/23/2004	1054	misc.		Removal - poor/inv		Surrounded by invasives
6/23/2004	1055	Quercus	macrocarpa	Good Cond		
6/23/2004	1056	Prunus	avium	Removal - poor/inv		Surrounded by invasives
6/23/2004	1057	Abies	sp.	Removal - dead		Surrounded by invasives
6/23/2004	1058	Acer	sp.	Removal - dead		Surrounded by invasives
6/23/2004	1059	Fagus	sp.	Good Cond		Surrounded by dense forest
6/23/2004	1060	Pinus	strobus	Pruning req'd		
6/23/2004	1061	Acer	sp.	Good Cond		Surrounded by dense forest
6/23/2004	1062	Pinus	resinosa	Pruning req'd		
6/23/2004	1063	Pinus	banksiana	Pruning req'd		
6/23/2004	1064	Pinus	banksiana	Pruning req'd		
6/23/2004	1065	Pinus	resinosa	Good Cond		
6/23/2004	1066	Pinus	nigra	Good Cond		
6/23/2004	1067	Pinus	sylvestris	Good Cond		
6/23/2004	1068	Pinus	sp.	Good Cond		
6/23/2004	1069	Pinus	mugo	Good Cond		
6/23/2004	1070	Pinus	resinosa	Good Cond		

BENNETT ARBORETUM TREE INVENTORY SUMMER 2004

Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
6/23/2004	1071	Pinus	strobus	Good Cond		
6/23/2004	1072	Pinus	banksiana	Removal - poor/inv		
6/23/2004	1073	Prunus	serotina	Removal - poor/inv		
6/23/2004	1074	Pinus	resinosa	Pruning req'd		Surrounded by invasives
6/23/2004	1075	Pinus	banksiana	Pruning req'd		Surrounded by invasives
6/23/2004	1076	Pinus	strobus	Good Cond		
6/23/2004	1077	Pinus	strobus	Good Cond		
6/23/2004	1078	Morus	sp.	Removal - poor/inv		Surrounded by invasives
6/23/2004	1079	Pinus	resinosa	Good Cond		
6/23/2004	1080	Picea	glauca	Good Cond		
6/30/2004	1071A	Carya	ovata	Pruning req'd		
6/30/2004	1072A	Carya	laciniosa			
6/30/2004	1073A	Gingko	biloba	Good Cond		Young, Recently planted
6/30/2004	1074A	Gingko	biloba	Good Cond		Young, Recently planted
6/30/2004	1075A	Gingko	biloba	Good Cond		Young, Recently planted
6/30/2004	1076A	Gingko	biloba	Good Cond		Young, Recently planted
6/30/2004	1077A	Gingko	biloba	Good Cond		Young, Recently planted
6/30/2004	1078A	misc.		Removal - poor/inv		Surrounded by invasives
6/30/2004	1079A	Quercus	rober	Pruning req'd		Surrounded by invasives
6/30/2004	1080A	Betula	lenta	Pruning req'd		Surrounded by invasives
6/30/2004	1081	Betula	lenta	Pruning req'd		
6/30/2004	1082	Betula	nigra	Good Cond		Surrounded by invasives
6/30/2004	1083	Morus	sp.	Good Cond		Surrounded by invasives
6/30/2004	1084	Prunus	avium	Good Cond		
6/30/2004	1085	Morus	sp.	Removal - poor/inv		Surrounded by invasives

