



PORTLAND PARKS & RECREATION

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Leach Botanical Garden Master Plan

July 2010

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Introduction

Leach Botanical Garden is one of Portland's well-hidden secrets. Opened to the public in 1982, the garden is a botanical treasure and valuable green space that attracts a wide variety of people with varying interests from around Portland, the country, and the world.

The 16-acre garden is tucked among tall firs and native deciduous trees along Johnson Creek. It is owned by the City of Portland and operated by the Leach Garden Friends, with considerable assistance from Portland Parks & Recreation.

IMPORTANCE OF THE GARDEN

Leach Botanical Garden is significant from several perspectives:

- ✿ First is the botanic collection itself with over 2,000 different species and cultivars, set in the historic garden of John and Lilla Leach, who made important plant discoveries and scientific contributions to the field of botany.
- ✿ Additionally, the garden showcases regional plants in the microclimates in which they do best, attracting horticulturists and botanists interested in studying and learning about Northwest plants.
- ✿ It demonstrates to home gardeners how best to utilize particular plants in specific microclimates.
- ✿ As part of the stewardship of Johnson Creek, there is a demonstration garden of plants that survive in areas that flood frequently. There are also specially designed plantings to purify drainage water from the parking lot before it enters Johnson Creek.
- ✿ The garden provides a quiet place of contemplation for people to escape the busy residential and commercial areas near which it is located.
- ✿ It provides important natural resource habitats for birds and animals, including several listed species of salmonids in Johnson Creek.



"I was in the lead where I usually walk in order to get the first chance over the burros to anything of interest that might be growing when suddenly I beheld a small patch of beautiful low-growing deep rose colored plants and because of its beauty I started running toward it and dropped to my knees . . . I had never seen anything so beautiful before."

*Lilla Leach on her discovery of
Kalmiopsis leachiana*

LEACH BOTANICAL GARDEN MISSION

"It is the mission of Leach Botanical Garden to maintain and enhance living collections of plants for the purpose of education, research and conservation and to preserve the legacy of the Gardens founders, John and Lilla Leach. The Garden is committed to providing positive experiences to the diverse community upon which it relies for support."

LOCATION AND CONTEXT MAP OF LEACH BOTANICAL GARDEN



Location and Context

The garden is located approximately a quarter-mile southeast of SE 122nd Avenue and Foster Road. Johnson Creek runs through the southern portion of the property. The developed part of the garden is around the house on a small upper terrace of the creek and on the south-facing slope adjacent to the house. The Nursery and Administration buildings are on the upper terrace about 50' above the house.

PARKS AND RECREATION OPPORTUNITIES IN THE VICINITY

There are several parks, trails, and natural resource areas around Leach Botanical Garden. Relatively few of them are traditional developed parks. Many involve crossing busy streets such as SE Foster Road and SE 122nd Avenue, making it difficult for many residents to access them safely and easily.

SUMMARY OF PARKS WITHIN ONE-MILE RADIUS OF LEACH BOTANICAL GARDEN

| Site | Size | Status | Play ground | Softball/ baseball | Soccer/ football | Basketball | Tennis | Restrooms |
|-------------------------------|--------|--------------------|-------------|--------------------|------------------|------------|--------|-----------|
| Campfire Properties | 20.28 | Natural | NA | NA | NA | NA | NA | -- |
| Eastridge Park | 3.50 | Developed | yes | -- | -- | yes | -- | -- |
| Gilbert Primary Park | 4.39 | Developed | yes | yes | -- | -- | -- | -- |
| Kingsley D. Bundy Property | 5.04 | Natural | NA | NA | NA | NA | NA | -- |
| Lents Floodplain | 0.48 | Natural | NA | NA | NA | NA | NA | -- |
| Lower Powell Butte Floodplain | 65.24 | Natural | NA | NA | NA | NA | NA | -- |
| Powell Butte Nature Park | 608.3 | Natural | NA | NA | NA | NA | NA | yes |
| Raymond Park | 5.85 | Developed | yes | -- | -- | yes | -- | -- |
| Terrace Trails Park | 2.45 | Developed in 2010 | yes | -- | -- | yes | -- | yes |
| Springwater Corridor | 246.40 | Natural / Trailway | NA | NA | NA | NA | NA | -- |

Source: 2020 Refinement Plan, Portland Parks & Recreation, 2003 and PP&R website.

ZONING

Most of the garden is zoned Open Space (OS) with a corridor along Johnson Creek that also includes Environmental overlay zones. The area along the creek is zoned as Environmental Protection (EP) while a wide buffer to the north of the creek is zoned Environmental Conservation (EC). The area south of the creek is zoned Residential (R10) and also has an EC overlay.

Introduction

Because of the environmental overlays, improvements that are planned for the garden will likely have to be reviewed to ensure compatibility with regulations.

