



Eloise Butler Wildflower Garden and Bird Sanctuary Management Plan 2010-2015



**MINNEAPOLIS
PARK &
RECREATION
BOARD**





Eloise Butler botanizing in the bog, 1911.

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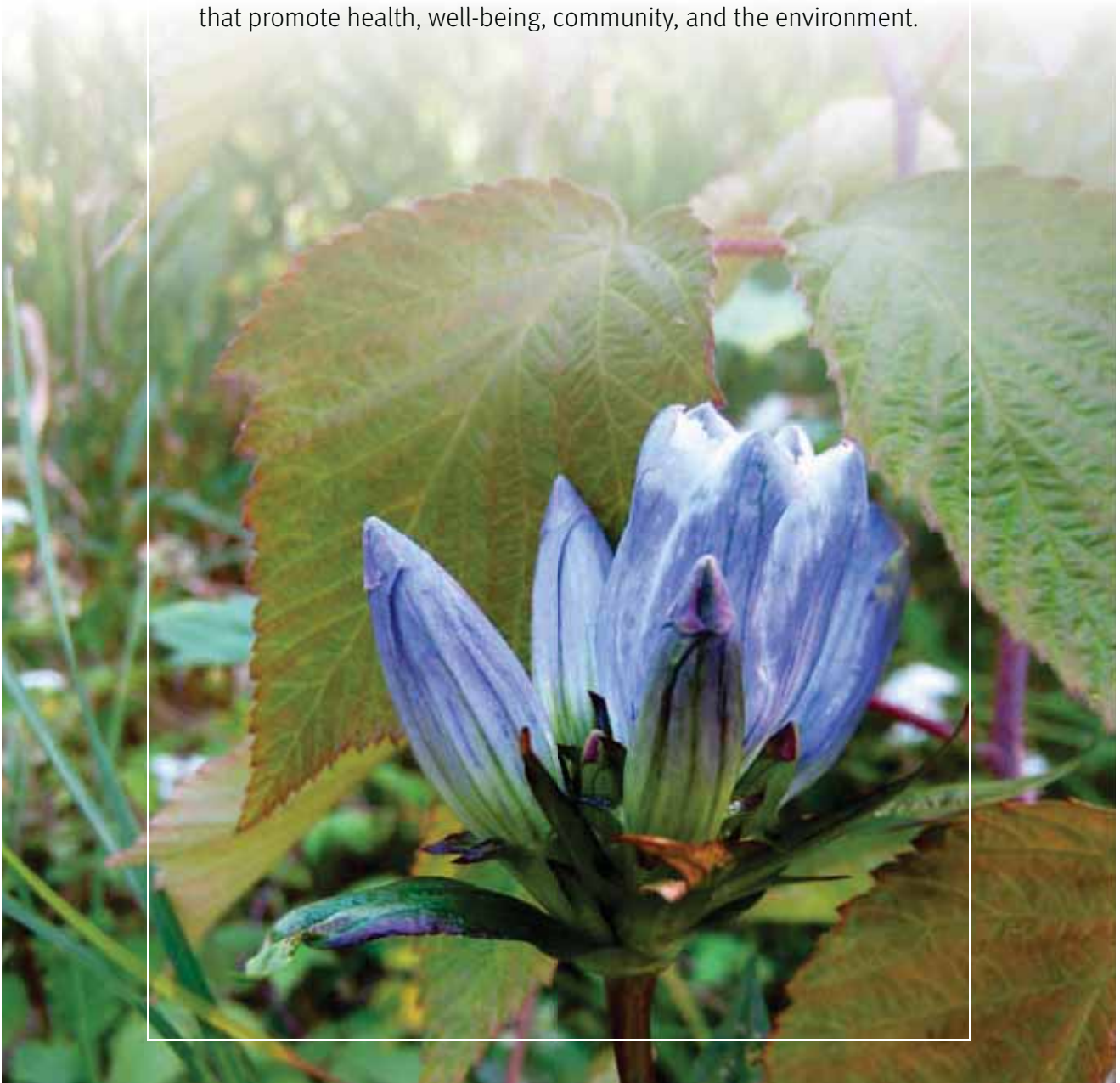
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Mission

Minneapolis Park & Recreation Board

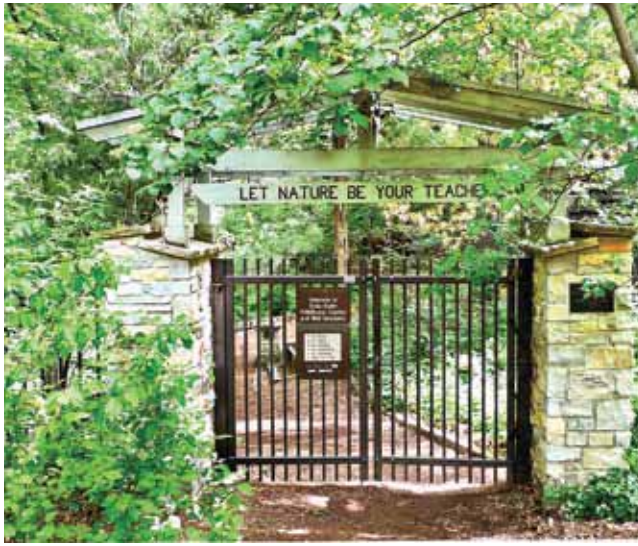
The Minneapolis Park & Recreation Board shall permanently preserve, protect, maintain, improve and enhance its natural resources, parkland, and recreational opportunities for current and future generations.

The Minneapolis Park & Recreation Board exists to provide places and recreation opportunities for all people to gather, celebrate, contemplate, and engage in activities that promote health, well-being, community, and the environment.



Executive Summary

The Eloise Butler Wildflower Garden and Bird Sanctuary (the Garden) is a 15-acre public native plant garden located in Minneapolis, Minnesota. Founded in 1907, it is the oldest public wildflower garden in the nation. Currently the Garden houses over 500 plant species and provides habitat for over 130 resident and migratory bird species.



This management plan is the first of its kind for the Garden. The plan's purpose is to communicate the principles used to manage the Garden, to describe future directions and strategies, and to outline priorities for the next five years. Taking insight from the past, the plan moves the Garden into the present. In doing so, today's vision is articulated. Addressed in this plan are the essential issues of:

- * what the Garden is fundamentally
- * how the Garden serves people
- * how the Garden is managed to cultivate its health
- * how to ensure the Garden's future vitality and ability to serve the community

The plan encompasses important background information including:

- * the guiding management philosophy
- * a set of directive values and goals
- * a brief history of the Garden's past management styles
- * a discussion on the Garden's essential nature as a garden

Specific topics of management are covered in the plan. For each management topic, a five year summary of past highlights is included in addition to a list of future directions and strategies. Finally, a numerical list of management priorities for the next five years, ordered by significance, is included for each topic. These priorities will serve as the core focus of management activities over the next five years at the Garden.

A number of the strategies and priorities described in this document, such as basic plantings, will be partially funded through the current budget. However most priorities are unfunded and will require funding from various sources both inside and outside of the Minneapolis Park & Recreation Board. Staff will continue to pursue other funding and partnership options as appropriate to help accomplish unfunded strategies and priorities.

The strategies and priorities listed in the management plan compliment and advance the vision and several goals outlined in the Minneapolis Park & Recreation Board's 2007-2020 Comprehensive Plan. The Garden is a vital thread in the agency's strategy to "protect natural resources recognized as significant city, regional, or national resources, due to historical, ecological, or aesthetic values."

The Garden is an essential regional resource thanks to the countless people who have over the past 100 years supported its mission, appreciated its splendor, and recognized its uniqueness. The legacy of Eloise Butler is an integral part of the city's cultural and ecological heritage available for all to enjoy with every stroll through this enchanting native plant garden.

Highlights of Five-year Implementation Priorities



For the Garden

- ✓ Increase diversity of plants and enhance wildlife habitat through expansion of pocket plantings, invigoration of plant assemblies, and restoration of the historic plant collection.
- ✓ Maintain the historic character of the Garden through the regular maintenance and replacement of supporting Garden infrastructure. Priorities are the building roofs, bridges, directional signs, and trail edges.
- ✓ Study the hydrology and plant communities of the wetland garden. This wetland area was the original catalyst for creating the Garden.
- ✓ Manage invasive species to ensure the health of the Garden and to continue the legacy of this dynamic collection of native plants.

For People

- ✓ Work to allocate additional staff resources to Garden activities.
- ✓ Continue to strengthen the role of volunteers. For example, work with the Friends of the Wild Flower Garden to increase the number of participants in the Friends' Invasive Plants Action Group.
- ✓ Develop partnerships to enhance the depth of programming and health of the Garden.
- ✓ Provide opportunities for teenagers and young adults to explore green career options through a horticulture internship program.
- ✓ Create artist and scientist residencies to reach new audiences and deepen the Garden experience for current visitors.

For Education

- ✓ Enhance self-directed infrastructure for visitors, such as installing a four-sided information kiosk and updating the Garden guidebook and associated way-finding signs.
- ✓ Increase efforts to reach underserved audiences by reducing barriers to participation such as lack of program awareness, language, and/or transportation.
- ✓ Develop new partnerships with arts organizations to collaborate on developing innovative, dynamic youth programming focused on nature and art connections.



Garden Needs

The following list identifies current and future needs for the Garden. It is presented in order of priority and is contingent on availability of funding. Staff will pursue funding sources as appropriate to implement the projects described below. Potential funding sources include regional park dollars, grants, and sponsorships. Staff will continue to build upon current partnerships and create new ones to help achieve these projects and programs. Cost estimates are planning level only and are based on 2010 dollars.

- 1. Directional signage.** (\$10,000) Add signage to help visitors navigate the trails from Wirth Beach parking lot to Wildflower Garden's west gate.
- 2. Plant Identification labels.** (\$5,000) Update plant labels to provide visitors with accurate and enhanced information about plant species on display at the Garden.
- 3. Waterline expansion.** (\$5,000) This expansion of the existing piping system is needed to continue to develop and maintain the plant collections.
- 4. Entrance kiosk.** (\$20,000) Add a four-sided kiosk to welcome visitors at the beginning of the trail down to the Garden.
- 5. Improve entrance and path access.** (\$20,000) Remove existing railings and stairs and replace with a graceful and accessible path from the parking lot to the front gate.
- 6. Replace wetland bridges.** (\$15,000) Replace four aging wetland bridges to insure safety and improve access.
- 7. Trail stabilization.** (\$40,000) Adjust trail alignments and cross-sections to provide protection against ongoing erosion issues and foot traffic.
- 8. Annual teen horticulture internship.** (\$2500) Hire and train the next generation of park stewards by reaching out to teenagers.
- 9. Replace building roofs.** (\$65,000) Replace heavily weathered roofs on the shelter, gardener's shed, and restrooms.
- 10. Restore shelter fireplace.** (\$10,000) Restore the shelter fireplace to allow it to function as a heat source for the building.
- 11. Bench repairs.** (\$5,000) Replace broken and worn bench slats and hardware.
- 12. Audience intercept survey.** (\$10,000) Conduct a visitor intercept survey to better meet interests of visitors. In addition, conduct off-site surveys to determine why certain user groups do not visit the Garden.
- 13. Wetland Restoration Feasibility Study.** (\$40,000) Examine the natural history, including the hydrology, of the wetland area and scope the feasibility of providing a sustainable water source to improve the health of this aquatic system.
- 14. Wetland restoration.** (\$80,000) Implement tasks identified in the Study.
- 15. Annual artist and scientist residencies.** (\$3500) Provide opportunities for intensive public programs with artists and scientists as they work on projects within the Garden.





INTRODUCTION

GETTING TO KNOW THE GARDEN

GOALS AND VALUES

GARDEN BACKGROUND

Getting to know the Garden

*"That land is a community is the
basic concept of ecology, but that land
is to be loved and respected
is an extension of ethics.
That land yields a cultural harvest
is a fact long known,
but latterly often forgotten."*

Aldo Leopold

Garden Background Information

The Eloise Butler Wildflower Garden and Bird Sanctuary (the Garden) is the oldest public wildflower garden in the United States. Founded in 1907, the Garden has served as a native plant reserve for the enjoyment and education of the public for over a century. Within the Garden's gates are found distinct garden areas, with different ecological features, each maintained to foster a wide variety of plant species typical of Minnesota's natural areas. The Garden currently houses a plant collection that contains over 500 plant species. More than 130 resident and migratory bird species travel through or reside within the boundaries of the Garden.

The Garden's Visitor Shelter serves the general public by providing access to staff, volunteers, and information. Public tours, special programs, and private group tours are scheduled regularly on a variety of natural history topics. On the trails and in the Visitor Shelter, the Garden serves the community with wide-ranging opportunities for young and old to connect directly with the natural world.

The Garden is part of a complex system with natural, cultural and social dimensions. This integrated system is one supported by interwoven components. There are four components that can be recognized as distinct, but interconnected, parts of the system. The components are the land itself; people, partners and the Minneapolis Park & Recreation Board; education; and funding. Together these resources create a rich and resilient Garden.

The Garden's Guiding Philosophy

All life is interconnected. We can nurture the health of our natural and social communities through our beneficial actions rooted in this awareness.

For millennia, people from all over the world have understood that humans are but one strand in the web of life. For centuries, gardeners, poets, naturalists, and philosophers have spoken to the inseparable relationship of the natural world and the human one. In more recent times, scientists from different fields have conveyed the fundamental reality of the interconnected nature of life on planet earth. This understanding is important to both how humans care for the planet as well as how humans relate to it and to each other.