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Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
6/30/2004	1086	Fagus	grandifolia	Good Cond		
6/30/2004	1087	Fagus	grandifolia	Good Cond		
6/30/2004	1088	Fagus	grandifolia	Good Cond		
6/30/2004	1089	Fagus	grandifolia	Good Cond		
6/30/2004	1090	Fagus	sylvestris	Good Cond		
6/30/2004	1091	Fagus	sylvestris pendula	Good Cond		
6/30/2004	1092	Fagus	sylvestris cult.	Good Cond		
6/30/2004	1093	Carpinus	betulus	Good Cond		
6/30/2004	1094	Carpinus	caroliniana	Good Cond		
6/30/2004	1095	Quercus	sp.	Good Cond		Surrounded by invasives
6/30/2004	1096	Acer	negundo	Removal - poor/inv		
6/30/2004	1097	Prunus	nigra	Good Cond		
6/30/2004	1098	Prunus	serotina	Removal - poor/inv		
6/30/2004	1099	Carpinus	betulus	Pruning req'd		
6/30/2004	1100	Prunus	avium	Removal - poor/inv		
6/30/2004	1101	Carpinus	caroliniana	Good Cond		
6/30/2004	1102	Acer	platanoides	Good Cond		
6/30/2004	1103	Alnus	glutinosa	Good Cond		Surrounded by invasives
6/30/2004	1104	Alnus	glutinosa	Good Cond		Surrounded by invasives
6/30/2004	1105	Populus	alba	Good Cond		Surrounded by invasives
6/30/2004	1106	Alnus	glutinosa	Good Cond		Surrounded by invasives
6/30/2004	1107	Ulmus	americana	Good Cond		
6/30/2004	1108	Alnus	japonica	Pruning req'd		
6/30/2004	1109	Prunus	avium	Removal - poor/inv		Surrounded by invasives
6/30/2004	1110	Acer	saccharum	Good Cond		
6/30/2004	1111	Acer	negundo	Removal - poor/inv		
6/30/2004	1112	Acer	saccharum	Good Cond		
6/30/2004	1113	Prunus	avium	Removal - poor/inv		Surrounded by invasives
6/30/2004	1114	Ulmus	sp.	Pruning req'd		Surrounded by invasives
6/30/2004	1115	Quercus	sp.	Pruning req'd		Surrounded by invasives
6/30/2004	1116	Ostrya	virginiana	Pruning req'd		
6/30/2004	1117	Ostrya	virginiana	Pruning req'd		

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Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
6/30/2004	1118	Acer	tataricum	Pruning req'd		
6/30/2004	1119	Morus	alba	Pruning req'd		Surrounded by invasives
6/30/2004	1120	misc.		Removal - dead		
6/30/2004	1121	Celtis	occidentalis	Pruning req'd		Surrounded by invasives
6/30/2004	1122	Prunus	avium	Pruning req'd		Surrounded by invasives
6/30/2004	1123	Juglans	nigra	Good Cond		
6/30/2004	1124	Ulmus	sp.	Pruning req'd		Surrounded by invasives
6/30/2004	1125	Ulmus	sp.	Pruning req'd		Surrounded by invasives
7/7/2004	1126	Fagus	sylvatica	Good Cond		
7/7/2004	1127	Malus	sp.	Removal - poor/inv		Surrounded by invasives
7/7/2004	1128	Celtis	occidentalis	Pruning req'd		
7/7/2004	1129	Prunus	avium	Pruning req'd		Surrounded by invasives
7/7/2004	1130	Acer	saccharum	Pruning req'd		Surrounded by invasives
7/7/2004	1131	Prunus	avium	Pruning req'd		Surrounded by invasives
7/7/2004	1132	Acer	saccharum	Pruning req'd		Surrounded by invasives
7/7/2004	1133	Prunus	avium	Pruning req'd		Surrounded by invasives
7/7/2004	1134	Acer	saccharum	Good Cond		
7/7/2004	1135	Prunus	avium	Good Cond		Surrounded by invasives
7/7/2004	1136	Celtis	occidentalis	Good Cond		Surrounded by invasives
7/7/2004	1137	Celtis	sinensis	Good Cond		
7/7/2004	1138	Celtis	occidentalis	Pruning req'd		
7/7/2004	1139	Celtis	occidentalis	Pruning req'd		
7/7/2004	1140	Celtis	occidentalis	Pruning req'd		
7/7/2004	1141	Celtis	occidentalis	Pruning req'd		
7/7/2004	1142	Picea	pungens	Good Cond		
7/7/2004	1143	Picea	glauca	Good Cond		
7/7/2004	1144	Picea	glauca	Good Cond		
7/7/2004	1145	Morus	alba pendula	Good Cond		
7/7/2004	1146	Morus	alba tartarica	Pruning req'd		
7/7/2004	1147	Prunus	avium	Pruning req'd		
7/7/2004	1148	Morus	alba tartarica	Good Cond		
7/7/2004	1149	Morus	alba tartarica	Good Cond		