TRAFFIC AND PEDESTRIAN CLASSIFICATIONS

Leach Botanical Garden is accessed from SE 122nd Avenue, which is designated by the Portland Bureau of Transportation (PBOT) in their Transportation System Plan as Local Service Traffic Street, a City Bikeway, and a City Walkway.

These designations suggest that the street should accommodate bikes and pedestrians, but there are no current plans to make the physical changes to SE 122nd Avenue to accommodate them. Over the long term, making these improvements will ensure safe access between Johnson Creek and the intersection with SE Claybourne Street.

The Garden's History

The property was originally part of a 320-acre donation land claim belonging to Jacob Johnson, one of the sawmill operators who furnished lumber for the very early homes in Portland. Johnson's land extended from Mt. Scott down across the creek that was later named for him.



The carriage house

In 1931 John and Lilla Leach purchased 4.5 acres on part of Johnson's property and named it Sleepy Hollow. John, a pharmacist, and Lilla, an accomplished botanist, devoted their land to their fascination with plants. Lilla's work, explorations, and discoveries earned her an international reputation in the botanical community. In the 1920s and 30s, they spent many vacations exploring the mountains of Oregon and Washington in search of botanical specimens. Lilla discovered many new plants; among them *Kalmiopsis leachiana* in southwestern Oregon in 1931. This discovery led to the creation of the Kalmiopsis Wilderness, a 76,900-acre botanical preserve in the Siskiyou National Forest, in 1946.

John Leach was a talented craftsman and very proficient at metalwork. He was active in the Oregon Arts & Crafts Society and served as president. John was the owner of the Phoenix Pharmacy at SE 67th Avenue and Foster Boulevard, and a community leader involved in civic improvements in southeast Portland.



Historical plaque at the upper property marking the site of the first Gilbert School in 1885

The nucleus of the garden is the original estate of John and Lilla Leach, built in 1936. The property was developed as a home and haven for studying plants – particularly Northwest species – and sharing that knowledge with friends and family.

The gardens were designed and laid out by Wilbur Davies with specific themes. Among them were the species of Oregon's Curry County, a rock garden, a bog, gardens for roses, ferns, azaleas, camellias, trillium, rhododendrons, and more. More formal gardens around the house merged with the native trees and shrubs along the creek and up the hillsides. Through the years, the Leaches added and propagated a wide variety of plants that interested them. It is this estate that they donated to the City of Portland, and that forms the heart of the garden.

A nomination form to include Leach Botanical Garden (the parcel which includes the Leach's home and the stone cabin south of Johnson Creek) in the National Register of Historic Places Inventory was prepared (probably in the 1980s) but never submitted. The nomination form cited the Leach's scientific contributions in its Statement of Significance, specifically Lilla Leach's discoveries of two new genera and over ten varieties "in the rugged reaches of Oregon." The form continues:

As a collection, the Leach Botanical Park is unique in that it evolved as a private estate intended for the display and the study of botany, particularly Northwest native species. The garden paths that make up the acreage take one through different collections as on a trek of discovery intertwined with the romance and humor that characterized the Leach's life.

PP&R's Cultural Resource Management Plan (2007) identified Leach Botanical Garden as one of 24 parks that has had an Intensive Level Survey (ILS) which includes an in-depth archival research and fieldwork. The objective of this is to gather sufficient information to recommend proposed significance or non-significance of the investigated properties and develop historic context in terms of a National Register of Historic Places listing. The next step in the process is to determine what level of protection and management should be assigned to the garden. This is still being explored by Portland Parks & Recreation.

Previous Plans

The first master plan for what is now Leach Botanical Garden was prepared in 1982 by Portland Parks & Recreation. This plan was based on a site design created by Barbara Fealy, one of the region's most respected landscape architects.

Over the next 25 years, many of the projects in the master plan were carried out and the garden was expanded through the acquisition of