This understanding also serves as the foundation for the guiding philosophy used to care for the Garden and to inspire Garden visitors. Guided by the knowledge that all life is interconnected, Garden management acknowledges and supports the notion that providing opportunities for visitors to be in direct relation with a complex biotic environment is significant and beneficial. The Garden, with its species richness and naturalistic ambiance, is a unique resource for the public and serves a vital role of awakening an ecological awareness both for individuals and the community at large.

To this end, the Garden serves as a place for many people to create and to nurture their personal relationship to the natural world. Having experiences with the natural world that invoke a sense of personal connection to it provide opportunities for the individual to begin to relate to the natural world as a member of the greater web of life. As this connection is strengthened, individuals may contemplate the possibilities of being a community member of a healthier and more balanced, biologically vibrant and beautiful world. Ultimately they may become an advocate for and supporter of efforts to care for and cultivate such a world. Advocacy for and understanding of the natural world is linked to an individual's personal connection to nature and the interconnectedness of life.

The Minneapolis Park & Recreation Board's stated vision is to "...focus on preserving land...with a strong emphasis on connecting people to the land



and to each other.” This vision supports the concept that the parks in the system, including the Garden, serve as the foundations upon which individuals and communities can build meaningful and transformative relationships with the land.

Why the Garden is Unique

The Garden is a unique feature, not only of the Minneapolis Park & Recreation Board’s parkland system, but of the nation. It functions as an aesthetically appealing public garden and native plant preserve. It is dedicated to preserving and displaying a dynamic collection of plant species native to Minnesota and to providing habitat for a wide range of bird species. There are several characteristics that contribute to its distinctive singularity:

- * It is the oldest public wildflower garden in the United States.
- * The plant collection focuses specifically on plant species native to Minnesota.
- * Unlike traditional botanic gardens, plants are arranged to appear as though naturally occurring.
- * The Garden’s rustic trails and shelter, and its tucked away location in Theodore Wirth Park, provide the sensibility of being in wild nature far from the city and modern life.
- * Plant collections have been developing and maturing over a period of 100+ years.
- * The Garden houses the only nature-focused interpretive center staffed by the Minneapolis Park & Recreation Board.
- * It was founded at the urging of teachers and scientists, most notably Eloise Butler.

Purpose of the Management Plan

This management plan has been developed to achieve five main goals and for two principal audiences: Minneapolis Park & Recreation Board staff and Commissioners and the greater community of Garden visitors and supporters.

To Use as a Communication Tool

Having a concise summary of the management history and current practices serves an important role as a communication tool about how the Garden has been managed in the past and how it will be managed in the future. The information is for use within the Minneapolis Park & Recreation Board and by the greater community of Garden visitors and supporters.

To Guide Future Management Philosophy and Work Plans

Managing the Garden for current and future generations is a multi-faceted responsibility for staff. Sculpting a clear picture of the management philosophy and related practices guides annual work plans and cultivates an understanding among the Minneapolis Park & Recreation Board including Garden staff and the public about the greater goals and vision for the Garden.

To Acknowledge and Learn from the Past (prescriptive management)

By building an understanding of how past management practices and principles have shaped the Garden, it is possible to move forward with a greater sense of purpose, unity, and clarity of vision. With this foundation of knowledge it is easier to see how the past informs and gives context to management decisions that are made today. Please see the Appendix for a detailed history.

To Articulate Opportunities and Boundaries with the Greater Community

The Garden is a resource that is cherished by many different community groups and individuals. Clarifying roles and responsibilities for existing and potential relationships makes for a brighter and healthier future. Setting goals for reaching out to new community groups and individuals widens the scope of what the Garden can provide to the public.

To Realize Vision Outlined in Minneapolis Park & Recreation Board 2007-2010 Comprehensive Plan

The Garden’s management plan directly speaks to the broader goals of the Minneapolis Park & Recreation Board’s 2007-2010 Comprehensive Plan. Work carried out at the Garden supports specific vision themes and goals outlined in the Comprehensive Plan. Just as it is recognized that the individual person is a part of a greater community, it is also true that the Garden is a single component which is part of a large dynamic park system. The Comprehensive Plan serves as a tool to unify the work of the Minneapolis Park & Recreation Board and to create clear overarching themes that guide the work of the agency. The Comprehensive Plan was developed with a considerable amount of input and feedback from the public and is a reflection of the values of the community at large.



Eloise Butler Wildflower Garden Trail Map

Goals & Values

"When one tugs at a single thing in nature, he finds it is attached to the rest of the world."

John Muir

Building Understanding through the Articulation of a Common Vision

Since its founding, the Garden has been informally oriented around a system of principles used to guide its management. Throughout its history, there have been a total of five different Curators and Gardeners with different focuses for the Garden. Remarkably, there are four common overarching principles that have remained constant. These have served as a unifying organizational tool during the past century.

These unifying principles are: a vision to maintain a native plant botanic garden that sustains a wide variety of Minnesota flora in a naturalistic setting; a genuine appreciation of native plants both as individuals and as members of greater plant communities; a dedication to educating the public about Minnesota native flora and fauna; and a focus on working with the natural world and emulating the natural world's standards of health, biodiversity, complexity, and flexibility.

It is important to understand these historic guiding principles in order to appreciate the quality, choices, and tone of Garden management. They have informed the work carried out at the Garden since its inception and contribute to the Garden's guiding philosophy. The impetus to formally articulate the above principles and to translate them into the vision, mission, values, and goals of the Garden was borne from awareness that the long-term health and success of the Garden will be more easily realized with a set of clearly stated directive values and goals.

VISION

The Eloise Butler Wildflower Garden and Bird Sanctuary is a treasured, public native plant garden. The Wildflower Garden, with sensory appeal and attention to beauty, exhibits a great diversity of flora and fauna native to Minnesota in a naturalistic setting while providing dynamic and meaningful environmental education opportunities to a broad audience.

MISSION

The Eloise Butler Wildflower Garden and Bird Sanctuary showcases native plants and birds to inspire stewardship and appreciation of the natural world.

VALUES

Preserving native plants and plant diversity

The Wildflower Garden was founded with a sincere passion for the preservation of native plants and plant diversity. This is a guiding principle for all work at the Garden.

Fostering a sanctuary for people, plants, and wildlife

The Wildflower Garden serves as a place of rejuvenation and inspiration for scores of visitors from near and far. Its role as a sanctuary for people, plants and wildlife is deeply significant.

Maintaining the legacy of Eloise Butler

The Wildflower Garden was founded by a visionary woman, Eloise Butler, at a time when participation by women in the endeavors of the scientific community was uncommon. Eloise Butler inspired generations of botany students through her dedication.

Connecting city residents and visitors with nature

The Wildflower Garden is situated in the heart of a major North American metropolis providing city dwellers the opportunity to connect with and find meaning in the natural world.

Sharing knowledge about the natural world

The Wildflower Garden serves as a living resource for information about plants and birds native to Minnesota. The resources found within the Garden gates provide countless opportunities for individuals to learn about and find enthusiasm for native plants and birds and their importance in our everyday lives.

Nurturing the health, beauty, and integrity of the greater natural world

The natural world that people are an integral part of is under severe pressure from the actions of human beings. Nurturing the Wildflower Garden in ways that contribute to the health, beauty and integrity of the greater natural world is a management priority.

GOALS

- * To serve as an inspirational public Wildflower Garden devoted to the collection and preservation of Minnesota native plants and the celebration of resident and migratory birds.
- * To protect, preserve, and enhance the native plant collections and historic plant collections contained within the Wildflower Garden's 15-acres of wetland, woodland, and prairie areas for present and future generations of people and wildlife.
- * To maintain the legacy of Eloise Butler.
- * To uphold the integrity of this historic public Wildflower Garden and the tangible and intangible resources that it provides to the community.
- * To create a visually stunning display of the flora of Minnesota exhibited in a manner which is inspired by nature.
- * To educate visitors on the habitats and beauty of Minnesota native plants and birds.
- * To inspire preservation of and interest in native plants and birds by individuals and organizations.

Garden Background

"It is fortunate, perhaps, that no matter how intently one studies the hundred little dramas of the woods and meadows, one can never learn all of the salient facts about any one of them."

Aldo Leopold

During the first years of the Garden's existence there was a concerted and pervasive effort to increase both the number of native plant species in the Garden as well as the quantity of specimens of many represented species. The Garden was viewed as a native plant garden with a purpose to sustain a great diversity of the native flora of Minnesota in a naturalistic setting. It was not managed as an intact grouping of ecosystems wanting to be restored to their former untouched nature. Rather, it was treated as a rich assembly of soil types, indigenous plant groupings, and shade and slope regimes perfect for the development of a diverse collection of native plants in a relatively small area close to an urban center. Over the past 100+ years the Eloise Butler Wildflower Garden plant collections have undergone many substantial changes due to environmental forces and the vision, tenacity and guiding management philosophy of administrative staff and the Curator or Gardener of the day.

Eloise Butler

At the time of its creation in 1907 the then three-acre Garden was viewed by Eloise Butler and the botanists who founded it as one of the more pristine pieces of unspoiled nature near the city. One reason why it had remained relatively unspoiled is due to the fact that the low lying areas that made up the bulk of the original garden were less desirable for cultivation, grazing, or residential development. Once established, the Garden quickly took on the character-



istics of a true garden with the planting of hundreds of new species that would not have been part of the



original plant communities found on the site. With the additions Eloise made clear her gardening style “...plants are to be allowed to grow as they will and without any check except what may be necessary for healthful living. Those in excess may be removed, when others more desirable have been obtained to replace them. Each individual, when procured, is to be given an environment as similar as possible to that from which it came, and then left to take care of itself, as in the wild open, with only natural fertilizers furnished by decaying vegetation.” Within a few decades over 800 plants species were added to the collections. By the time Eloise Butler died in 1933 it is estimated that the Garden encompassed more than 25 acres.

Martha Crone

During Martha Crone’s time as Curator, she focused on mass plantings of native species throughout the Garden hoping to inspire home owners to abandon their marigolds and canna lilies for lupines and asters. Crone added tens of thousands of herbaceous



and woody plants to the Garden during her tenure as Curator. Crone posed that “nature began this garden, and, following her master-touch, human hands impelled by a purpose have evolved its shaping, adding thousands of plants each year.” Her steadfast objective of beautifying the Garden

through the development and enhancement of the plant collections resulted in impressive displays of native plants.

In the 1940s a sunny hillside adjacent to the Garden was annexed because it offered the opportunity to expand the Garden’s plant collections to include native prairie species. Crone also experimented with plants that grew at the same latitude as the Garden and began acquiring news species from across the United States. As Martha Crone stated, “the object is to bring together all the native plants hardy in this latitude, also to experiment with plants introduced from other areas.” This resulted in several non-native species being introduced to the Garden. Over the years several species intro-

duced by Eloise Butler died out. The 1951 official plant census of the Garden’s then 14 acres identified 786 plant species.

Ken Avery

When Ken Avery took over care of the Garden in 1959, he veered away from Martha Crone’s goal of introducing non-native plants from similar latitudes. He instead focused on

reintroducing species that had once grown in the area of the Garden. During the 1970s Avery had to adjust to the loss of consistent seasonal labor and the removal of more than 170 mature elm trees which succumbed to Dutch elm disease. The loss of trees had a catastrophic impact on the woodland plant collections. The loss of seasonal labor reduced Avery’s ability to maintain and expand plant collections. As a result the number of species represented in the Garden declined.



In 1976, **Mary Maguire Lerman** was hired as the Environmental Coordinator of Horticulture Programs. While her role was to oversee gardens and programs throughout the park system, she had a specific and major impact on the Wildflower Garden. Under Lerman’s direction, a dividing fence was removed, a trail loop completed and the roadway to the Garden changed to one-way. In the mid-1980s Lerman was instrumental in extending the Garden’s open hours from 7am to 3:30pm to 7am to one hour before dusk, seven days a week. With these extended hours, Lerman insisted on garden programs for the public which resulted in the hiring of Naturalist staff. She also worked with Avery, and later Cary George, to locate sources of then hard-to-find native trees and plants for the Garden.

Avery revered the natural world and readily believed (and stated) that “nature knows best.” Avery’s management philosophy is captured in his quote that “the more you control something, the more it upsets the balance of nature and the more you have to control something else.” This viewpoint

may help explain the slow creep of invasive species into the Garden during the early 1980s. At that time Avery also revealed that he weeded in such a way that it didn't look like he had weeded, "but that the most desirable plants just happened to grow where we wanted them to [adjacent to the trail]." This may mean that the choice was made to let invasive species grow in larger sections of the Garden with the assumption that nature could bring itself back into balance without human interference.

Cary George

One of Cary George's guiding management goals was to work towards replicating a pre-settlement experience. As a guide to his management decisions George perennially posed the question "what would it be like if you walked around these areas pre-development?" His efforts to enhance the Garden's plant collections were made accordingly.

George saw the silent damage to the native plant collections caused by invasive species, in particular buckthorn. He began vigorous removal of these plants upon starting his career as the Gardener in 1987. In the 1990s, despite his consistent efforts to keep invasive species at bay several species proliferated in the Garden. Invasive plant seeds were introduced by wind and wildlife from greater Wirth Park and the surrounding residential neighborhoods. The devastating impacts of invasive species were just being realized by the community at large and few resources were dedicated to removal efforts. Portions of the Garden's native plant collections were compromised by the invaders. In spite of the presence of invasive species, a few uncommon plants survived in greater Theodore Wirth Park and were found by George, including twayblades and kitten tails.