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Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
7/7/2004	1150	Acer	negundo	Pruning req'd		
7/7/2004	1151	Prunus	avium	Good Cond		
7/7/2004	1152	Morus	alba tartarica	Good Cond		
7/7/2004	1153	Celtis	occidentalis	Pruning req'd		
7/7/2004	1154	Acer	mandschiricum	Good Cond		
7/7/2004	1155	Acer	ginalla	Pruning req'd		
7/7/2004	1156	Acer	platanoides	Pruning req'd		
7/7/2004	1157	Acer	platanoides	Pruning req'd		
7/7/2004	1158	Acer	saccharum	Good Cond		
7/7/2004	1159	Acer	platanoides	Good Cond		
7/7/2004	1161	Acer	platanoides	Good Cond		
7/7/2004	1162	Acer	platanoides	Pruning req'd		
7/7/2004	1163	Acer	palmatum dissectum atropurpurea	Pruning req'd		
7/7/2004	1164	Acer	rubrum	Good Cond		
7/7/2004	1165	Acer	rubrum	Pruning req'd		
7/7/2004	1166	Acer	rubrum	Good Cond		
7/7/2004	1167	Acer	saccharinum	Good Cond		
7/7/2004	1168	Acer	palmatum cult.	Good Cond		
7/7/2004	1169	Malus	sp.	Pruning req'd		
7/7/2004	1170	Crataegus	pedicellata	Pruning req'd		
7/7/2004	1171	Prunus	avium	Removal - poor/inv		
7/7/2004	1172	Acer	platanoides	Pruning req'd		
7/7/2004	1173	Acer	sp.	Good Cond		
7/7/2004	1174	Acer	campestre	Good Cond		
7/7/2004	1175	misc.		Removal - poor/inv		dominated by Vitus riparia
7/7/2004	1176	Acer	tataricum	Pruning req'd		
7/7/2004	1177	Acer	negundo	Good Cond		
7/7/2004	1178	Amelanchier	sp.	Pruning req'd		fruits/flowers required for ID
7/7/2004	1179	Acer	negundo	Removal - poor/inv		
7/7/2004	1180	Amelanchier	sp.	Pruning req'd		fruits/flowers required for ID
7/7/2004	1181	Acer	negundo	Removal - poor/inv		
7/7/2004	1182	Prunus	avium	Removal - poor/inv		Surrounded by invasives
7/7/2004	1183	Amelanchier	canadensis	Good Cond		

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Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
7/7/2004	1184	Ailanthus	altissima	Removal - poor/inv		
7/7/2004	1185	Amelanchier	sp.	Pruning req'd		fruits/flowers required for ID
7/7/2004	1186	Amelanchier	sp.	Good Cond		fruits/flowers required for ID
7/7/2004	1187	Acer	negundo	Removal - poor/inv		
7/7/2004	1188	Ulmus	americana	Good Cond		
7/7/2004	1189	Prunus	avium	Removal - poor/inv		Surrounded by invasives
7/7/2004	1190	Morus	sp.	Removal - poor/inv		Surrounded by invasives
7/7/2004	1191	Fraxinus	sp.	Removal - poor/inv		Surrounded by invasives
7/7/2004	1192	Acer	saccharum	Good Cond		
7/7/2004	1193	Acer	nigrum	Good Cond		
7/7/2004	1194	Acer	saccharinum	Removal - poor/inv		
7/7/2004	1195	Acer	saccharinum	Pruning req'd		
7/7/2004	1196	Acer	rubrum	Good Cond		
7/7/2004	1197	Acer	saccharinum	Good Cond		
7/7/2004	1198	Acer	rubrum	Good Cond		
7/7/2004	1199	Prunus	avium	Removal - poor/inv		Surrounded by invasives
7/7/2004	1200	Acer	sp.	Pruning req'd		
7/7/2004	1201	Prunus	avium	Removal - poor/inv		Surrounded by invasives
7/7/2004	1202	Acer	negundo	Removal - poor/inv		
7/14/2004	1226	Mollis	ioansis	Removal - poor/inv	25	
7/14/2004	1227	misc.		Remove surround inv	30	Surrounded by invasives
7/14/2004	1228	Morus	alba	Removal - poor/inv	50	
7/14/2004	1229	Prunus	serotina	Good Cond	70	
7/14/2004	1230	Prunus	serotina	Pruning req'd	60	
7/14/2004	1231	Prunus	serotina	Removal - dead	65	
7/14/2004	1232	Malus		Removal - dead	20	
7/14/2004	1233	Mollis	baccata	Remove surround inv	18	Surrounded by invasives