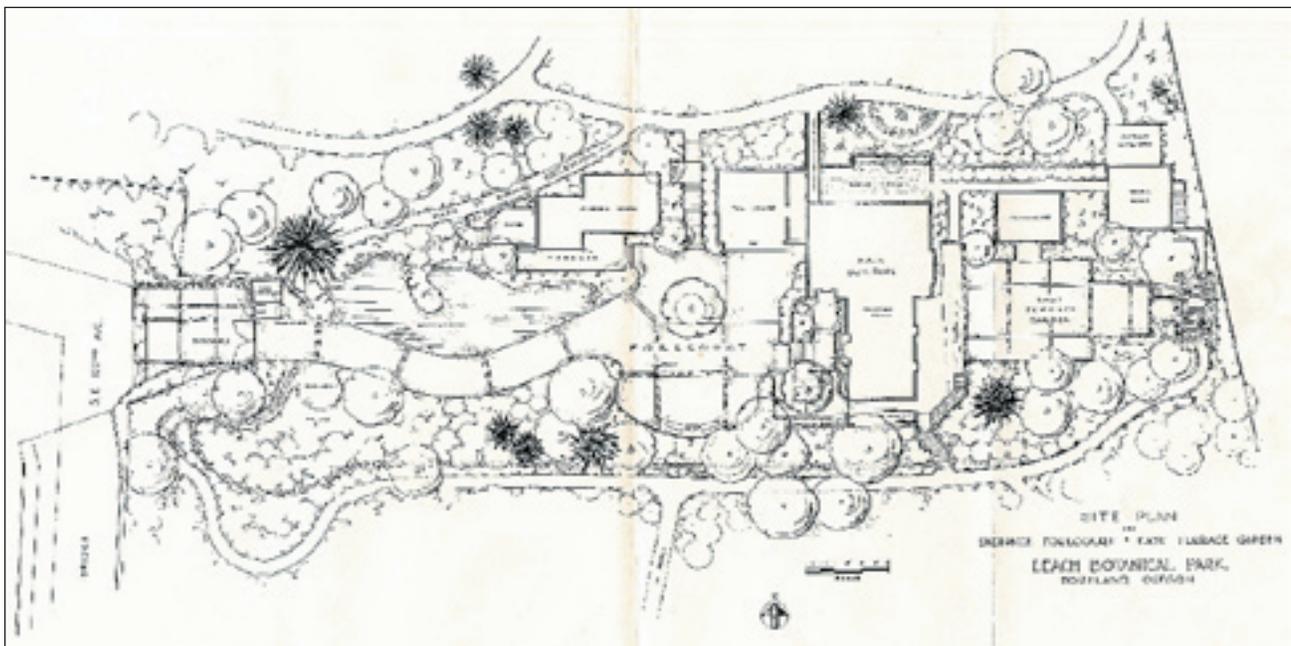


Metalwork by John Leach

Introduction

several abutting parcels. The master plan was updated in 1990 to address new acquisitions.

A committee of garden volunteers prepared a Vision Plan in 1997 and a Strategic Plan in 1999. Despite these new plans, there continued to be a need for a plan that addressed the entire garden, and related management and operational issues, in a comprehensive way. In late 2006, Portland Parks & Recreation provided staff and other resources to develop the current master plan.



The Planning Process

The master plan process began in November 2006 with the formation of an 11-person Project Steering Committee (PSC). The PSC began its meetings in January 2007 and met several times over the next year. The committee's composition reflected the project's stakeholders, with representatives from the local neighborhood groups, interested citizens, and City staff. (The PSC membership list is on the inside cover.)

In March and July 2007, two open houses were held to provide information and updates to the general public. The first open house featured a panel discussion with several botanical garden directors and staff that focused on critical issues in managing public gardens. In addition to the PSC meetings, City staff also briefed the Powellhurst Gilbert Neighborhood Association.

AERIAL PHOTO OF LEACH BOTANICAL GARDEN





Existing Conditions



Access, Parking & Trails

ACCESS

The garden is accessed from several points around the site. The most common entry is through the wrought iron gate on SE 122nd Avenue across the street from the main parking lot south of Johnson Creek.

Another access point is the intersection of SE 122nd Avenue and SE Claybourne Street, about 0.10 mile south of SE Foster Road. This entry is the closest access point to the upper garden, which is currently undeveloped. After this area is developed and more parking is provided, this entry will provide safer access to the garden.

Other informal entries for pedestrians are found in the eastern half of the garden, from the new housing project off SE Claybourne Street, and from a cul-de-sac at SE Cooper Street. These informal access points are uncontrolled and cannot be monitored.

PARKING

Currently the main 32-car public parking lot is located in the southwest corner of the site adjacent to Johnson Creek on SE 122nd Avenue. Unfortunately, it is located on a busy street at a hazardous curve. Due to the tight bend, extra care is required in crossing the street to gain access to the garden. Parking is adequate for most current activities but demand exceeds the supply for larger events.

There is some parking off of SE Claybourne Street at the undeveloped upper garden and there is potential for adding more parking here in the future. Since Claybourne does not currently meet City transportation standards, development in may trigger costly requirements to improve it.

TRAILS

The trail system is extensive, following the Leach's original layout, and meanders charmingly throughout the garden. However, it was not built to accommodate current use levels or meet Americans with Disabilities Act (ADA) regulations.