George oversaw the addition of one acre to the upland garden and managed the resulting transformation by adding diversity to the plant collections in the prairie. The physical boundaries of the Garden had expanded and contracted throughout the years and with this final 1-acre addition, the Garden reached its current size of 15 acres. A 1986 plant census identified 489 species.

Susan Wilkins

Upon Cary George's retirement in 2004 the gardener position was revised. The goal was to have the new Garden Curator oversee all aspects of the Garden including gardening, environmental education programming, staff, outreach, volunteer programs, planning, and plant collection development.

Susan Wilkins was hired as the Garden Curator in 2004. In the last six years, emphasis has been placed on eradication of invasive species from the Garden and development of plant collections. Large sections of the woodland and wetland garden areas have been cleared of buckthorn and garlic mustard. This has dramatically improved both the visual appeal and the health of these garden areas.

The number of native plants added annually to the Garden's plant collections has increased dramatically. Large quantities of native plants have been planted over the past five years including more than 11,000 wildflowers, grasses, sedges, trees and shrubs.

Several new initiatives have been undertaken since 2004 including: the building of new partnerships, the inclusion of the public in hands-on volunteer work, the development of specialized art-nature focused programming, the installation of new signage, the first vascular plant census taken in 20 years, and the development of this management plan.





GARDEN MANAGEMENT

GARDEN MANAGEMENT BACKGROUND

GARDEN DESIGN FOUNDATIONS: PRINCIPLES & PRACTICES

WOODLAND GARDEN COLLECTIONS

WETLAND GARDEN COLLECTIONS

UPLAND PRAIRIE GARDEN COLLECTIONS

INVASIVE SPECIES MANAGEMENT

HARDSCAPE ELEMENTS & INFRASTRUCTURE

GARDEN FAUNA

BEYOND THE GARDEN GATES

Garden Management Background

"Our ability to perceive quality in nature begins, as in art, with the pretty. It expands through successive stages of the beautiful to values as yet uncaptured by language."

Aldo Leopold

The Wildflower Garden: Natural Area or Garden?

It's a garden! Since the Garden's founding, staff and the public have played into the romantic ideal of the Garden being a piece of untouched wilderness, however, it clearly is not. In today's hectic world many people find refuge in not only the place but the idea that there is an intact piece of wilderness that is easy to access in the city. The Minneapolis Park & Recreation Board provides the opportunity for visitors to revel in their own ideas about wild nature at the Garden and this should not be discouraged.

However, it is important, especially from a management perspective, to be realistic about what the Garden is and what it is not. It is essential for staff to recognize that the Garden is not made up of intact, remnant native plant communities. Rather, the Minneapolis Park & Recreation Board is managing a highly-manipulated native plant garden. To manage the Garden without this core understanding would likely result in a decrease in the health, vitality and diversity of the Garden's plant collections.

A significant number of people who visit or are involved with the Garden still view it as a natural area. Research and study of Garden planting records and logs reveal that immediately upon its founding, there was an inordinate amount of work related to the manipulation of the Garden's indigenous plant collections. During the past 100+ years more than 800 new species and tens of thousands of plant specimens were added to the Garden. This

movement and addition of plants has affected the plant assemblies that are often thought of as intact plant communities in the Garden. The end result is a much more diverse display of the native flora of Minnesota than what the indigenous (to the site) flora would have provided. Garden diversity was also impacted by the addition of plant species from other parts of the United States.

The survival of particular plant species and their distribution in the Garden speaks more to the fortitude of individual plant species to survive and the will and whims of the Curator or Gardener of the day than to an idealized notion of the Garden being an untouched natural area of remnant plant communities. Adding to the complexity are the natural and greater human-induced forces at work.

These forces include the introduction of invasive species which have altered soil dynamics and also the non-native species that have temporarily filled niches that were previously available to native species. Some indigenous and introduced species are actively reproducing while others are not. The invasion of exotic earthworms has changed soil dynamics in the woodland. The loss of 170 mature canopy trees due to Dutch elm disease decades ago altered the composition of the woodland garden plant collections. The change of ground water dynamics has affected both the wetland and woodland gardens. While the Garden Curator may be able to impact some of these adverse forces many are beyond the Curator's control.

The Garden is an expression of the decisions and actions carried out over the past 100+ years coupled with the natural processes constantly at play. The Garden is sculpted by both human and environmental forces. This understanding is taken into account as management decisions are made for the Garden. Of critical importance is the knowledge that the Garden is managed as a true garden and not as a natural area. This is done to ensure that the health and vitality of the plant collections are maintained and enhanced for current and future generations to enjoy.



Gardening for Health and Vitality

The Garden is composed of a rich assembly of soil types, shade and slope regimes, plant species, animals, fungi, mosses, bacteria and other organisms. The result is a dynamic and ever evolving manifestation of myriad combinations of these different existing elements. New plant species and organisms are introduced to the Garden through enhancements to the plant collections and through introduction via numerous natural pathways and forces. These additions become part of the web of life found at the Garden.

Managing the Garden to ensure its health and vitality now and in the future involves developing an appreciation for and working with this complexity. The rich assembly of life and landscape features at the Garden creates countless opportunities for a wide array of interactions and dynamics to emerge between these elements. Management practices are utilized that encourage this complexity and diversity. For plant collection care and development it is helpful to have tools for organizing this multifaceted assembly of Garden elements into workable layers of life. A general description of one way to look at the collections follows.

The Garden essentially has three distinct garden areas: woodland, wetland, and prairie. Within each garden area are pockets of various plant assemblies. Currently few of the plant assemblies accurately mimic a native plant community. However often they do convey the general look of particular plant communities. The goal is to develop these plant assemblies to both increase diversity and to enhance them so that they visually resemble their authentic counterparts. These native plant assemblies will then serve as the canvas or backdrop for pockets of plantings and mass plantings that contain unique taxa not necessarily specific to the composition of plant assemblies cultivated in the Garden. In addition, collections of historic plantings that are either taxonomically unique or in some other way distinct from the plant assembly structure may be featured.

Increasing the health and diversity of these core native plant assemblies is essential. In turn, this layer serves as the structure that allows for the development of special collections and the restoration of historic plant collections within the Garden.

Garden Design Foundations: Principles & Practices

"The laws of artistry are well known to lovers of the beautiful."

Eloise Butler

The foundation for the development of the Garden plant collections is guided by knowledge garnered from direct observation and study of native plant communities and the enduring principles of naturalistic landscape design. As a public garden whose mission it is, in part, to inspire visitors to appreciate the beauty, greatness, and complexity of the natural world, great care will be taken to improve both the ecological health of the Garden and the splendor of the plant collections.

Four Guiding Garden Design Principles

Rhythm

Creating rhythm with the plantings adds to the sense of flow and continuity from garden space to garden space. This is done by appropriately spacing out focal points, seasonal features, and pocket plantings. This spacing allows for moments of focus on one area or feature to be interspersed with moments of general connection to the greater landscape.

Vistas

The creation of special surprise views in appropriate garden spaces affords visitors an unexpected reconnection to the larger landscape. Vistas provide visitors the opportunity to pause and reflect on the sense of opening and or intrigue afforded to them by this visual experience. Reconnecting with the greater landscape creates breadth in one's experience and provides an opportunity to re-focus once reconnected with finer, closer-at-hand details.

Unique Focal Points

Encountering an unexpected unique natural feature such as a large mossy boulder or a standing, hollowed-out dead tree can be a remarkable and memorable experience for visitors. These features may be ephemeral in nature but that does not diminish their importance. These features serve as focal points which draw visitors into a moment of concentration on a singular object or scene.

Tempo

The pace at which visitors travel through the Garden is a function both of personal demeanor and also the way facilitation of movement has been designed. The arrangement of plantings, benches, trail openings, vista and focal points can either foster or hinder a person's ability to connect with the landscape and also develop a personal relationship with it. Creating a harmonious tempo provides opportunities for reflection, connection to the landscape, and the development of personal intimacy with the Garden.



Six Guiding Garden Design Practices

1) Development of plant assemblies

The plant assemblies that are contained within the Garden are an interesting mix of primarily Minnesota native and some non-native flora. Particular site conditions determine what will grow and what will not. Plant species are added in such a way as to

create dynamic assemblies of plants that are visually stunning and that look natural. Many of the plant species grouped together in assemblies do not grow together in plant communities found in wild nature.

Example: The prairie garden area is a good example of a plant assembly. The majority of the prairie garden area was added to the Garden proper in the 1940s. Much work was done to remove woody plants and herbaceous weeds before planting occurred. What is called the prairie garden today is not a remnant prairie, but rather a planted prairie garden that mimics, in many ways, a native prairie.

2) Development of pocket plantings

Pocket plantings will be planted throughout the Garden as part of the development of the Garden's plant collections. Pocket plantings consist of groupings of plants that will grow well together in a particular habitat and that will provide a visually stunning display of native flora in a small area. The effect of multiple pocket plantings growing throughout the Garden will enhance the quality of the visual experience for visitors. Pocket plantings will generally consist of perennial wildflowers, ferns, and mosses. Groupings will be planted in a highly naturalistic manner.

Pocket plantings are not to be confused with traditional garden beds. To the contrary these plantings will be akin to natural mass groupings or drifts of plants found growing naturally in healthy native plant communities throughout the region. The pockets will all "shine" for a particular time period when the majority of the plant species contained within them will be at their peak. The plant groupings will be appropriate to the Garden setting. They will not attempt to mimic native plant groupings in frequency of distribution, percent cover or other species distribution dynamics.

Example: The new pocket planting in the wet hardwood forest area features more than 500 specimens of Virginia bluebell, foam flower, and miterwort. The long term goal is to plant an additional 2500 specimens (of the species noted above) which will result in an eye-catching mass planting for visitors to enjoy in mid-spring.



3) Increase diversity of plant species represented

As a garden whose purpose is, in part, to house a significant amount of the flora native to Minnesota, increasing the number of species represented in the plant collections is integral to success. Increasing the diversity of plant species found in the Garden will encourage a greater diversity of birds, insects, fungi, and other organisms to migrate through or to reside within the Garden.

Example: The addition of new or formerly represented plant species in the prairie area has taken place over the last five years. New and re-introduced species include Canada Milk Vetch, Silky Prairie Clover, and Butterfly Milkweed. These plants will benefit monarch butterflies, bumble bees, and other pollinators and will provide nourishment for hummingbirds and other songbirds.

4) Single species mass plantings

In certain instances mass plantings of individual species may be carried out. In general, plantings in the Garden are to be dynamic groupings of multiple plant species. However adding a small number of single species plant groupings to the collection will remain an option.

Example: Existing single species mass groupings already exist in the Garden including Interrupted Fern Hill (indigenous grouping) and Hepatica Hill (planted grouping).

5) Increase beauty and visual/sensory appeal

It is important to plant large quantities of specific plant species en masse as appropriate to the planting site. This is to ensure three things:

- * a viable, self-sustaining population is introduced to a given garden area;
- * a given planting can impact the visual experience of garden visitors; and
- * the scale of the planting is appropriate to the scale of the Garden and the local planting setting.

Example: Extensive planting of woodland wildflowers has taken place over the past several years along the trail from the front gate to the Visitor Shelter. These planting efforts have added thousands of specimens to this area, slowly increasing the showiness of this collection and increasing the likelihood that self-sustaining populations of particular plant species will develop.

6) Value of historic vegetation components within plant collections

Of great importance are the species which were introduced by Eloise Butler and Martha Crone from 1907 through 1959. Plant species added to the indigenous flora of the Garden during this time period are included as species in the Historic Plant collection. A small percentage of these species are not native to Minnesota and an even smaller percentage of these are known to be aggressive or invasive. Those species of the Historic Plant collection which are invasive will be removed as needed to maintain the health of the overall collection. Those species which are not native to Minnesota, but that are not invasive, will be maintained as part of the Historic Plant collection indefinitely.

Example: Eloise Butler started planting purple trillium plants in the woodland garden collections as early as 1910 and continued to add this species to the Garden throughout her tenure. The purple trillium, although not native to Minnesota, are an important part of the Historic Plant collection and are valued as an integral part of the woodland plant collection.

Woodland Garden Collections

The woodland plant collections represent a dynamic array of plants native to the woodlands of the Midwest generally. The woodland area does not represent a distinctive woodland type, but rather is a collection gathered for the purpose of displaying an aesthetically pleasing assembly of native plants that can thrive in Garden conditions.

In the last five years

Large landscape-scale planting projects of both woody and herbaceous plants have taken place throughout the woodland garden areas. Several thousand plants have been added to woodland garden areas. For example, the beautification of the Garden's entries has involved planting large quantities of woody and herbaceous plants, select pruning of shrubs, removal of posts and ropes lining the trail, and removal of the decaying wooden kiosk near the front gate.

Invasive species eradication efforts for buckthorn and garlic mustard came into full force with large-scale removal of both species throughout the woodland areas. Removal changed the character of the understory of the woodland areas. The most noticeable visual changes included the opening up of the woodland ground layer and shrub understory layers, and the increase of dappled sunlight to the woodland floor. Both changes, along with other factors, allowed for greater regeneration of native plant species.

Improvements in the aesthetic appeal of the woodland area occurred through the removal of excess woody debris, including downed trees and extensive piles of buckthorn brush scattered throughout the woodland areas.