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Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
7/14/2004	1234	misc.		Removal - poor/inv	30	
7/14/2004	1235	Fraxinus	sp.	Removal - dead	50	
7/14/2004	1236	Mollis	sp.	Remove surround inv	30	Surrounded by invasives
7/14/2004	1237	Mollis	sp.	Remove surround inv	15	Surrounded by invasives
7/14/2004	1238	Fraxinus	sp.	Removal - poor/inv	40	
7/14/2004	1239	Acer	negundo	Removal - poor/inv	30	
7/14/2004	1240	Fraxinus	americana	Remove surround inv	50	Surrounded by invasives
7/14/2004	1241	Malus	sp.	Removal - dead	15	
7/14/2004	1242	Prunus	sp.	Removal - dead	5	
7/14/2004	1243	Liriodendron	tulipifera	Remove surround inv	100	Surrounded by invasives
7/14/2004	1244	Liriodendron	tulipifera	Remove surround inv	90	Surrounded by invasives
7/14/2004	1245	Liriodendron	tulipifera	Remove surround inv	75	Surrounded by invasives
7/14/2004	1246	Liriodendron	tulipifera	Pruning req'd	90	
7/14/2004	1247	Liriodendron	chinensis	Remove surround inv	85	Surrounded by invasives
7/14/2004	1248	Acer	saccharum	Pruning req'd	55	
7/14/2004	1252	Fraxinus	americana	Removal - poor/inv	25	
7/14/2004	1254	Fraxinus	sp.	Removal - dead	70	
7/14/2004	1255	Fraxinus	sp.	Removal - dead	70	
7/14/2004	1256	Prunus	avium	Remove surround inv	40	Surrounded by invasives
7/14/2004	1257	Prunus	serotina	Remove surround inv	90	Surrounded by invasives
7/14/2004	1258	Prunus	sserotina	Remove surround inv	90	Surrounded by invasives
7/14/2004	1259	Ulmus	americana	Remove surround inv	80	Surrounded by invasives
7/14/2004	1260	misc.		Removal - poor/inv	30	
7/14/2004	1261	Prunus	serotina	Remove surround inv	70	Surrounded by invasives

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Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
7/14/2004	1262	Prunus	avium	Remove surround inv	60	Surrounded by invasives
7/14/2004	1263	Robinia	pseudoacacia	Remove surround inv	65	Surrounded by invasives
7/14/2004	1264	Robinia	pseudoacacia	Remove surround inv	65	Surrounded by invasives
7/14/2004	1265	Prunus	serotina	Remove surround inv	55	Surrounded by invasives
7/14/2004	1266	Acer	saccharum	Pruning req'd	50	
7/14/2004	1267	Acer	saccharum	Pruning req'd	70	
7/14/2004	1269	Acer	saccharum	Pruning req'd	75	
7/14/2004	1270	Acer	saccharum	Pruning req'd	75	
7/14/2004	1271	Robinia	pseudoacacia	Good Cond	90	Surrounded by invasives
7/14/2004	1272	Robinia	pseudoacacia	Pruning req'd	90	Surrounded by invasives
7/14/2004	1273	Fraxinus	sp.	Removal - dead	80	
7/14/2004	1274	Robinia	hispida	Good Cond	80	Surrounded by invasives
7/14/2004	1275	Robinia	pseudoacacia bessoniana	Good Cond	100	
7/14/2004	1276	Robinia	viscosa	Pruning req'd	90	Surrounded by invasives
7/14/2004	1277	Robinia	pseudoacacia	Pruning req'd	75	
7/14/2004	1278	Gleditsia	sp.	Good Cond	35	Surrounded by invasives
7/14/2004	1280	Gleditsia	triacanthus	Good Cond	80	Surrounded by invasives
7/14/2004	1281	Gleditsia	triacanthus	Good Cond	45	Surrounded by invasives
7/14/2004	1282	Gleditsia	triacanthus inermis	Good Cond	75	
7/14/2004	1283	Gleditsia	triacanthus inermis	Good Cond	35	Surrounded by invasives
7/19/2004	1284	Fraxinus	sp.	Removal - dead	60	
7/19/2004	1285	Fraxinus	sp.	Removal - dead	50	
7/19/2004	1286	Ulmus	americana	Good Cond	60	Surrounded by invasives
7/19/2004	1287	Ulmus	sp.	Removal - dead	60	
7/19/2004	1288	Ailanthus	glandulosa	Pruning req'd	55	
7/19/2004	1289	Acer	saccharinum	Good Cond	30	