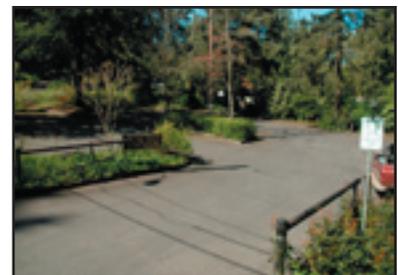
While some trails are wide and flat, others are narrow and impacted by tree roots and vegetation. Trails serve all of the collections, but the system seems unordered and confusing to many visitors. Four gates



The entry at SE Claybourne St



Entry points along SE Lydia St



Lower parking lot accessed from SE 122nd Avenue

Existing Conditions



A typical trail in the Garden

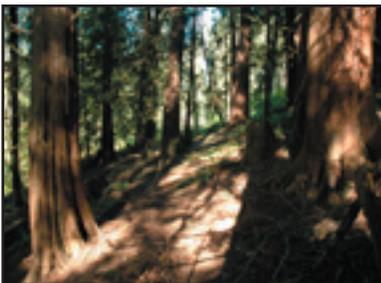
lead to other areas within the garden property at the north border, which is presently defined by a chain link fence.

The lack of ADA access is a critical issue for persons with disabilities. The slope of many trails is steeper than the maximum 8.33 percent allowed (one foot of vertical rise for every 12 feet of horizontal run). In addition, almost all of the trails are dirt, which makes the trails impossible for wheelchairs, and quite slippery for walkers in inclement weather.

There is also a proliferation of trails in some areas, notably on the south-facing hillside. Some visitors become confused and disoriented in certain sections of the garden. The problem is compounded by a lack of directional signage throughout the garden.

Many trails are not edged or defined. In many sections of the garden, it is difficult to know where the trail ends and the plantings begin. The installation of edging in some areas would help to define the paths and indicate whether a trail is a primary or secondary trail. In addition, the use of edging materials would also visually emphasize the need for visitors to remain on the designated paths.

Another weakness in the trail system is that the pedestrian bridge that provides access to the south side of Johnson Creek is only available during the drier months of late spring, summer, and early fall. The alternate access across SE 122nd Avenue is used infrequently because it requires an unsafe street crossing.



Eastern half of the garden in the area of the cedar forest characterized by steep slopes

Natural Conditions

TOPOGRAPHY

Elevations within the garden range from 290' above sea level on the relatively flat upland area of the northern half of the property to 220' at the lower end of Johnson Creek on the western edge of the property.

The area has gentle to steep hillsides leading to a plateau at the north boundary which extends from the eastern to western borders of the property, and includes the main house and approximately half of the botanical collection. The landscape slopes down from the plateau to a 100-200' wide riparian bench along the north bank of Johnson Creek.

The slope on the western half of the property is about 20% (two feet of vertical elevation gain for every ten feet of horizontal distance) and about 30% (three feet of vertical elevation gain for every ten feet of horizontal distance) on the eastern half. The remaining botanical collection is found on the western side of this slope.

SOILS

The Upper Plateau

The soils on the plateau and tops of the hillsides consist of Missoula flood debris, round cobbles from 3 to 8” in diameter. This profile creates soils that are shallow, very well drained, and lacking in fertility. Organic materials are continually added to the soil surface to build up fertility and water-holding capacities. This management strategy has proved successful at the middle and eastern areas of this site. The west end is still dominated by native soil.

The Hillsides

Soils on the slope south of the upland plateau and north of the riparian bench are classified as Multnomah Silt Loam. These hillsides have deeper soil profiles, dominated by clays and amended with organic materials. In addition, with the overhead canopy dominated by coniferous species, the soils tend to be acidic with a higher content of organic coniferous detritus. The soil has been further altered at some of the site’s smaller collections (rock garden, Liliaceae, Trilliums). This soil type is well suited for wildlife habitat.

The hillside faces south, but only a small percentage of the area has good solar exposure due to the extensive overhead canopy. Therefore, the area is dominated by low dense shade that creates seasonally dry sites. The ecology has changed drastically over the past 25 years with the growth of the overhead Douglas fir canopy. This directly impacts a portion of the current collection.

Riparian Corridor

The soils along Johnson Creek are classified as Wapato Silt Loam. These are poorly drained soils on flood plains, formed in recent alluvium. Permeability of these soils is moderately slow and from December through April they are subject to a seasonal high water table at or near the surface.

NATIVE VEGETATION

Vegetation at the garden comprises thousands of species of native and non-native plants. Natural areas within the garden consist mainly of native species, with non-native species interspersed as elements in some areas. Native trees include Douglas fir, grand fir, western red cedar, Pacific fir, red alder, big leaf maple, and Oregon ash.

One of the distinctive features of the garden is the Western Red Cedar forest, which is located in the southeast corner of the garden and north of Johnson Creek. The diverse native understory species include Indian-plum, western beaked hazelnut, snowberry, red-osier dogwood,



Cobbles deposited from the glacial Missoula floods



Slope conditions in the historic Leach collection

Existing Conditions



The riparian zone along Johnson Creek



A small pond increases the garden's habitat value

salmonberry, Pacific ninebark, tall Oregon grape, sword fern, maidenhair fern, and cranesbill. Some of the non-native species that have been planted include silver fir, dawn redwood, coast redwood, and an ornamental creeping redwood species.