Future strategies and priorities

- * Maximize natural regeneration of native plant species and allow for successive generations of plants to take hold on their own accord so that repopulation, both of woody and herbaceous plants, occurs as part of the cycle of development of the plant collections.
- * Add large quantities of woody and herbaceous native plants to the woodland garden areas to increase the number of species represented and to increase the general abundance of plants.
- * Maximize diversity and general health of the plant collections.
- * Emphasize planting the next generation of canopy and understory trees. These trees will supplement natural regeneration and will ensure that the woodland canopy remains intact for generations to come.
- * Pro-actively manage the invasive and aggressive native and non-native plant species found in the woodland garden areas to minimize damage to the native plant collections.
- * Monitor for new and manage existing diseases and pests.
- * Develop a native vine collection. The development of the Garden's vine collection was a goal of Eloise Butler's that has not been fully realized.
- * See also Garden Design Foundations: Principles and Practices (pages 17-19).
- * Continue to use Integrated Pest Management (IPM) practices to manage diseases and pests.



Wetland Garden Collections

The wetland area of the Garden has changed dramatically over the past century. Originally a tamarack bog, the wetland area underwent several dramatic changes over the past 100 years, including a tornado in 1925 that leveled all the tamaracks, which changed its visual and ecological character. Notably, the soil has changed significantly as decomposing peat has mixed with other organic and mineral materials. The current soil and moisture conditions of the wetland allow for a wide variety of native plants adapted to moist, moderately acidic to neutral soil conditions to thrive.

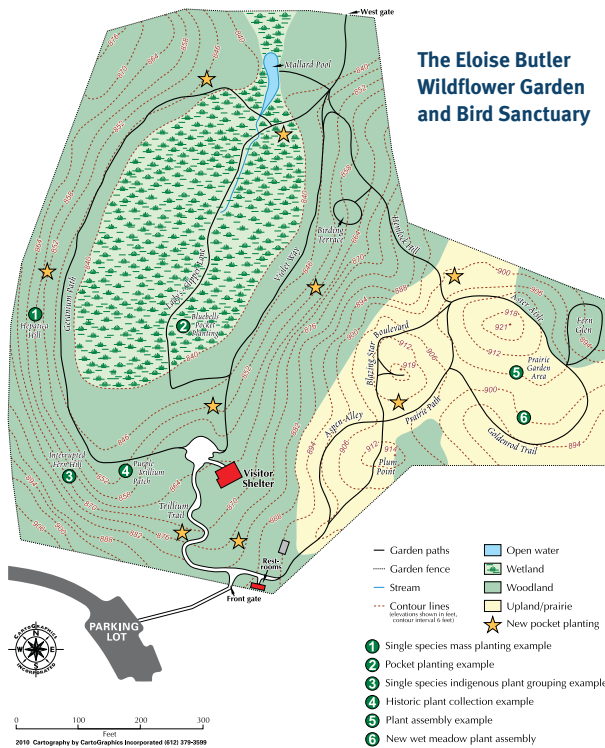
In the past five years:

It has become apparent that a better understanding is needed of the ecological history of the wetland garden and its present state. This area is a complex biotic community that is greatly impacted by the hydrologic features of the site. Over the years the wetland has changed considerably at the hands of natural events and ecological processes as well as from human-induced ones. A feasibility study is required to create a sustainable vision and related management practices for this Garden area.

The visual appeal of the wetland was improved by planting showy and colorful native wildflowers along the path. Habitat improvements have been made by planting native woody shrubs and trees which are fruit bearing and/or provide nesting and perching areas.

Select pruning of shrubs and small trees has been an on-going maintenance task during this time period. This is done to maintain open views through the wetland area.

Large-scale removal of invasive species took place including buckthorn, garlic mustard, and dame's rocket.



Priorities for next five years

1. Create pocket plantings in highly visible areas along the trails of the woodland areas. These will mainly consist of showy herbaceous plants in groupings large enough to create an eye-catching display. There are three areas where large-scale, generalized herbaceous plantings will occur including the front entryway area (from the front gate down to the Visitor Shelter), the hillside adjacent to Violet Way Trail, and the hillside that encompasses Hepatica Hill. The plantings will contain a diversity of native woodland wildflowers, grasses and sedges.

2. Develop a native vine collection. Plantings will focus on the Garden fence line.

3. Continue to plant native canopy trees.

4. Continue to monitor and manage existing tree diseases and pests including, but not limited to: oak wilt, Dutch elm disease, anthracnose, golden canker and two-lined chestnut borer. Continue monitoring for new diseases and pests including: emerald ash borer, hemlock wooly adelgid, gypsy moth, and Japanese beetle.

5. Continue control of invasive and aggressive native and non-native species (see pages 24-26).

Future directions and strategies

- * Manage the wetland to enable native species present to flourish and for natural processes to continue to unfold.
- * Maximize general health of the plant collection.
- * Pro-actively manage the invasive and aggressive native and non-native plant species found in the wetland garden area to minimize damage to the native plant collection.
- * Monitor for new and manage existing diseases and pests.
- * Balance the distribution and quantities of woody plants and herbaceous plants to ensure that the diversity of wetland trees and shrubs is high, a general sense of openness is maintained, open areas for desirable sun-loving wetland natives are maintained, and long-distance views from the wetland trail are maintained.
- * Investigate how to acquire and maintain a consistent natural water level and lower pH level throughout the Garden season. Currently the natural inflow of water to the wetland garden system is supplemented by city water with a high pH level. Water levels change dramatically after large storm events and during dry spells, which negatively impacts the plant collections. The pH is likely different than what is natural in this garden area due to the input of city water.
- * See also Garden Design Foundations: Principles and Practices (pages 17-19).
- * Continue to use Integrated Pest Management (IPM) practices to manage diseases and pests.

Priorities for next five years:

1. Complete a feasibility study to better understand the hydrology and plant communities of the wetland and Mallard Pool.
2. Expand pocket plantings. Until the feasibility study is complete only small scale pocket plantings will take place in areas that are stable and close to the trails.
3. Reestablish stream and Mallard Pool maintenance. Each season the stream and open water areas partially fill with plant debris and soil. Historically it has been necessary every few years to remove the excess debris to allow for flowage and open water conditions. Excess soil is distributed to interior wetland garden areas.
4. Continue to monitor and manage existing tree diseases and pests including, but not limited to: Dutch elm disease and golden canker. Continue monitoring for new diseases and pests including: emerald ash borer, gypsy moth, and Japanese beetle.
5. Continue to control invasive species and aggressive non-native and native species (see pages 24-26).



Upland Prairie Garden Collections

The upland prairie garden area of the Garden is a created prairie garden dominated by wildflowers and grasses with scattered oak trees. This garden area is reminiscent of an oak savanna ecosystem in its structure but not in its plant composition.

In the past five years

The upland prairie garden area has been managed to maximize diversity and visual appeal as well as to minimize the spread and invasion of non-native, invasive plants. Several thousand showy native prairie plants have been planted in scattered locations in the upland garden area during this time period.

Every two to four years the upland prairie garden is managed through prescribed burns carried out by trained Minneapolis Park & Recreation Board staff. Woody plants that are not killed by prescribed burns have been removed each season, typically in the autumn months.

From 2004 to 2006, a large area of buckthorn was cleared which resulted in an open hillside adjacent to the existing prairie area. In 2007, this area was prepped for planting and, in 2008, seeding and planting of native plants took place. In 2009, over 4000 additional native wildflowers and grasses were planted.

Extensive removal of annual, biennial and perennial invasive herbaceous and woody plants has occurred annually. This includes the drastic reduction in size of reed canary grass stands in several prairie garden areas.

Future directions and strategies

- * Maximize diversity and general health of the plant collection.
- * Increase the seasonal interest of the prairie by adding large numbers of early and late blooming flowering plants.
- * Pro-actively manage the invasive and aggressive native and non-native plant species found in the prairie garden area to minimize damage to the native plant collections.
- * Continue to maintain health of specimen oak trees through preventive care.
- * Monitor for new and manage existing diseases and pests.
- * See also Garden Design Foundations: Principles and Practices (pages 17-19).
- * Continue to use Integrated Pest Management (IPM) practices to manage diseases and pests.

Priorities for next five years

1. Create high-diversity wet meadow/prairie in low-lying, moist prairie bowl. This area was once dominated by a stand of reed canary grass and is currently species poor.
2. Add diversity to upland garden plant collection through plantings and seedings in pockets plantings.
3. Remove tree and shrub seedlings and saplings from prairie areas.
4. Continue control of invasive species and aggressive native and non-native species (see pages 24-26).
5. Continue to monitor and manage existing tree diseases and pests including, but not limited to: oak wilt, two-lined chestnut borer, and anthracnose. Continue monitoring for new diseases and pests especially gypsy moth.

Invasive Species Management

Invasive species have been present in the Garden for decades. Invasive species enter the Garden through a variety of means, some of which can be controlled and some that cannot. The most common ways new invasive species are introduced and existing invasive species *reintroduced* to the Garden are:

- * wind dispersion of seeds from adjacent park land and neighboring yards;
- * introduction of seeds and root fragments by animals (mammals and birds);
- * past intentional introduction by humans before plant was known to be invasive or was mislabeled; and
- * unintentional introduction by humans.

Humans, both staff and the public, can unintentionally introduce seeds and root fragments of invasive plants to the Garden in a variety of ways. These include:

- * dispersion of seed inadvertently collected off-site (from clothing and shoes);
- * introduction of soil contaminated with seeds and/or root fragments (associated with new plantings);
- * wood chips for trails contaminated with seeds and/or root fragments; and
- * contaminated seed source for seeding-based plantings.

To minimize the opportunity for the introduction of new invasive species and the reintroduction of species currently found in the Garden staff will do the following:

- * Only purchase plants rooted in soil from professional distributors of native plants.
- * When planting specimens that have been harvested from natural areas, home gardens, or other non-nursery sites, great care will be taken to assess whether or not exotic invasive species exist in the harvesting location. If no invasive species are present soil can be gathered and used to amend the soil at the planting location in the Garden. It is much

more likely that a plant gathered from the wild will survive if the native soil and soil organisms are transplanted with the plant itself. If there are invasive species in the area of harvest, native soil may not be taken back with the plant itself and the plant roots must be washed thoroughly to remove any remaining soil. The plant will be planted as a bare root plant.

Many modes of dispersion are unfortunately beyond human control and thus removal/treatment must be used as another tool for dealing with existing invasive species.



How invasive species are recognized

There are a number of invasive species that are found growing in the Garden that are both well known and easily recognizable. In today's world the expectation is that many more species, both known and currently unknown, will make their way to the Garden's gates through one of the modes of introduction noted previously. It is the role of the Garden Curator to use the many resources available on the topic to keep track of invasive plant species that may be moving into the vicinity of the Garden. In addition, the Garden Curator and staff annually update the following lists of species currently found in the Garden:



1. Non-native invasive species are species that are not native to Minnesota and that will quickly and relentlessly spread throughout a given Garden area causing damage to the native plant collections contained within. The long-term management goal for all of these species is to eradicate them from the Garden. Examples include common buckthorn, garlic mustard, and reed canary grass.

2. Non-native aggressive species are species that are not native to Minnesota and that will uncom- promisingly spread and eventually negatively impact the Garden's plant collections. The management goal with these species is to limit their spread in the Garden while maintaining a manageable population of the plants from a given species. Many of these non-native plant species are maintained as part of the historic plant collection and help reveal the Garden's unique history. If a species in this category becomes invasive the management goal will shift to eradication. Examples include periwinkle vine, forget-me-not, and Ohio buckeye.

3. Non-native garden weed species are species that are common garden weeds. They prefer disturbed habitats, typically along trail edges and disturbed soil, such as areas where tilling or extensive weed- ing and invasive species removal has occurred. In general, non-native garden weed species won't compete well in established Garden areas. The management goal with these species is to limit their spread in the Garden while maintaining a manage- able population of the plants from a given species near trails for display and educational purposes. Examples include creeping charlie, dandelion, and chicory.

4. Aggressive native plants are plant species that although native to Minnesota have a tendency to be problematic by virtue of being vigorous growers. They typically spread by rhizome or seed and over time can proliferate in their given location in the Garden and out-compete other species in that Garden area. The management goal with these species is to maintain balanced populations of each species. Examples include early goldenrod, spotted jewel- weed and prairie cordgrass.

How invasive species are managed

All invasive species are managed on a case by case basis as no two are exactly alike. Each species requires its own control method and schedule. Tim- ing is an important factor when controlling invasive species. For instance, a plant species that cannot be controlled effectively through the use of manual removal or other non-chemical treatments will be treated with an herbicide chosen for its efficacy and low-toxicity.

In most situations there is an appropriate time during the life stages of a particular species when herbicide treatment is most effective. If the herbi- cide is applied during this time period, the great- est level of success is expected. If it is applied at a different time, less success is expected, which will result in a greater use of herbicide over time and a lack of efficiency. Many species uptake of herbi- cides is highest in the late summer and autumn months. If this is the case for a particular species, the plant will remain in the collections for a given season until the appropriate time for actively con- trolling the species arrives.

Listed below is a summary of different control methods that are used to manage invasive species at the Garden. For each invasive species, Garden staff assess what methods are effective with this species based on current research and studies, empirical data from peers, and past experience. If multiple control/removal methods exist for a given species, staff will choose the least harmful and most effective approach. This may require the use of more than one method of control for a given species over time.