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Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
7/19/2004	1290	misc.		Good Cond	10	Young, Hibiscus shrubs
7/19/2004	1291	Ailanthus	vilmoriniana	Pruning req'd	45	Surrounded by invasives
7/19/2004	1292	Juniperus	chinensis cult.	Good Cond	5	Surrounded by invasives
7/19/2004	1293	Ailanthus	altissima	Good Cond	35	
7/19/2004	1294	Fraxinus	sp.	Removal - dead	40	
7/19/2004	1295	Picea	pungens	Good Cond	20	
7/19/2004	1296	Picea	glauca	Good Cond	20	
7/19/2004	1297	Robinia	pseudoacacia	Removal - poor/inv	15	
7/19/2004	1298	Acer	rubrum	Good Cond	15	
7/19/2004	1299	Magnolia	sp.	Pruning req'd	10	
7/19/2004	1300	Salix	sp.	Pruning req'd	55	
7/19/2004	1301	Populus	deltoides	Good Cond	80	
7/19/2004	1302	Ulmus	americana	Removal - poor/inv	45	
7/19/2004	1303	Ulmus	americana	Pruning req'd	45	
7/19/2004	1304	Ulmus	americana	Good Cond	50	
7/19/2004	1305	Fraxinus	sp.	Removal - dead	50	
7/19/2004	1306	Fraxinus	sp.	Removal - dead	60	
7/19/2004	1307	Fraxinus	sp.	Removal - dead	40	
7/19/2004	1308	Populus	deltoides	Good Cond	70	Surrounded by invasives
7/19/2004	1309	Populus	deltoides	Good Cond	80	Surrounded by invasives
7/19/2004	1310	Populus	deltoides	Good Cond	70	Surrounded by invasives
7/19/2004	1311	Salix	sp.	Pruning req'd	60	
7/19/2004	1312	Gymnocladus	dioeca	Good Cond	70	
7/19/2004	1313	Liquidambar	styraciflua	Good Cond	50	
7/19/2004	1314	Gymnocladus	sp.	Removal - dead	70	
7/19/2004	1315	Fraxinus	sp.	Removal - dead	60	
7/19/2004	1316	Platanus	americana	Good Cond	50	Surrounded by invasives
7/19/2004	1317	Prunus	avium	Pruning req'd	45	
7/19/2004	1318	Fraxinus	sp.	Removal - dead	50	

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Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
7/19/2004	1319	Platanus	sp.	Good Cond	55	
7/19/2004	1320	Prunus	avium	Removal - poor/inv	40	
7/19/2004	1321	Fraxinus	sp.	Removal - dead	70	
7/19/2004	1322	Fraxinus	sp.	Removal - dead	60	
7/19/2004	1323	Liquidambar	styraciflua	Good Cond	50	
7/19/2004	1324	Liquidambar	styraciflua	Good Cond	50	
7/19/2004	1325	Liquidambar	styraciflua	Good Cond	50	
7/19/2004	1326	Picea	Abies	Good Cond	70	
7/19/2004	1327	Pinus	thunbergii	Good Cond	45	
7/19/2004	1328	Pinus	sp.	Pruning req'd	35	
7/19/2004	1329	Pinus	nigra	Pruning req'd	40	Surrounded by invasives
7/19/2004	1330	Acer	negundo	Removal - poor/inv	40	
7/19/2004	1331	Fraxinus	sp.	Removal - dead	50	
7/19/2004	1332	Fraxinus	sp.	Removal - dead	50	
7/20/2004	1333	Acer	saccharum	Good Cond	50	
7/20/2004	1334	Acer	saccharum	Good Cond	50	
7/20/2004	1335	Acer	saccharum	Good Cond	45	
7/20/2004	1336	Tilia	tomentosa	Good Cond	35	
7/20/2004	1337	Tilia	heterophylla	Pruning req'd	35	
7/20/2004	1338	Tilia	oliveri	Removal - poor/inv	30	
7/20/2004	1339	Acer	saccharum	Good Cond	40	
7/20/2004	1340	Acer	saccharum	Good Cond	40	
7/20/2004	1341	Salix	alba	Pruning req'd	50	
7/20/2004	1342	Salix	alba	Good Cond	65	
7/20/2004	1343	Salix	sp.	Pruning req'd	70	Surrounded by invasives
7/20/2004	1344	Salix	sp.	Pruning req'd	65	
7/20/2004	1345	Ulmus	americana	Good Cond	70	
7/20/2004	1346	Acer	negundo	Good Cond	45	
7/20/2004	1347	misc.		Removal - poor/inv	30	
7/20/2004	1348	Acer	saccharum	Good Cond	65	
7/20/2004	1349	Acer	saccharum	Good Cond	65	
7/20/2004	1350	Acer	saccharum	Good Cond	65	
7/20/2004	1351	Acer	saccharum	Good Cond	65	
7/20/2004	1352	Acer	saccharum	Good Cond	55	
7/20/2004	1353	Acer	saccharum	Good Cond	65	
7/20/2004	1354	Acer	saccharum	Good Cond	65	