Non-native invasive species include common filbert, sweet pie cherry, European hawthorn, English holly, English ivy, traveler's joy, teasel, Japanese knotweed, English laurel, European mountain ash, Himalayan blackberry, field bindweed, orchard grass, and reed canarygrass.

WILDLIFE

The forest community at Leach Botanical Garden provides a structurally complex and diverse habitat for a wide range of native wildlife species. The surrounding forest will likely continue to support birds, reptiles, and small mammals.

Some of the bird species that have been observed in the garden include red-tailed hawk, great blue heron, wood duck, pileated woodpecker, Townsend's warbler, and Anna's hummingbird. Mammals include common raccoon, gray fox, black-tailed deer, and Douglas' squirrel.

Riparian habitat along Johnson Creek supports fish, amphibians, and aquatic mammals.

Wildlife management is practiced at the garden in many ways, both as a by-product of the natural setting in which the collections are displayed, and intentionally with the following practices:

- ☞ The overall garden management practices include integrated pest management strategies, no-till soil stewardship, hedge and herbaceous borders, leaving organic detritus, providing ecologically harmonious planting designs, and controlling ground water runoff.
- ☞ Food is provided for birds at several places throughout the garden.
- ☞ Several areas of the garden have not been developed (principally along Johnson Creek), or have been developed only minimally, to provide or maintain habitat for native species.

In the future, habitat values at the garden can be improved by leaving snags for cavity-nesters and other wildlife, while downed trees can provide shelter to small mammals and reptiles on the forest floor.



The gravel road that separates the east and west pond. The culvert is under the road.



Trends and Implications



POPULATION TRENDS

One of the most dramatic changes around the garden is the population growth that has occurred over the last decade. Much of the open space around the garden and throughout the community has been developed, creating homes for hundreds of new residents. The zip code (97236) in which Leach Botanical Garden is located experienced a 20% increase in population between 2000 and 2007.

The garden is located at the cusp of two neighborhoods – Pleasant Valley and Powellhurst Gilbert – that share the following characteristics. Compared to the city as a whole, the area’s population has a higher percentage of homeowners and slightly lower levels of Hispanic and black residents, in addition to those who classify themselves as “other.” The population profile for the Pleasant Valley neighborhood in 2000 has two basic groups – families with children at home (27%) and families without children at home (37%). The next largest group (19%) is households headed by females.

There are several implications from this growth for the garden. First, the pool of potential visitors has increased, especially within a two to three mile radius. This audience is important because it has the potential to expand the core visitor base for the garden. At Hoyt Arboretum, for example, many of its frequent visitors are those who live within a short distance of the park.

With a larger audience, there could be a greater demand for programs and other educational opportunities such as classes on general horticultural practices and backyard gardening. With an emphasis on education as a core value, Leach Botanical Garden is well positioned to tap into this market.

BOTANICAL GARDEN VISITATION TRENDS

Leach Botanical Garden provides important educational, recreational, and environmental park functions for Portland’s residents and visitors. Several studies show that Portland’s residents value and use gardens, and research indicates that the demand for gardens in Portland will continue to grow.

A 2004 PP&R survey of residents and park users found that 48% of respondents would like to see more gardens in Portland parks (see table at right). Of the 13 facilities mentioned, gardens were the third-most desired facility after natural wildlife areas (52%) and swimming pools (51%).



Increasing residential development over the last few years

| Facilities That Residents Want to See More Of | |
|---|------|
| Natural wildlife areas | 52 % |
| Swimming pools | 51 % |
| Gardens | 48 % |
| Recreation centers | 47% |
| Skate parks | 44 % |
| Off leash areas | 44 % |
| Hiking/running trails | 43 % |
| Biking trails | 42 % |
| Playgrounds | 39 % |
| Group picnic areas | 33 % |
| Soccer/lacrosse fields | 32% |
| Softball/baseball fields | 26 % |

Source: Survey of Residents and Park Users, Portland Parks & Recreation, 2004.

Trends and Implications

Leach Botanical Garden helps to meet this demand. As a botanical garden, the site also preserves and protects native species in Portland's urban environment, providing critical habitat and a rich educational opportunity. This garden, habitat, and educational combination will help to meet the recreational needs of current and future Portlanders.

This local interest in gardens and gardening is reflected in the 2003-2007 Oregon Statewide Comprehensive Outdoor Recreation Plan (SCORP). As part of the plan, 39 outdoor recreation activities and their rates of participation were reviewed from 1997 to 2002. Of these, the recreation activity that increased the most was Nature/Wildlife observation. The Leach Botanical Garden provides important habitat for a variety of wildlife species, and is an excellent place for nature and wildlife observation.