- * Manual removal
- * Use of heat and fire with weed torch and/or controlled burns in upland prairie garden
- * Bio-control
- * Herbicides

In the last five years

Intensive efforts were made to remove glossy and common buckthorn. These two woody invasive species covered several acres within the Garden including the core wetland area, the wooded hillside slopes and along the prairie edges. Several of the larger thickets were so dense they created a visual barrier for visitors and a physical barrier for Garden staff working off trail.

The intensive work carried out to remove buckthorn from the Garden was a collaborative effort of Minneapolis Park & Recreation Board maintenance gardening staff, vegetation management staff and Garden staff and volunteers. The work was partially funded through the South Wirth Woodland Restoration Project which is occurring beyond the Garden's gates (see page 30).

All mature buckthorn was removed and/or treated by the spring of 2007. Maintenance of re-sprouts and seedlings is now the focus for buckthorn control. Removal of buckthorn seedlings is a time intensive manual maintenance task. Experiments are being conducted with a new tool, a torch, to see if buckthorn seedlings can be effectively managed through the use of fire.

Concerted efforts were made to remove garlic mustard. This invasive herbaceous plant had gained significant ground in the woodland and wetland and prairie edges of the Garden. Garlic mustard removal efforts have been in full swing since 2004 with the annual goal of removing all 2nd year garlic mustard plants before the seeds mature for that year. Staff has been successful at reaching this goal in recent years.

A noticeable decline in garlic mustard populations has been observed since 2008. Thousands of plants must still be removed annually, fueled in part by a robust seed source from greater Theodore Wirth Park. Garlic mustard removal and prevention of re-establishment will be an on-going labor-intensive annual maintenance activity indefinitely.

Several other invasive plant species, including dame's rocket, honeysuckle and reed canary grass have been managed, with the end goal of complete control of existing and re-introduced specimens of

these species from the Garden. Each season staff comes closer to complete control of the species noted above. Removal of and prevention of re-establishment of these species will be an on-going labor-intensive annual maintenance activity indefinitely.

Efforts to remove aggressive non-native plants, such as periwinkle, began more recently and will increase in the future.

Select aggressive native plants have been managed, such as early goldenrod and spotted jewelweed, to limit their negative impacts in the plant collections where they are found.

Future directions and strategies

- * Stay current with invasive species management issues including the encroachment of new invasive species in our region and new techniques for controlling current and future invasive plant species.
- * Continue pro-active management of existing invasive plant species.
- * Continue to utilize volunteers and build capacity to accommodate additional volunteers to assist with invasive species removal efforts in the area surrounding the Garden.

Priorities for next five years

1. Continue efforts to eradicate target invasive species from the Garden. The target species for the next five years include: common buckthorn, glossy buckthorn, tartarian honeysuckle, garlic mustard, dame's rocket, reed canary grass and moneywort.
2. Continue to work with the Friends of the Wild Flower Garden to increase the number of participants in the Friends' Invasives Action Group program featuring volunteers working in the area surrounding the Garden.
3. Increase efforts to control aggressive non-native plants such as periwinkle and false blue indigo in order to maintain representatives of these species but not large populations.
4. Increase efforts to control aggressive native plants such as early goldenrod, horsetail, and jewelweed in order to maintain representatives of these species but not large populations.
5. Continue research to improve methods for removal and treatment of current and new invasive and weedy plants.



Garden Hardscape Elements and Infrastructure

The human-made structures are intended to serve as a backdrop to the Garden's plant collections. Features such as the Visitor Shelter, restrooms, benches, water fountains and trails all provide visitor comfort. Other features such as the fence surrounding the Garden and the tool shed, serve either directly or indirectly to secure and maintain the Garden.

In the last five years

Old timber posts lining the trails with sections of rope were removed to reduce the negative visual impact that they had on the aesthetics of the Garden. Smaller, movable, cast iron garden barriers were purchased for use near sensitive and hard to see plantings.

The Ken Avery Birding Terrace Area was added in 2005 in honor of the Garden's third Gardener. It consists of three benches situated in an open, wood-chipped area surrounded by woodland plants many of which were added as part of the project. The project was funded by the Friends of the Wild Flower Garden (the Friends).

Other projects funded by the Friends include a new screen door and gutters for the Visitor Shelter and the installation of ornamental steel fencing adjacent to the back gate. This high-quality fencing replaced chain link fencing in that area.

The garden and bird feeding area in front of the Visitor Shelter was excavated to remove soil contaminated with oiled sunflower hulls (chemical compounds found in the hulls prevents plants from growing). After soil replacement was completed a new bird feeding station was created. The area contains a small grouping of stones underneath the feeders. Surrounding the station is a plethora of native woodland plants.

The decaying sign frames, panels and kiosk located near the front gate were removed in 2008. New interpretive signs funded by a gift from First American Funds were installed in 2009.

Future directions and strategies

- * Maintain integrity of the rustic, natural character and design of buildings, trails and all hardscape elements. Use of natural material will take preference for repair and restoration of hardscape elements.
- * Develop and implement a maintenance schedule for all of the building structures.
- * Develop and implement effective, long lasting erosion control measures for trails.
- * Improve accessibility to Visitor Shelter.
- * Improve directional signage to help visitors locate the garden entrances.

Priorities for the next five years:

1. Add two additional water lines to the woodland garden area to improve access to water for new plantings.
2. Update plant identification labels to provide visitors with accurate scientific and common plant names for a wider variety of plant species found in the Garden.
3. Attend to deferred maintenance. Replace roofs on all three buildings (shelter, restrooms, and gardener's shed), replace missing timber edges lining trails and restore fireplace.
4. Add directional signs to help visitors navigate the trails from the Wirth Beach parking lot to the Garden's west gate.
5. Develop a plan and seek funding to implement a bridge replacement project. This project's goal is to replace all of the wetland bridges with aesthetically appealing, long-lasting and consistently level bridges.
6. Develop and begin to implement a strategy for erosion control in garden areas where the trail is adjacent to a slope. Grade trails to effectively shed water and prevent erosion and puddles.
7. Upgrade the on-trail self-guided interpretive system.
8. Replace painted bench slats with cedar bench slats to increase longevity and reduce annual maintenance needs.

Garden Fauna

Birds and other Beneficial Wildlife of the Garden

The Garden is an important refuge for resident urban and migratory wildlife. Within the Garden gates are found a variety of habitats that provide food, shelter, and protection for birds, insects, reptiles, amphibians, and mammals.

The Garden was designated a bird sanctuary in 1969 to emphasize the importance of the Garden's native plant collections to resident and migratory birds. The diversity of plants found growing in the Garden provides a unique opportunity in an urban area for rest and re-fueling by migratory songbirds and for breeding, feeding, and habitation by resident birds.

A great diversity of insect species abound in the Garden. Of notable interest are the pollinators including butterflies such as monarchs. Other wildlife found in the Garden ranges from mammals like the red fox and groundhog to herps such as the gray tree frog and common garter snake.

Wildlife (most notably birds) indirectly act as native plant ambassadors spreading seeds from native plants found growing in the Garden. These seeds are dispersed in the Garden and beyond the Garden fence into greater Wirth Park and surrounding areas.

In the last five years:

Visitors and birds have benefited from improvements to the bird feeding station just outside of the Martha Crone Visitor Shelter (the Shelter). Woody and herbaceous plants were planted in the feeding area to improve habitat and to provide branches and natural shelter for feeding birds. The addition of a greater diversity of seeds and feeder types increased the diversity of species found feeding at the station. Visitors have benefited from the improvements as close-up viewing opportunities from the Shelter window have increased.

Weekly birding programs have been offered for the past five years. These programs have been well attended and continue to draw an enthusiastic audience of new and experienced birders. The rich array of plant life in the Garden provides ideal habitat for a wide range of bird species making this one of the premier birding locations in Minneapolis.

A new and on-going partnership was developed with Bird x Bird (Bird by Bird). Bird x Bird is a unique nonprofit organization. Its mission is to stimulate a creative interface between artists, scientists, and the public in an effort to enhance the stewardship of wild species and improve the ecoliteracy of human beings. The Garden has benefited annually from this unique program partnership. Please see pages (36-37) for more information about Bird x Bird.

The Minneapolis Chapter of the Audubon Society has donated funds directly to the Garden and to the Friends' Invasive Plants Action Group (through the Friends of the Wild Flower Garden) for the betterment of bird habitat in and around the Garden.

The Garden has been included in the monarch butterfly waystation program by the organization Monarch Watch as it provides substantial habitat for breeding populations of this insect species.

Notable mammal activity has included: Mink sightings in the wetland garden area, red fox kit rearing and den establishment, and continued health of the groundhog population.



Future directions and strategies:

- * Continue to maintain a diversity of habitats for wildlife.
- * Continue to provide sanctuary for wildlife. Provide an environment where wildlife will be respected.
- * Develop new and enhance existing relationships with organizations dedicated to wildlife education and preservation.
- * Develop relationships with higher education institutions to create opportunities for research that will benefit wildlife.

Priorities for the next five years:

1. Establish and enhance relationships with bird-focused organizations and researchers.
2. Enhance wildlife habitat by adding a diversity of plant species.
3. Continue to work with an important bird conservation project, the Minnesota Breeding Bird Atlas. A Breeding Bird Atlas is a collection of data about all of the birds that breed in a particular state or region.
4. Develop a plan to serve as host for a future Minnesota Bio-Blitz to occur throughout Theodore Wirth Park and in the Garden for on-trail work only. Bio-Blitzes are held each year in various locations locally and nationally. The goal is to have scientists and citizens gather as much information as possible about the species present in a given area in a 24 hour period.

Nuisance Wildlife Management

Nuisance wildlife management in the Garden is typically limited in scope and frequency to occasional events that are handled by Minneapolis Animal Care and Control or wildlife removal contractors.

In the last five years

The Minneapolis Park & Recreation Board has continued to work with the Minnesota DNR and Three Rivers Park District to monitor deer populations of Theodore Wirth Park and the surrounding suburban communities. Currently deer are not causing significant or ongoing grazing problems



either in the Garden or with plantings at the Wirth Golf Course. Common buckthorn provides good cover for deer. As a result of removing buckthorn from the area surrounding the Garden deer have been on the move looking for cover in the adjacent neighborhoods or other areas of the park where the understory is denser.

On occasion, unwanted domestic animals are released in the Garden. Dogs, rabbits, and gerbils have been released in the past. When this occurs, Minneapolis Animal Care and Control is notified so that the animal can be removed from the Garden and taken into custody by professional animal handlers.

Feral and non-feral cats also frequent the Garden. This has become a perennial issue. The presence of cats in the Garden is a direct threat to songbirds and small mammals that find refuge within the Garden gates.

Future directions and strategies

- * Continue to keep the Garden a deer-free area of the park system.
- * Intercept releases of unwanted domestic animals when possible.
- * Develop partnerships to implement educational programs about the impacts of domestic cats on the bird population.

Priorities for the next five years

1. Maintain Garden fence to ensure deer are not able to walk into the Wildflower Garden.
2. Develop and implement a plan for removing persistent feral animals from the Garden.

Beyond the Garden Gates

The Wildflower Garden is nestled within the 182 acres that are informally known as the South Wirth Woods. Historically this area of Theodore Wirth Park was a mixture of mesic oak forest, oak savanna, wetlands, and prairies prior to European settlement.

At present the plant community outside of the Garden's gates would be considered a disturbed mesic oak forest. Over the years many varieties of trees were planted into this forest area including: white pine, white cedar, and Norway spruce. These trees were mainly planted along Theodore With Parkway, to improve the aesthetic appeal of the scenic park drive. The sub-canopy consists almost entirely of common buckthorn, a non-native invasive shrub species.

In the last five years

In 2006 an invasive species removal project began in the South Wirth Park area with a \$50,000 annual commitment of funding through the Minneapolis Park & Recreation Board. These funds have been made available for a five-year time period, 2006-2010. Funding has been provided for equipment, staff time, plant materials, and seed. Environmental Operations staff are periodically working on invasive species removal in the area from May through November each year.

The main goal of this project is to restore the oak forest to a level where invasive species can be managed annually as part of a regular maintenance activity. During the initial five year time period the focus of the project has been to remove mature common buckthorn from the understory. After the initial clearing of mature buckthorn, removal of the many small buckthorn seedlings is the first wave of post-removal control. Control of the many small seedlings will take 5-7 years until the seed bank is

reduced. Treatments will involve using a combination of management techniques including herbicide treatments, hand-pulling, brush mowing and possibly prescribed burns to achieve a level of control.

Garlic mustard (another invasive species) flourishes after the buckthorn understory is removed. The Minnesota Department of Agriculture is close to releasing a biological control agent to aide in the control of this invasive herbaceous species. Anticipated use of this agent will possibly begin in 2010.

Future directions and strategies

✱ Maintain funding to continue work beyond 2010.

Priorities for the next five years

1. Ongoing control of buckthorn seedlings that have germinated after the initial clearing of parent buckthorn trees. Experimentation with various management techniques in select locations including foliar spraying, mowing and prescribed burning.
2. Control the garlic mustard that has come up after initial large-sized buckthorn removal. Current garlic mustard control methods include foliar spraying and hand pulling by volunteers. Work with Minnesota Department of Natural Resources and Department of Agriculture on biological control methods when available for release.
3. Research the presence and impact of non-native earthworms on the forest community.





GARDEN PROGRAMS, PARTNERS & PEOPLE

GARDEN VOLUNTEERS
GARDEN EDUCATION
GARDEN PARTNERSHIPS
GARDEN SUPPORTERS

Garden Volunteers

"The only gift is a portion of thyself."