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Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
7/20/2004	1355	Acer	saccharum	Pruning req'd	65	
7/20/2004	1356	Acer	saccharum	Good Cond	65	
7/20/2004	1357	Acer	platanooides	Good Cond	35	
7/20/2004	1358	Acer	rubrum	Pruning req'd	15	
7/20/2004	1359	Tilia	platyphyllos	Good Cond	50	
7/20/2004	1360	Picea	glauca	Good Cond	55	
7/20/2004	1361	Picea	abies	Good Cond	55	
7/20/2004	1362	Tilia	europea	Good Cond	50	
7/20/2004	1363	Tilia	americana	Good Cond	45	
7/20/2004	1364	Tilia	americana	Good Cond	50	
7/20/2004	1365	Crataegus	sp.	Good Cond	15	
7/20/2004	1366	Crataegus	sp.	Good Cond	15	
7/20/2004	1367	Acer	saccharum	Pruning req'd	35	
7/20/2004	1368	Acer	platanooides	Pruning req'd	45	
7/20/2004	1369	Acer	platanooides	Good Cond	35	
7/20/2004	1370	Acer	saccharum	Good Cond	50	
7/20/2004	1371	Acer	saccharum	Pruning req'd	40	
7/20/2004	1372	Liquidambar	styraciflua	Good Cond	30	
7/20/2004	1373	Liquidambar	styraciflua	Good Cond	10	
7/20/2004	1374	Aesculus	turbinata	Good Cond	50	
7/20/2004	1375	Aesculus	hippocastanum baumanii	Good Cond	65	
7/20/2004	1376	Aesculus	octandra	Good Cond	65	
7/20/2004	1377	Aesculus	glabra	Good Cond	45	
7/20/2004	1378	Aesculus	glabra	Good Cond	45	
7/20/2004	1379	Aesculus	octandra	Good Cond	55	
7/20/2004	1380	Aesculus	glabra	Good Cond	25	
7/20/2004	1381	Acer	platanooides	Good Cond	40	
7/20/2004	1382	Acer	platanooides	Good Cond	35	
7/20/2004	1383	cercis	canadensis	Pruning req'd	10	
7/20/2004	1384	Crataegus	sp.	Good Cond	10	
7/20/2004	1385	Crataegus	sp.	Good Cond	10	
7/20/2004	1386	Crataegus	sp.	Good Cond	10	
7/20/2004	1387	Crataegus	sp.	Good Cond	10	
7/20/2004	1388	Crataegus	cordata	Good Cond	10	
7/20/2004	1389	Ailanthus	altissima	Good Cond	45	Surrounded by invasives
7/20/2004	1390	Ulmus	rubra	Good Cond	55	
7/20/2004	1391	Ulmus	rubra	Good Cond	35	
7/20/2004	1392	Ulmus	rubra	Pruning req'd	45	
7/20/2004	1393	Ulmus	rubra	Good Cond	45	
7/20/2004	1394	Ulmus	rubra	Good Cond	45	
7/20/2004	1395	Crataegus	sp.	Good Cond	15	
7/20/2004	1396	Populus	deltoides	Good Cond	70	
7/20/2004	1397	Quercus	muelenbergii	Good Cond	45	
7/20/2004	1398	Ulmus	americana	Good Cond	40	