A wide array of classes and programs is offered at the garden, using the site's library and rich outdoor classroom to enhance the community's horticultural knowledge. Offering classes and programs at the site is in keeping with a national park and recreation trend.

Another way to assess future visitation at Leach Botanical Garden is to review comparable facilities in terms of location, mission, and facilities. For purposes of this plan, eight other botanic gardens or plant-related facilities within the region were reviewed – Crystal Springs Rhododendron Garden, Japanese Garden, Hoyt Arboretum, Jenkins Estate, Classical Chinese Garden, Zenger Farm, Berry Botanic Garden (closing October 2010), and Tryon Creek State Natural Area.

Based on this review, Leach Botanical Garden appears to be one of the few sites in the Portland metropolitan area with a focus on botany and horticulture that also accommodates a broad educational program as part of its core function.

Tryon Creek State Natural Area, Jenkins Estate, and Hoyt Arboretum all provide the public an opportunity to experience wildlife and nature, but none includes botanical and horticultural education. Zenger Farm offers classes and activities with a focus on agriculture. Crystal Springs Rhododendron Garden, the Japanese Garden, and the Classical Chinese Garden are places for visitors to explore specialized public gardens.

Currently, the Leach Botanical Garden is the only public park where visitors can use a site library, take classes in botany and horticulture, and enjoy the wildlife and natural areas in a facility dedicated to preserving and highlighting plants of the Pacific Northwest.

BOTANICAL GARDENS & PLANT-RELATED FACILITIES IN THE PORTLAND AREA

| Park/Garden Site | Acres | Ownership/Management | Focus | Facilities/Programs |
|---|-------|---|---|---|
| Classical Chinese Garden | 0.9 | City of Portland/ Private non-profit | Urban Chinese garden | Teahouse, gift shop, wedding venue, events |
| Crystal Springs Rhododendron Garden | 9.5 | City of Portland | Rhododendrons | Meeting room, restroom, wedding venue, tours |
| Hoyt Arboretum | 232 | City of Portland | Trees, with emphasis on conifers | Visitor center, gift shop, picnic area, restroom, wedding/event venue, classes & activities |
| Japanese Garden | 5.5 | City of Portland/ Private non-profit | Traditional Japanese garden | Meeting room, gift shop, restrooms, classes & events |
| Jenkins Estate | 68 | Tualatin Hills Park & Recreation District | Historic structure & botanical gardens | 1913 log house, meeting/event space, rhododendron garden, wildflower meadows, classes |
| Leach Botanical Garden | 15.6 | City of Portland | Pacific Northwest plants & conservation | Historic house & stone cabin, office building, garage, wedding venue, library |
| Tryon Creek State Natural Area | 645 | State of Oregon | Forested nature park | Visitor center, shelter, gift shop, youth programs, classes |
| Zenger Farm | 6 | Private non-profit | Working farm & education | Immigrant market garden, classes |
| Berry Botanic Garden (closing October 2010) | 6.6 | Private non-profit | Pacific Northwest plants and conservation | Library, gift shop, specialty gardens, classes |



Photo courtesy of Nan Finch

A Vision for Leach Botanical Garden

Leach Botanical Garden has been fortunate to have such a solid foundation on which to build. Over the last 25 years, its corps of volunteers and staff have worked endlessly – and with limited resources – to ensure that the Garden flourished as one of the most beautiful and distinctive gardens in the region.

The garden will build on this foundation while also exploring new directions to ensure that it continues to be relevant to the larger community. It will continue to function as *a botanical garden of plants that grow in the Pacific Northwest and other regions of the world*. This is the garden’s original purpose and it will continue to be a focus. This mission will expand as the garden is improved and developed to be *a horticultural resource for the public as well as serious gardeners*. Through a variety of programs, display beds, interactive interpretive displays, and other techniques, visitors will learn something new with each visit.

Part of the garden’s educational value will be in its development as *a hands-on laboratory for environmental education*. The garden’s location along Johnson Creek makes it an ideal venue to illustrate what the waterway may have looked like in the 1800s. To this end, the garden will have programs and facilities that can accommodate schools and students of all ages.

Not only will they learn about botany and biology, but they will see the garden as *a model and demonstration site of environmental sustainability*. New buildings will be designed to minimize energy use, to use sustainable materials, and to represent the best in Northwest architecture. Other features such as parking lots and the nursery will be improved to manage stormwater in an environmentally responsible manner.