Ralph Waldo Emerson

The Garden has a long history of volunteerism beginning with Eloise Butler and the Minneapolis public school botany teachers in 1907. These teachers volunteered their time to transplant native species and to care for the fledgling Garden. Later Martha Crone volunteered her time alongside Eloise Butler for approximately 15 years. With Crone as Garden Curator beginning in 1933, still other volunteers accompanied her to rescue native plants from highway construction sites.

In 1970, the Martha Crone Visitor Shelter was opened and the Garden's longest running volunteer program was born. Visitor Shelter volunteers welcome visitors and help answer questions about the Garden. Scheduling these volunteers is also the work of a volunteer from the Friends of the Wild Flower Garden. See pages 37-38 to read more about the Friends.

Interest in volunteerism continues to grow at the Garden and as it does so do the types of volunteer opportunities.

In the last five years

The on-going Shelter Volunteer program has continued to provide volunteers to staff the Visitor Shelter during daytime hours. An effort has been made to increase Shelter volunteer Garden knowledge through Curator and naturalist led walks in addition to annual trainings.

Volunteer programs have evolved to enable people of all ages and abilities to literally get their hands dirty and contribute to the health of the Garden. Partially due to volunteer interest and because of the urgency of removing invasive species two new programs were developed.

Legacy Volunteers assist in the eradication of invasive plants. After training from the Garden Curator, each volunteer takes responsibility for a designated section of the Garden and commits to removing all of the invasive species in their chosen section for the season.



Friends' Invasive Plants Action Group Volunteers are trained by a Garden staff member so they can lead volunteer crews. These volunteer crew leaders volunteer on evenings or weekends to assist other volunteers with removing invasive plants from the Garden's plant collections and from the surrounding natural area.

The Garden has benefited from working with organizations that feature a volunteer component such as Girl Scouts, Boy Scouts, and REI, as well as public and private schools. These volunteers have provided labor for invasive species removal, chipping trails and large planting events. Volunteer groups are often referred to the Garden by staff from the Volunteer Programs Department of the Minneapolis Park & Recreation Board.

A connection with the University of Minnesota's new Master Naturalists program was developed. This program provides education focused on Minnesota's biomes to committed volunteers. As part of the program, each participant must complete a volunteer project and volunteer their time. Several Master Naturalists have chosen the Garden as a place to volunteer their time as well as complete projects such as developing a photo guide of common insects found in the Garden.



Future directions and strategies

- * Continue to utilize volunteers to achieve vegetation management goals in specific areas of the Garden and the surrounding natural environment.
- * Work with volunteers to increase their knowledge, deepen commitment, and build an enduring relationship with the Garden and the surrounding natural environment.
- * As the health of the Garden continues to improve, it will be in the best interest of the Garden to limit the number of volunteers who work off trail in order to prevent soil compaction and plant damage. Volunteer labor will be directed to the surrounding natural area, the health of which impacts the vitality of the Garden.
- * Strengthen volunteer labor force to increase the impact of the Minneapolis Park & Recreation Board's efforts to restore the surrounding natural areas and increase the activity of Legacy Volunteers in this area.

Priorities for next five years

1. Support existing volunteer programs such as the Visitor Shelter Program, Legacy Volunteer Program, and Friends' Invasive Plants Action Group.
2. Continue to work with the Friends so that the Shelter program is self-perpetuating and meets the needs of visitors. Develop an increasingly knowledgeable volunteer corps that is visitor-centric, professional, and representative of the community in age, language, and cultural background.
3. Direct large scale volunteer efforts by youth and adults to the surrounding natural area which can absorb intensive efforts by many people at once. Strive for consistent efforts for best results.
4. Utilize volunteers in new ways such as helping monitor trails on high-traffic weekends.
5. Provide occasions for volunteers to lead programs beyond naturalist staff expertise or knowledge.
6. Identify additional opportunities for volunteers to contribute their skills and knowledge for the betterment of the Garden.

Garden Education

"Look deep into nature, and then you will understand everything better."

Albert Einstein

The Garden provides an array of high-quality opportunities for people of all ages and backgrounds to connect with nature. The Garden serves as a place of inspired informal and formal learning about nature in a natural setting.

Guided Learning Opportunities

The guided environmental education programs, both free and fee-based, at the Garden serve the community in a variety of ways. Guided tours and classes provide a means for people to step through a door into a new world of learning. Few field-based opportunities for learning specific information about nature exist in Minneapolis so the Garden serves a key role.

In the last five years

The number of people attending free public tours has remained relatively stable, averaging 800 participants each Garden season.

The variety of program offerings has increased as has the volume of people participating in group programs and special class offerings. In 2004, 17 groups visited and participated in special group tours serving a total of 422 individuals. In 2009, 68 groups visited resulting in 1,510 individuals being served as special group tour participants.

A number of new program series have been offered to foster learning experiences that integrate art and nature. These fee-based programs have been offered to adult and teen audiences and have been met with a high degree of success. The special classes program, non-existent in 2004, has grown in five years to offer 20 classes annually in a wide range of topics. Topics have included nature writing and poetry, wildflower photography, landscape painting, and botanic illustration.

Special classes have also been offered at the Garden through the Osher Lifelong Learning Institute (OLLI). In 2009, course offerings included Botany for Gardeners and the Biology of Autumn.

Future directions and strategies

- * When developing annual program offerings, work within the identified limitations of the Garden such as: its seasonal nature, keeping people on trail to preserve the plant collections, the intimate scale of the Visitor Shelter, and the number of naturalist staff available to lead tours at a given time.
- * Continue to maintain the sanctuary ambiance of the Garden for wildlife and visitors by limiting the number and size of groups that may use the Garden at any given time.
- * Continue outreach activities to draw in new groups and sustain relationships with groups who have visited previously in an effort to create a diverse and broad audience for the Garden.
- * Continue to offer natural history tours for the general public with an emphasis on topics that are in high demand including wildflower identification and bird watching.
- * Staff will continue to initiate new programs based on both the goals and strategies of the Minneapolis Park & Recreation Board's Comprehensive Plan and on accommodating various learning styles.
- * Begin work to build and strengthen relationships with neighborhood schools, enabling students to regularly visit the Garden.

Education program priorities for next five years

1. Pilot an artist and/or scientist residency program.
2. Pilot a horticulture internship program for teenagers.
3. Conduct a visitor intercept survey to determine demographics, program interests, and other pertinent items.
4. Conduct an on-line survey to find out more about visitors' sentiments on communication methods, program topics, etc.

5. Increase the number of special fee-based class offerings with respect to spatial limitations of site and appropriateness of the program. Introduce new subjects for classes in response to the interests of the community, current events, and trends.
6. Continue to provide natural history tours that are high-quality outdoor learning experiences for youth and adults and develop better communication tools to promote natural history tours.
7. Continue to be responsive to community interests and needs when developing programs. Increase accessibility of programs in terms of language and fee structure.
8. Investigate Citizen Science programs appropriate to the Garden.
9. Focus service-learning projects and programs in the surrounding natural areas.



Self-directed learning opportunities

The Garden provides myriad opportunities for visitors to enjoy and study nature independently. For many, being able to wander the trails and learn about nature in their own way and at their own pace is key to a rich experience. Several self-directed learning opportunities have been developed over the years to assist visitors in their pursuit of an informal educational experience.

The Visitor Shelter serves as a great starting and ending point for many visitors' trips to the Garden. Within the Shelter a variety of resources are available:

- * Staff and volunteers can answer questions about the Garden, its plant collections, and wildlife.



- * Interpretive displays include seasonal information and a ‘touch and see’ table.

- * Visitors can acquire copies of Garden guidebooks, maps, plant keys, field guides, and bird and plant checklists.

- * Binoculars are available for use for free.

- * Garden scavenger hunts help direct exploration of the Garden.

On the Garden’s trails are several resources for self-guided educational opportunities:

- * Numbered station posts correspond to the Garden’s guidebook.

- * Identification labels help visitors learn plant names.

- * New interpretive signs welcome visitors at the front and west gates.

- * Naturalists walk the trails and readily interact with visitors.

In the last five years

New, high-quality binoculars have been purchased and made available for check-out from the Visitor Shelter. These were paid for with a donation from Bird x Bird.

Several plant identification-related brochures and keys were developed. Many existing brochures were redesigned to create uniformity of design with printed materials. Pocket-sized full color map cards for visitors were produced.

Full-color Garden scavenger hunt cards were developed for use by families and groups. This allows families to participate in self-directed learning. This tool has provided an opportunity for families and younger audiences to engage with the natural world without a formal guide.



Future directions and strategies

- * Continue to provide means to help people directly connect with nature on their own.

- * Provide unobtrusive means of providing self-directed learning and limit use of audible technology in the Garden.

- * Stay current with trends in self-guided and field-based education.

- * Improve accessibility of information, especially with printed materials.

Priorities for next five years

1. Install a four-sided information kiosk near the parking lot. The kiosk will provide space for Garden information, maps, and brochures.

2. Update Garden guidebook and associated way-finding signs.

3. Improve and replace plant identification labels.

4. Increase staff and visitor interactions on trails.

5. Conduct a visitor intercept survey to determine demographics, program interests, and other pertinent items to help shape program direction.

6. Conduct an on-line survey to find out more about visitors’ sentiments on communication methods, program topics, etc.

Garden Partnerships

*"Synergy—
the bonus that is achieved when things
work together harmoniously."*

Mark Twain

The Minneapolis Park & Recreation Board regularly develops partnerships with a wide array of agencies and groups to provide a richer experience for park visitors. Partnerships are a valuable means to leverage each group's resources and expertise to accomplish a shared vision.



Successful partnerships revolve around an equitable investment by each partner organization to achieve a common goal. Contributions shared by each partner can vary greatly but an equitable contribution will result in a better outcome. Partnerships must balance contributions of staff, skills, knowledge, volunteers, funding and in-kind donations, as well as access to land, training and tools. Joint efforts result in a shared sense of success and the development of trust. It also enriches the creative process which can lead to new projects and programs to achieve additional common goals.

Minneapolis Park & Recreation Board staff strive to proactively identify project and program goals of the Garden. Staff then look to existing partnerships for help and also work to develop new partnerships. Common goals include eliminating invasive species in the Garden and surrounding natural areas, reaching underserved youth audiences, and enriching the birding habitat and programs of Garden.

Please note that the Garden's sponsorship policy can be found in the policy section of this plan. See page 45.

In the last five years

Significant progress has been made to eradicate invasive species in the area surrounding the Garden. Working with long time Garden supporters the Friends of the Wild Flower Garden, Minneapolis Park & Recreation Board staff and Friends' volunteer crew leaders train in volunteers and then work with them in the field to remove invasive species.

The Minneapolis Park & Recreation Board partnered with the Folwell Neighborhood Association (FNA) and their City Kids Summer Program as part of the goal to reach new youth audiences. Throughout the summer of 2007, more than 120 youth from Folwell, North Commons and Farview Parks visited the Garden weekly to connect directly with nature.

A new and on-going partnership was developed with Bird x Bird. Bird x Bird is a unique nonprofit organization. Its mission is to stimulate a creative interface between artists, scientists and the public in an effort to enhance the stewardship of wild species and improve the ecoliteracy of human beings. Bird x Bird enlists painters, printmakers, photographers, sculptors and multi-media artists to create works of art in response to data collected about avian species at the Garden, and also the Audubon Center of the North Woods. Each year the artworks created are exhibited and auctioned. The Garden has benefited annually from this unique program partnership. Proceeds from the auction are used for projects and programs specific to birds including improved habitat, binoculars for public programs, and a pilot project focused on graphic design, technology and art.

Garlic Mustard Goes Gourmet, an invasive species removal-based project funded by the Minnesota Recreation and Park Foundation, created the opportunity to develop two successful partnerships with Lucia's Restaurant of Minneapolis and Heartland Restaurant of St. Paul. Both restaurants focus on serving locally grown food and willingly incorporated garlic mustard from the Garden into their menus and onto the plates of diners. The restaurants also distributed information to diners about garlic mustard and volunteer opportunities at the Garden.

Additional programs done in partnership with the Friends of the Wild Flower Garden are described on pages 37-38.



Future direction and strategies

- * Strengthen existing partnerships that help meet the goals of the Garden - working towards sustainability, succession planning for volunteer programs, diversity of volunteers (age, language, etc.).
- * Continue to work with agencies and organizations that have their own volunteer corps that can be directed to work in support of the Garden (examples: REI, Girl Scouts, Boy Scouts, etc.).
- * Create cross-pollination opportunities for current program and project partnerships such as connecting Bird x Bird artists with outdoor volunteer projects and linking the Friends' Invasive Plants Action Group volunteers with student programs.
- * Evaluate potential partnership projects and programs based on their ability to help meet the following criteria:
 1. Enhance or expand depth of educational programming (especially bird-related);
 2. Connect new and underserved audiences to the Garden;
 3. Improve native plant collections;
 4. Provide volunteers for Garden activities and special projects; and
 5. Promote the Garden and its programs.

Priorities for the next five years

1. Seek out partners who can provide groups of volunteers for invasive species removal events in the surrounding natural area.
2. Create new partnerships with arts organizations to collaborate in the development of innovative, dynamic youth programming focused on the nature-art connection.
3. Maintain partnership with Bird X Bird and seek opportunities to enhance the existing annual project and to potentially develop new projects that are in keeping with the Garden's goals and values and the scope of Bird x Bird's purpose.