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Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
7/20/2004	1399	Acer	negundo	Removal - poor/inv	40	
7/20/2004	1400	Populus	deltoides	Good Cond	65	
7/20/2004	1401	Populus	deltoides	Good Cond	75	
7/20/2004	1402	Populus	deltoides	Good Cond	75	
7/20/2004	1403	Populus	deltoides	Good Cond	75	
7/20/2004	1404	Salix		Good Cond	75	
7/20/2004	1405	Salix		Good Cond	75	
7/20/2004	1406	Acer	negundo	Good Cond	50	
7/20/2004	1407	Salix		Good Cond	70	
7/20/2004	1408	Aesculus		Good Cond	35	
7/20/2004	1409	Salix		Good Cond	60	
7/20/2004	1410	Salix		Remove surround inv	65	Surrounded by invasives
7/20/2004	1411	Acer	saccharum	Removal - poor/inv	30	
7/20/2004	1412	misc.		Removal - poor/inv	15	
7/20/2004	1413	hovenia		Good Cond	25	
7/20/2004	1414	Phellodendron	sachalinense	Good Cond	30	
7/20/2004	1415	Phellodendron	chinensis	Pruning req'd	20	
7/20/2004	1416	Aesculus		Good Cond	40	
7/20/2004	1417	Ulmus	americana	Good Cond	55	
7/20/2004	1418	Acer	rubra	Pruning req'd	35	
7/21/2004	1419	Fraxinus		Removal - dead	60	
7/21/2004	1420	Fraxinus		Removal - dead	55	
7/21/2004	1421	Crataegus		Remove surround inv	10	Surrounded by invasives
7/21/2004	1422	Acer	negundo	Remove surround inv	35	Surrounded by invasives
7/21/2004	1423	Platanus	occidentalis	Remove surround inv	60	Surrounded by invasives
7/21/2004	1424	Platanus	occidentalis	Remove surround inv	70	Surrounded by invasives
7/21/2004	1425	Ulmus	americana	Removal - poor/inv	50	
7/21/2004	1426	Acer	negundo	Remove surround inv	40	Surrounded by invasives
7/21/2004	1427	Fraxinus		Removal - dead	65	
7/21/2004	1428	Fraxinus		Removal - dead	50	
7/21/2004	1429	Ulmus	americana	Remove surround inv	35	Surrounded by invasives

BENNETT ARBORETUM TREE INVENTORY SUMMER 2004

Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
7/21/2004	1430	Fraxinus		Removal - dead	30	
7/21/2004	1431	Fraxinus		Removal - dead	55	
7/21/2004	1432	Juglans	nigra	Removal - poor/inv	45	
7/21/2004	1433	misc.		Remove surround inv	10	Surrounded by invasives
7/21/2004	1434	Ulmus		Removal - dead	45	
7/21/2004	1435	misc.		Remove surround inv	25	Surrounded by invasives
7/21/2004	1436	Acer	negundo	Removal - poor/inv	25	
7/21/2004	1437	Juglans	nigra	Remove surround inv	55	Surrounded by invasives
7/21/2004	1438	Acer	negundo	Removal - poor/inv	25	
7/21/2004	1439	Acer	saccharinum	Good Cond	45	
7/21/2004	1440	Acer	saccharinum	Good Cond	45	
7/21/2004	1441	Platanus	occidentalis	Remove surround inv	55	Surrounded by invasives
7/21/2004	1442	Salix	discolor	Pruning req'd	55	
7/21/2004	1443	Fraxinus		Removal - dead	55	
7/21/2004	1444	Acer	negundo	Removal - poor/inv	25	
7/21/2004	1445	Platanus	occidentalis	Good Cond	60	
7/21/2004	1446	Platanus	occidentalis	Good Cond	55	
7/21/2004	1447	Platanus	occidentalis	Good Cond	55	
7/21/2004	1448	Fraxinus		Removal - dead	35	
7/21/2004	1449	Fraxinus		Removal - dead	25	
7/21/2004	1450	Acer	negundo	Good Cond	25	
7/21/2004	1451	Fraxinus		Removal - dead	35	
7/21/2004	1452	Gleditsia	triacanthos inermis	Good Cond	40	
7/21/2004	1453	Fraxinus		Removal - dead	20	
7/21/2004	1454	Fraxinus		Removal - poor/inv	30	
7/21/2004	1455	Fraxinus		Removal - dead	50	