The garden will be known also for its *museum about the Leaches, their contributions to Pacific Northwest botany and to the southeast Portland community, and about the site’s history* as well. Visitors will see exhibits about the Leaches in the Manor House, which will be improved and managed as the museum that the Leaches had always envisioned. An essential part of the garden’s vision is that it can *attract new visitors*. Many people from around the world already know about the garden, but it is just as important that Portlanders provide a core part of its constituency. The garden should be on everyone’s “must-see” list for out-of-town guests.

Although many of the master plan’s recommendations are intended to increase the number of visitors, the garden will continue to maintain itself as *a place where visitors can find respite*. There will continue to be areas of peace and quiet that only gardens can provide.

Recommendations

In short, Leach Botanical Garden will be a place to learn, a place to be inspired, and a place to find solace.

Guiding Principles

The master plan is based on a set of fundamental principles that provide a foundation for the plan's recommendations and a guide for future actions and activities at the garden, based on the long-term vision for the garden.

ROLE AND FUNCTION OF THE GARDEN AND ITS COLLECTIONS

- ☞ Develop the garden as:
 - a *botanical garden* that focuses on Pacific Northwest natives and the historical Leach collection;
 - an *educational resource* that offers a range of opportunities to learn about plants of the Pacific Northwest, environmental restoration, and the historical Leach collection; and
 - a *museum* that displays and educates visitors about the Leaches and their connection to the southeast Portland community.
- ☞ Develop the garden as a model of environmental sustainability. Improvements and programs should express a commitment to responsible environmental stewardship.
- ☞ Add to the garden's collections to expand its educational potential, visitor interest, and to continue its worldwide connection to other botanical gardens.
- ☞ Ensure that the garden is relevant to its local community, its international network of botanical gardens, and other educational institutions.

EDUCATION

- ☞ Focus education opportunities on experiential learning and hands-on programs. Traditional programs and classes will be offered, but they should supplement more direct and personal educational opportunities.
- ☞ Develop partnerships to provide educational programs and projects with other organizations, schools, community colleges, and universities, such as the David Douglas School District, Johnson Creek Watershed Council, Clackamas Community College, and Portland State University.

HISTORIC LEACH COLLECTIONS

- ☞ Preserve and enhance the historic Leach plant collection.

- ☞ Preserve, curate, and enhance the collection of Leach antiquities (photos, furnishings, and pharmaceutical items).

FINANCIAL SUSTAINABILITY

- ☞ Ensure that the garden’s operations and funding are supported, governed, and managed through a broad-based and realistic business plan.
- ☞ Increase the garden’s financial resources through fundraising events, grants, donations, and admission and rental fees.

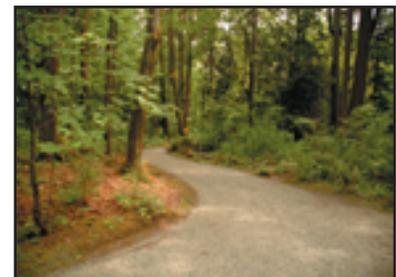
COMMUNITY OUTREACH

- ☞ Manage and improve the garden to develop a core constituency within its local community and continue to promote it as a national and international horticultural destination.
- ☞ Develop and maintain programs and educational opportunities that educate visitors and neighbors about the Leach’s historical connections to the southeast Portland community.
- ☞ Establish partnerships with local schools, neighborhood organizations, businesses, and other institutions for operational and financial support.

Overall Site Concept

Many improvement and development projects are proposed in the Master Plan. The section below highlights the major actions that are recommended. These represent both short- and long-term actions that provide a framework for future development and improvement at the site.

- ☞ Develop a new entry to the garden at SE Claybourne Street for vehicles, pedestrians, and bicyclists. The entry will provide greater visibility for the garden and a safer access point for visitors.
- ☞ Develop the upper (northern) part of the garden as an educational area that can accommodate individuals, small groups, and classes. This area should include a new visitor/education facility, demonstration beds and exhibits, a covered outdoor shelter, children’s garden, and space for additional collection areas.
- ☞ Provide a range of exhibits and educational opportunities in the upper area to attract new visitors and educate the general public and school groups. Existing displays such as the compost



Examples of possible site development

Recommendations

demonstration area and the fuschia garden would be retained.

Among the new exhibits that can be developed in this area are:

- interpretive information in the education building and exhibits along the paths;
 - a children’s garden that can accommodate individual visitors and classes;
 - collection beds, such as one for a Willamette Valley Prairie; and
 - demonstration beds for a variety of botanical topics.
- ☞ Expand the garden’s new collections into the upper area and to the east. The upper area will include a variety of exhibit themes in addition to the Willamette Valley Prairie, which was first proposed in the 1990 master plan.
- ☞ Expand the trail and circulation system throughout the garden. New trails will be built in the upper area and where the collection will be expanded. Also, develop a fully accessible trail from the upper garden to the Manor House.