Garden Supporters

The Friends of the Wild Flower Garden, Inc

Garden Supporters are defined as groups that have a long term on-going relationship with the Garden. As of 2010 only one group fit this definition, the Friends of the Wild Flower Garden, Inc (the Friends). The Friends are a 501(c)(3) non-profit founded in 1952 by a group of private citizens including Clinton Odell, and then Minneapolis Park & Recreation Board employee and Wildflower Garden Curator, Martha Crone.

The Friends' purpose is to protect, preserve, and promote the interests of the Eloise Butler Wildflower Garden and Bird Sanctuary for its unique beauty and as a sanctuary for native flora and fauna of Minnesota, and to educate and inspire people of all ages in relating to the natural world.

According to the Friends' Mission Statement, the Friends believe that:

- * *The Eloise Butler Wildflower Garden and Bird Sanctuary should be preserved for its historical significance and its value as an environmental resource for the study and appreciation of native plants and birds.*
- * *It is necessary to maintain a natural buffer zone around the Garden to protect its ecological integrity and to preserve its value as a retreat for quiet contemplation and observation of nature.*
- * *It is our role to support and encourage the Minneapolis Park & Recreation Board in maintaining and preserving the Garden.*
- * *Promotion and utilization of the Garden should be compatible with protecting it as a sanctuary for flora and fauna and preserving the features of a natural environment.*
- * *As nature depends on a balance of diverse species, our success as an organization is supported by working with a variety of individuals and organizations with common interests.*

The Friends group is a long-standing supporter of the Garden. The group has a rich history of partnering with the Minneapolis Park & Recreation Board on a variety of projects both large and small over the past 56 years. This includes everything from the funding of the construction of the Martha Crone

Visitor Shelter to coordinating the Shelter volunteer program and the Friends' Invasive Plants Action Group volunteer program at the Garden. Additional information about the Friends can be found in their quarterly publication *The Fringed Gentian* and at www.friendsofeloisebutler.org.

In the last five years

In honor of their 50th anniversary the Friends raised funds to replace the chain link fence along the back gate with a new ornamental steel fence.

In 2005, the Friends provided funds to design and install a birding terrace in honor of the Garden's third Gardener Ken Avery. This project included an extensive planting of herbaceous and woody plants and the installation of three benches and a boulder bird bath. The Friends funded a new screen door for the Visitor Shelter in 2007.

The Friends have increased their annual investment in the Garden's plant collections and restoration efforts. Over the last five years, intensive plantings have focused on the restoration of woodland areas where extensive invasive species removal has occurred. In 2008 and 2009, the hillside east of Violet Way Trail benefited from two large herbaceous plant plantings of woodland wildflowers and ferns. The Friends also funded a planting project in 2008 featuring hundreds of native trees and shrubs in the woodland area around and north of Mallard Pool.

The Friends have worked with the Garden Curator to develop a Friends' Invasive Plants Action Group program. The volunteers in this program help eradicate invasive plant species, in particular, garlic mustard, dame's rocket, common buckthorn, and glossy buckthorn. This group started as a small assembly of dedicated volunteers and now has grown to include dozens of committed weeder led in the field by a Friends Board member. Originally working in the Garden proper, the group now is solely focused on invasive plant removal in the surrounding natural area. In 2009, limited planting of native woodland wildflower seeds was included as an activity of the group. In the future, more planting projects in the surrounding natural area are possible based on funding and interest of the group.

In 2009, the Friends funded the new Transportation Grant Program which provides a stipend to qualifying school groups to rent a bus or van to visit the Garden.

Future directions and strategies

- * Continue to coordinate the volunteer schedule for the Shelter Volunteer Program.
- * Expand efforts to recruit new Garden volunteers.
- * Support efforts to introduce new and under-served populations—especially children—to the Garden.
- * Support the restoration and enhancement of the native plant collections of the Garden as directed by the Minneapolis Park & Recreation Board.
- * Continue to support improving the health of the vegetation and ecosystems surrounding the Garden, especially through volunteer recruitment.
- * Explore ways to contribute to the Garden's hard-scape and infrastructure needs.

Priorities for next five years

1. Under the direction of the Garden Curator, work to increase the diversity of plants represented within the Garden and to improve the health of the vegetation and ecosystems surrounding the Garden.
2. Continue to provide funding support of the Transportation Grant Program enabling students in economically challenged communities to visit the Garden.
3. Help volunteers develop a long-term relationship with the Garden through the Visitor Shelter and Friends' Invasive Plants Action Group volunteer programs.





MINNEAPOLIS PARK & RECREATION BOARD

GARDEN STAFF

BEHIND THE SCENES

GARDEN FUNDING

GARDEN PERFORMANCE

GARDEN POLICIES

DEFINITIONS & DESCRIPTIONS

PLAN AMENDMENT PROCESS

Garden Staff

*"You do your needed work
out of love, the love that dares not
speak its name, the love of spareness,
beauty, open space, clear skies,
and flowing streams..."*

Edward Abbey

The Garden is owned, operated, maintained and funded by the Minneapolis Park & Recreation Board. The Minneapolis Park & Recreation Board's sustained management of the Garden for more than 100 years provides for a high-quality experience for visitors and for a healthy, ecologically vital landscape. The consistent professional care provided by the Minneapolis Park & Recreation Board for this unique asset allows the Garden to endure through time and to sustain its role as a sanctuary for future generations.

In the last five years

The Garden Curator job position was strengthened by making it a full-time position dedicated to the Garden. Previously almost 20% of the Curator's time was assigned to the maintenance division for winter work. Today's Curator oversees management of the Garden proper and also manages programs and naturalist staff. These seasonal employees carry out a wide range of activities centered on staffing the Garden and Martha Crone Visitor Shelter and leading environmental education programs.

To better serve the needs of visitors, two other staffing changes were made. One part-time position is now charged with coordinating group programs, especially for schools. And two part-time seasonal positions are now horticulture internships enabling college students to gain valuable field experience and contribute to the overall care of the Garden.

Future directions and strategies:

- * Develop the full potential of the Garden's native plant collections through an increase in professional field staff.
- * Enhance visitor appreciation of native plants through high quality naturalist-led programs.
- * Broaden opportunities for cross-cultural exchanges of ideas and botanic garden management philosophies and practices.
- * Engage a widely diverse audience for free and fee-based programming.



Priorities for the next five years

1. Work to allocate additional staff resources to Garden activities.
2. Expand opportunities for horticulture internships.
3. Recruit and hire bilingual naturalist staff to better serve community.
4. Expand the role of group program assistant.
5. Increase the number of naturalist staff with specialized knowledge.
6. Develop a framework for professional, cross-cultural exchanges with other botanic garden staff.



Behind the Scenes

In addition to the visible Garden staff there are many Minneapolis Park & Recreation Board staff and work divisions whose behind the scenes work support the Garden.

The Board of Commissioners work to create and uphold policies that support and enhance the current and future health of the Garden and the programs that occur at the Garden.

Natural Resources staff support the Garden by assisting with invasive species removal, conducting prairie burns, and providing natural resources based information to enhance the work of Garden staff.

Forestry works with the Garden Curator to identify diseased trees and to develop an associated management and removal strategy each year. Forestry conducts an annual tree health survey, with a more intensive survey specific to specific oak wilt. Forestry also serves as first responders for storm damage and contributes plant material for special tree plantings

Maintenance staff consisting of park keepers and mobile equipment operators, mow turf grass areas around the perimeter of the Garden, provide trash removal and recycling from the parking lot, and also perform sweeping and snow removal as needed.

Information and Technology Service is responsible for maintaining the computers, printers and related technologies and program support such as on-line registration. **Public Information Services** provide website updates, news releases, and in the future, will facilitate the effective use of social media to promote the Garden and its programs.

Administrative staff from payroll, human resources, and finance provide a variety of services.

Park Police provide regular patrols and emergency response to Theodore Wirth Park and the Garden.

Special Services coordinates parking passes and permits as needed.

Skilled Trades and Equipment Services provide carpenters, plumbers, masons, painters and mechanics to help care for the Garden's infrastructure including buildings, footbridges, waterlines, fences and gates, equipment and more.

Volunteer Programs staff assist with volunteer group referrals and preliminary event coordination for referred group visits.

Garden Funding

"Not only must we be good, but we must also be good for something"

Henry David Thoreau

There are several different ways that the Garden receives financial support. General funding of operations is provided through the Minneapolis Park & Recreation Board. Staff from Environmental Services and the Garden also pursue and receive supplemental funding for specific projects and programs through donations and grants, and as a beneficiary of special events.

The Garden requires constant care and maintenance to maintain the plant collections, infrastructure, and programming. The need to invest in this 100+ year old resource is on-going and requires the continued commitment of the Minneapolis Park & Recreation Board to fully fund operational expenditures at and for the Garden. It is important to note that infrastructure elements at the Garden constitute a significant portion of the items requiring regular maintenance at the Garden including the Visitor Shelter building, restrooms, tool shed, benches, paths, fencing, tools, and equipment.

Another significant investment that the Minneapolis Park & Recreation Board has made since 1911 is staffing the Garden with qualified professional employees. This investment has ensured the health of the Garden, and more recently, with the addition of part-time interpretive staff in 1984, allowed for greater outreach to and educational opportunities for the public.

In the last five years

The Minneapolis Park & Recreation Board continued to invest staff resources in the annual care and interpretation of the Garden, supported the celebration of the Garden's 100th Anniversary, and began to address long overdue infrastructure repairs such as repaving the Garden's driveway and parking lot.

Staff successfully secured a grant from the Minnesota Recreation and Park Foundation for a pilot program titled Garlic Mustard Goes Gourmet. The goals of the program were to turn a highly problematic invasive species, garlic mustard, into a marketable

commodity while engaging local citizens from field to table. This new initiative worked with citizens in fresh ways to try to build understanding regarding the impacts of garlic mustard invasion on local park lands, especially the Garden, and to inspire hands-on support for its removal in a creative way.

First American Funds generously provided a gift of \$5000. These funds were used to remove decaying signs and frames, and also for the design and installation of beautiful new interpretive signs located by the main and side gates.

Many additional donations, large and small, have been given by individuals and organizations over the past five years.

REI provided a grant of \$5000 for the purchase of native trees and shrubs. In 2009, these plants were placed in an area where REI staff had volunteered, in 2008, to remove buckthorn.

A partnership was developed with Bird x Bird. This non-profit's goal is to creatively combine art and science to increase stewardship of the natural world. Artists find inspiration in the phenology of the Garden and create art in response. The art is exhibited and auctioned annually, and the proceeds benefit the Garden. These funds are used for projects and programs specific to birds.

Additional funding for Garden projects was provided by the Friends of the Wild Flower Garden (the Friends). There were a number of significant projects funded by the Friends over the past five years. Please see pages 37-38 for details.

Future directions and strategies

- * Effectively utilize various funding means to achieve management plan goals, including to research and secure grants to investigate the possibility of a Garden endowment and to work with organizations such as the Minneapolis Parks Foundation.

- * The Garden Curator will continue to work directly with individuals and organizational/agency donors to determine how to best meet complimentary goals.



- * Address deferred maintenance needs. Incorporate Garden infrastructure needs into Minneapolis Park & Recreation Board maintenance and planning schedules for future upgrades and replacements.

- * Continue to raise Garden standards by improving the aesthetic quality of hardscape components (fencing, signs, railings, etc.) and improving accessibility through strategic and graceful earthwork.

- * Work to leverage existing resources, including regional park funding from Metropolitan Parks and Open Space Commission.

Priorities for next five years

1. Continue to seek appropriate grants and to develop partnerships to reach goals described in this management plan.

2. Continue to provide opportunities for individuals and groups to donate directly to the Garden. Make it easier to donate by making such opportunities more obvious.



Garden Performance

Monitoring the Health of the Garden

Plant Survey

One of the most straightforward ways to monitor the health of the Garden is to conduct a thorough plant survey every five years. The survey results reveal the diversity of plant species in general categories including forbs, grasses, sedges, shrubs, trees, and vines. In addition, plants found can also be sorted by native to Garden, native to Minnesota, historic collection, non-native invasive, etc. The survey will be used to shape management goals for specific areas of the Garden.

The number of plant species found in the Garden has varied considerably over the past 102 years. When the Garden was a mere three acres in 1907, an incomplete plant survey revealed 130+ species. Later, as Eloise Butler expanded the boundaries of the Garden to approximately 25 acres, several hundred additional plant species were identified as native to the area/Garden. During Eloise Butler's 22 year tenure as Curator she added more than 800 species.

A plant census taken by Martha Crone in 1951 revealed that 786 plant species grew in the Garden. By the time the next plant census was completed in 1986, only 489 plant species were present. In 2009, Susan Wilkins and Garden staff completed a plant census that identified 547 distinct species. Current and historic plant censuses are available in the appendices.

Measurement

- * Variety of desirable species present in Garden (number of distinct species present).

Monitoring Garden Visitor Satisfaction

Visitor Survey

The first step is to establish baseline data for the Garden by conducting a visitor intercept survey. The intercept survey would focus on acquiring visitor demographics, activity profiles, frequency of visits, visitors' assessment of the Garden's attributes, suggestions for improvements (physical site), major areas of interest for programs, and also how visitors prefer to receive information about the Garden and its programs. Ideally a visitor intercept survey would be conducted every five years to coincide with the timeline established for updating this management plan.