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Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
7/21/2004	1456	Platanus	occidentalis	Remove surround inv	65	Surrounded by invasives
7/21/2004	1457	Morus		Removal - dead	30	
7/21/2004	1458	Juglans	nigra	Remove surround inv	70	Surrounded by invasives
7/21/2004	1459	Ulmus	americana	Good Cond	40	
7/21/2004	1460	Fraxinus		Removal - dead	40	
7/21/2004	1461	Fraxinus		Removal - dead	60	
7/21/2004	1462	Tilia	americana	Good Cond	70	
7/21/2004	1463	Fraxinus		Removal - dead	30	
7/21/2004	1464	Juglans	nigra	Remove surround inv	45	Surrounded by invasives
7/21/2004	1465	Fraxinus		Removal - dead	40	
7/21/2004	1466	Morus	alba	Good Cond	45	
7/21/2004	1467	Prunus		Removal - dead	20	
7/21/2004	1468	Acer	negundo	Removal - poor/inv	20	
7/21/2004	1469	Prunus	serotina	Remove surround inv	45	Surrounded by invasives
7/21/2004	1470	Fraxinus		Removal - dead	60	
7/21/2004	1471	carya	cordiformis	Good Cond	75	
7/21/2004	1472	Ulmus		Removal - dead	70	
7/21/2004	1473	Prunus	serotina	Pruning req'd	45	
7/21/2004	1474	Prunus	serotina	Pruning req'd	45	
7/21/2004	1475	Fraxinus		Removal - dead	45	
7/21/2004	1476	Prunus		Removal - dead	50	
7/21/2004	1477	Fraxinus		Removal - dead	60	
7/21/2004	1478	Fraxinus		Removal - dead	50	
7/21/2004	1479	Acer	saccharinum	Remove surround inv	50	Surrounded by invasives
7/21/2004	1480	Ulmus	americana	Remove surround inv	40	Surrounded by invasives
7/21/2004	1481	Salix	uralensis?	Remove surround inv	65	Surrounded by invasives

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Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
7/21/2004	1482	Acer	negundo	Removal - poor/inv	35	
7/21/2004	1483	Acer	platanoides	Remove surround inv	40	
7/21/2004	1484	Populus	deltoides	Good Cond	80	
7/21/2004	1485	Populus	deltoides	Pruning req'd	70	
7/21/2004	1486	Platanus	occidentalis	Remove surround inv	60	
7/21/2004	1487	Fraxinus		Removal - dead	60	
7/21/2004	1488	Acer	saccharum	Good Cond	40	
7/21/2004	1489	Ostrya	virginiana	Good Cond	25	
7/21/2004	1490	misc.		Removal - dead	65	
7/21/2004	1491	Juglans	nigra	Good Cond	70	
7/21/2004	1492	Quercus	macrocarpa	Good Cond	60	
7/21/2004	1493	Ulmus		Good Cond	70	
7/21/2004	1494	Quercus	macrocarpa	Good Cond	65	
7/21/2004	1495	Acer	saccharum	Good Cond	35	
7/21/2004	1496	Fraxinus		Removal - dead	50	
7/21/2004	1497	Juglans	nigra	Good Cond	80	
8/2/2004	1498	Salix	vitellina britzensis	Removal - poor/inv	45	
8/2/2004	1499	Salix	wentworthii	Removal - poor/inv	35	
8/2/2004	1500	Populus	deltoides	Good Cond	90	
8/2/2004	1501	Populus	deltoides	Good Cond	90	
8/2/2004	1502	Populus	deltoides	Good Cond	80	
8/2/2004	1503	Populus	deltoides	Good Cond	85	
8/2/2004	1504	Populus	deltoides	Good Cond	75	
8/2/2004	1505	Populus	deltoides	Good Cond	80	
8/2/2004	1506	Salix	vitellina glauca	Remove surround inv	65	
8/2/2004	1507	Acer	saccharinum	Remove surround inv	65	
8/2/2004	1508	Populus	deltoides	Remove surround inv	85	
8/2/2004	1509	Populus	deltoides	Remove surround inv	85	
8/2/2004	1510	Populus	deltoides	Remove surround inv	70	
8/2/2004	1511	Acer	saccharum	Remove surround inv	55	
8/2/2004	1512	Platanus	occidentalis	Good Cond	70	

BENNETT ARBORETUM TREE INVENTORY SUMMER 2004

Date Visited	GPS ID #	Genus	Species, subspecies/ variety	Condition	Estimated height	Additional conditional information
8/2/2004	1513	Juglans	nigra	Remove surround inv	60	
8/2/2004	1514	Platanus	occidentalis	Good Cond	80	
8/2/2004	1515	Quercus	macrocarpa	Good Cond	60	
8/2/2004	1516	Populus	deltoides	Remove surround inv	80	
8/2/2004	1517	Populus	deltoides	Pruning req'd	80	
8/2/2004	1518	Acer	saccharum	Good Cond	50	
8/2/2004	1519	Quercus	rubra	Good Cond	75	
8/2/2004	1520	Sassafrass	rubra	Pruning req'd	35	