Measurement (qualitative and quantitative)

- * Increased number of repeat visitors
- * Increased participation in programs
- * Increased number of new visitors from under-represented Garden user groups
- * Increased number of volunteer hours
- * Positive program evaluations



Garden Policies

Accessioning Policy

To maintain accurate and enduring records of the plants in the Garden's plant collections, an accessioning procedure has been adopted and is to be followed. All plants that are to become part of the Garden's permanent collection will be accessioned. The records will be updated whenever there is an accession.

Accessioning procedures

Each accession will be registered in the database with the following information:

- * scientific name as received;
- * corrected name if other than as received (as listed in currently accepted horticultural references);
- * family name;
- * date acquired;
- * original collection information (if provided);
- * source;
- * type of plant received (existing plant, division, rooted cutting, etc.);
- * size received;
- * number received and number planted;
- * type of container received (bare root, balled and burlapped, potted, etc.);
- * date planted; and
- * general location where planted or housed.

No tagging/permanent labeling of plants will occur within the Garden.

Acquisitions Policy

To ensure the integrity, health and vitality of the plant collections contained within the Garden, an acquisitions policy has been adopted and is to be followed. All plants that are to become part of the Garden's permanent collection must meet the goals and fall within the parameters of the acquisitions policy.

Goals and Parameters

- * All acquisitions will be approved of or made by the Garden Curator with the assistance of the Natural Resources Coordinator as needed.
- * Plants species that are added are to be:
 - native to Minnesota and/or;
 - part of the historical collection and/or;
 - consistent with the collection goals as noted in the plant logs of Eloise Butler and Martha Crone.

The USDA plant database and the Minnesota Department of Natural Resources are two resources used when determining a given plant species' status as a Minnesota native plant.

- * Plants will be acquired that are relevant to the purposes and priorities of the Garden.
- * Taxa will be chosen that are appropriate to the Garden's growing conditions and that can be grown without extreme measures.
- * Taxa will be acquired that have no associated problems (in the judgment of the Garden Curator).
- * The Garden Curator will avoid introducing aggressive species that may become rampant or take the place of native species in their natural habitat.
- * Taxa will be chosen for which the agency can provide money and staff time for maintenance.
- * Only plants whose sources are known will be acquired.
- * If a plant is donated it must have no restrictions on the plant's use by the donor.
- * Plants will not be acquired that have been illegally collected or imported unless in accordance with the policies of state, federal, or international plant rescue programs.
- * Species will be verified according to the source (where acquired). Plants with questionable identity will be checked and verified. When purchased, the plant must have a bill of sale with the vendor's information. When donated, the plant must have documentation as to its origin.
- * Species that are appropriate for sustaining and shaping plant collections within a changing environment will be selected.



Plant Collection Policy

No part of any plant may be collected at the Garden pursuant to Minneapolis Park & Recreation Board Ordinance PB2-2. Molesting vegetation. This includes the seeds, flowers, fruit, leaves, stalks and roots of any given plant.

PB2-2. Molesting vegetation. No person not an employee of the board shall pick or cut any wild or cultivated flower, or cut, break or in any way injure or deface any tree, shrub, or plant within the limits of any park or parkway; nor carry within or out of any park or parkway any wild flower, tree, shrub, plant or any newly plucked branch or portion thereof, or any soil material of any kind.

Photography Policy

Permits are required for commercial photography and videography in the Garden and in the Minneapolis Park & Recreation Board's parkland system generally.

All photographers, amateur and professional, must stay on the trails at all times **without exception**. Photographers are not allowed to touch or manipulate the plants or wildlife in any way, but must photograph the plants and wildlife in their natural state as found.

Photographers who break these rules will be asked to leave the Garden and, if appropriate, fined pursuant to Minneapolis Park & Recreation Board Ordinance PB2-2. Molesting vegetation.

Certain types of commercial photography are not permitted in the Garden. This includes, but is not limited to: individual portraits by professional photographers (senior portraits, etc.) and portraits of groups by professional photographers (wedding photos, etc.).

Commercial photographers and videographers are to obtain permits for taking photographs and videos (film or digital) of Garden flora and fauna. To do so they must contact the Minneapolis Park & Recreation Board's Special Services department in advance of their planned shoot date. The Minneapolis Park & Recreation Board reserves the right to not grant a commercial photography permit to a given applicant if the Garden Curator concludes that the associated activities of the permit holder would cause disruption to the normal activities of wildlife and visitors and/or would cause damage to the Garden's plant collections. If a permit is

granted, the permit must be made available for staff upon request. If no permit is presented the activity must cease.

Sales Policy

Sales at the Garden are extremely limited. This is to protect the quality of visitors' experiences and to maintain the rustic nature of the Garden.

Merchandise that is currently sold in the Visitor Shelter includes Garden guidebooks and parking passes for the Minneapolis Park & Recreation Board's pay lot parking system. The two items sold at the Visitor Shelter enhance the immediate experience of the visitor. The Minneapolis Park & Recreation Board does not intend to expand the type or amount of merchandise available for purchase in the Visitor Shelter.

Sponsorship Policy

A sponsorship is a relationship that allows for one organization to contribute resources to another while being specially recognized for this contribution. Sponsorships at the Garden are not intended to be on-going but rather limited to specific projects or programs. On-going sponsorships will be rare in nature.

Sponsorships that would be appropriate for the Garden include organizations that have a similar interest, goal, and/or purpose. A conflict of interest with Garden's core values is not appropriate. Organizations must positively promote the Garden and the relationship must be complimentary to the Garden.

Examples of what would work: a Garden newsletter, transportation costs for groups from under-served audiences, special programs that meet Minneapolis Park & Recreation Board parameters and that have the full support of Environmental Services staff.

Exclusive Use Policy – Weddings and other Events

Exclusive use permits are not granted to the public for any use of any part of the Garden including the Visitor Shelter, trails and trail openings. Weddings and other special events are not allowed in the Garden and permits will not be given for such activities. This is to ensure that public access to the Garden is not limited and to safeguard the plant collections, the naturalistic ambiance of the Garden and the quality of visitors' experiences.

Definitions & Descriptions

Abiotic is defined as not being associated with or derived from living organisms. Abiotic factors in an environment include such items as sunlight, temperature, wind patterns, and precipitation.

Accessioning is a process whereby information about plants added to the Garden is recorded in a systematic method and data is stored for future reference.

Aggressive native plants are plant species that, although native to Minnesota, have a tendency to spread and proliferate in their given location in the Garden.

Biotic is defined as consisting of living organisms. An ecosystem is made up of a biotic community (all of the naturally occurring organisms within the system) together with the physical environment. The biotic factors in an environment include the organisms themselves as well as such items as predation, competition for food resources, and symbiotic relationships.

Bird x Bird is a unique nonprofit organization that enlists painters, printmakers, photographers, sculptors and multi-media artists to create works of art in response to data collected about avian species at Eloise Butler Wildflower Garden and Bird Sanctuary, and also the Audubon Center of the North Woods. Its mission is to stimulate a creative interface between artists, scientists and the public in an effort to enhance the stewardship of wild species and the ecoliteracy of human beings. Each year the artworks created are exhibited and auctioned. The proceeds are donated to the Garden and the Audubon Center. www.birdxbird.org

First American Funds (FAF) is a U.S. asset firm with more than \$103 billion under management/administration in equity, fixed income, and specialty investment strategies. It is headquartered in Minneapolis with more than 300 employees. In 2007, FAF staff selected the Garden to receive a one-time \$5000 donation towards new interpretive signs.

Fauna refers to the animals of a given region or period considered as a whole.

Flora refers to the plants of a particular region or period considered as a whole.

The Friends of the Wild Flower Garden, Inc is an organization of private citizens whose purpose is to protect, preserve, and promote the interests of the Garden for its unique beauty and as a sanctuary for native flora and fauna of Minnesota, and to educate and inspire people of all ages in relating to the natural world. www.friendsofeloisebutler.org

Garden Supporters are groups that have a long term (10+ years), on-going relationship with the Garden. Support may take the form of volunteers, donations, funding specific projects, in-kind services, or some combination of the above. An on-going relationship refers to relationships that include regular involvement with the Garden beyond an annual event or individual project.

Guided learning is a process by which people gain knowledge through the use of a guide or teacher. At the Garden many guided learning opportunities exist including: formal public natural history tours, interaction with staff on trails and in the Visitor Shelter, and special classes.

Herps encompass families of animals such as turtles, toads, frogs, and snakes.

Historic Plant Collection is a collection of plants representing plant species that:

- * Are indigenous to the Garden and/or
- * Were added to the Garden between the years 1907 and 1959.

The historic plant collection is both an ecological legacy of the indigenous flora of the Garden and a horticultural legacy of the efforts of Eloise Butler and Martha Crone to more fully develop the Garden's plant collections. The historic plant collection includes species which are not native to Minnesota. These species, if not invasive, are managed as part of the Garden's living history as a botanic Garden. Their presence speaks to the story of this ever-evolving native plant botanic garden and serves as an interpretive tool for Garden visitors.

Indigenous (plant) groupings are groups of non-planted native plants found in the Garden.

Legacy Volunteers assist in the eradication of invasive plants. After training from the Garden Curator each volunteer takes responsibility for a designated section of the Garden and commits to removing all of the invasive species in their chosen section for the season. For more info contact Garden Curator at swilkins@minneapolisiparks.org



Minnesota Master Naturalist Program promotes awareness, understanding and stewardship of Minnesota's natural environment by developing a corps of well-informed citizens dedicated to conservation education and service within their communities. The program is sponsored by the University of Minnesota Extension Services, the Minnesota Department of Natural Resources and the National Science Foundation. www.minnesotamasternaturalist.org



Minnesota Recreation and Park Foundation is a non-profit organization dedicated to enhancing the quality of life in Minnesota communities by supporting recreation and parks through education, grants, and assistance to the Minnesota Recreation and Park Association. The Foundation's efforts are encouraged and supported by the Minnesota Recreation and Park Association and its members. The Foundation was established in 1972 and incorporated as a tax-exempt, non-profit corporation in 1973. www.mnrpa.org

Monarch Watch is an educational outreach program based at the University of Kansas that engages citizen scientists in large-scale research projects. www.monarchwatch.org

Non-native aggressive plant is a plant species which is not native to Minnesota that will uncompro-misingly spread and eventually negatively impact the Garden's plant collections.

Non-native invasive plant is a plant species which is not native to Minnesota and will quickly and relentlessly spread throughout a given Garden area causing damaging to the native plant collections contained within.

Non-native garden weed species are species that are common garden weeds. They prefer disturbed habitats, typically along trail edges and disturbed soil, such as areas where tilling or extensive weed-ing and invasive species removal has occurred.

Plant assemblies are groupings of plants in the Garden assembled to be similar in aesthetic to their natural plant community counterpart.

Plant community refers to the associated plant species that form a recognizable, distinct and complex assemblage of vegetation. Plant community appearance and species composition can vary over time and place.

Planted (plant) groupings are groups of planted plants found in the Garden.

Recreational Equipment, Inc. (REI) is a retail business. REI's mission is to "inspire, educate and outfit for a lifetime of outdoor adventure and stewardship." Each year REI donates millions of dollars to support conservation efforts nationwide and also sends scores of volunteers out into the community. An REI staff member nominated the Garden to receive a \$5000 stewardship grant in 2009. www.rei.com

Self-directed learning is learning that occurs through educating oneself using tools and direct observation. Many opportunities exist for self-directed learning at the Garden.

Shelter Volunteers are trained by Garden staff so that they can greet and provide information to visitors in the Martha Crone Visitor Shelter. In addition Shelter volunteers answer the phone, register participants for programs, and assist with maintaining the tidiness of the Visitor Shelter.

Taxon (plural taxa) describes the rank-based grouping of one or more organisms into a unit. More specific to this plan, it represents a group of plants organized within a particular taxonomic rank such as a family or genus. A taxon encompasses all included taxa of lower rank.

Friends' Invasive Plants Action Group Volunteers are trained by Garden staff so they can lead volunteer crews. These volunteer crew leaders volunteer on evenings or weekends to assist other volunteers with removing invasive plants from the natural areas surrounding the Garden.

Plan Amendment Process

As management of the Garden has adapted to new challenges and issues in the past, this management plan is not intended to be a static document. This plan should evolve based on experience and with regard to new opportunities and issues facing the Garden. This plan is envisioned as incorporating three methods of revision as outlined below.

Term of the Management Plan

Every five years commencing from the date of the adoption of this plan, the plan will be updated and revised to reflect any new conditions or issues the Garden faces. This regular update will be developed by Minneapolis Park & Recreation Board staff. It will be brought to the Minneapolis Park & Recreation Board Commissioners for adoption only if there are changes proposed to the mission, goals, or policies outlined herein. Changes in the implementation tasks, methods, or background information may be completed by staff and updated without Minneapolis Park & Recreation Board Commissioner approval.

Mid-term changes in *Mission, Goals, or Policies*

Substantive changes needed in the mission, goals, or policies contained in the plan within the five year term specified above may be developed by Minneapolis Park & Recreation Board staff and brought before the Minneapolis Park & Recreation Board Commissioners for adoption and incorporation into the plan.

Mid-term changes in *Implementation Tasks, Methods, or Background*

Changes needed or desired by Minneapolis Park & Recreation Board staff that deal with implementation tasks, methods, or background and do not substantively change the mission, goals, or policies of the plan may be made and incorporated by Minneapolis Park & Recreation Board staff without approval of Minneapolis Park & Recreation Board Commissioners. These changes should be done in consultation with the full spectrum of affected staff considering best practices and available resources. These changes may be made only with the approval of the Garden Curator.