Plant Collections

THE LEACH COLLECTION OF ANTIQUITIES

- ☞ Prepare a plan to catalog and archive the existing collection of Leach antiquities.
- ☞ Initiate a program to display samples of this collection in the Manor House, in the community, and throughout the city.

THE HISTORIC LEACH PLANT COLLECTION

- ☞ Strengthen the integrity of the historic Leach plant collection by thinning the surrounding woods to improve its health and vitality and relocate some of the collection to the east and north expansion areas.
- ☞ Maintain the garden’s emphasis on indigenous plants of the Pacific Northwest while expanding the forest collection, developing a cedar grove in the eastern portion of the garden, enhancing the riparian and wetland areas along Johnson Creek, and developing a Willamette Valley Prairie collection.

THE UPPER GARDEN

- ☞ Add new plant collections in the upper area to include a children’s garden, a display garden, and demonstration beds that show garden techniques, small garden ideas, drainage techniques, and other aspects

of urban gardening.

- ☞ Strengthen the environmental health and viability of the historical Leach collection by thinning the Douglas fir stand along the ridge that separates the upper area from the lower garden.

THE PACIFIC NORTHWEST FOREST

- ☞ Expand the Pacific Northwest native forest collection, including the cedar forest, on the slope between the Manor House area and the cedar forest.

RIPARIAN ZONE ALONG JOHNSON CREEK

- ☞ Maintain and enhance the riparian zone along Johnson Creek as a wetland area with limited trail access, especially in the eastern third of the garden.

THE NURSERY

- ☞ Maintain the nursery in its current location but modify its footprint as needed as the area around it is developed. Changes to the nursery’s layout may be required to improve security and to strengthen its educational value.
- ☞ Establish an area within the nursery that can be used for the sale of plants.
- ☞ Organize and improve the nursery so it continues to be a source of scientific information and can function as a research center in conjunction with educational institutions.
- ☞ Develop a demonstration greenhouse as part of the nursery to be used for education and display purposes.



Examples of possible garden development

Facilities

The garden includes a variety of buildings, many of which can be renovated or improved to contribute to the mission. In addition, a few new facilities are proposed to enhance the ability of the garden to carry out its mission. Because maintenance and operations costs for these facilities can be significant, it is essential that they all serve a clear function within the garden.

MANOR HOUSE

- ☞ Continue to use the Manor House as a site for wedding receptions and other small events. These may be reduced in

Recommendations



Transition the Manor House into a museum, as the Leaches requested

number and frequency as other revenue sources are developed.

- ☞ Restore the Manor House to reflect its 1930s era construction. This includes improving and updating facilities and materials as needed.
- ☞ Develop the Manor House as a museum that documents the contributions of John and Lilla Leach, per the condition of their will.

EDUCATION FACILITY

- ☞ Develop an education facility in the upper garden that will introduce visitors to the garden and its collections. The facility will also have the capacity to accommodate small groups for meetings.
- ☞ Develop an open-air structure as an interim educational facility. This structure will be retained after the development of a larger educational facility.

ADMINISTRATION BUILDING

- ☞ Improve and update the building so it can function as office space and adjunct classroom space.



Renovate the stone residence as an outdoor classroom

STONE CABIN

- ☞ Renovate the structure so it can be used as part of the garden's education programs about the Leach's historical legacy.
- ☞ Develop a covered shelter that can be used as an outdoor classroom.
- ☞ Install supporting features such as benches, and an outdoor barbecue and improve the trails.

STONE RESIDENCE (UPPER GARDEN)

- ☞ Renovate the building as an open-air covered structure that can be used as an outdoor classroom or small picnic shelter.

CARRIAGE HOUSE

- ☞ Renovate the carriage house as a storage facility to house materials and equipment used for education programs and events.

OUTDOOR COVERED SHELTERS

- ☞ Construct two new shelters that can be used for educational programs. They should be located next to collections or where they can provide the greatest value to programs.
- ☞ Ensure that the design and construction of these new shelters expresses a commitment to environmental sustainability.

Access, Parking & Trails

Access to the garden from SE 122nd Avenue is one of the most critical issues to be addressed. A new entrance is proposed as part of the overall improvement of the upper part of the garden. Parking will be provided to reinforce the upper garden as the common entry point. In addition, the trail system and internal circulation will be improved and expanded to manage visitor traffic and to provide opportunities to view all of the garden’s major attractions.

- ☞ Develop a new vehicle and pedestrian entry at the intersection of SE Claybourne Street and SE 122nd Avenue along with the construction of a new parking lot at the upper garden.
- ☞ Explore redevelopment of the existing lower parking lot to eliminate the parking stalls next to the creek. This will be feasible once a new parking lot in the upper garden is developed and/or demand for the lower lot decreases. Restore the area with native vegetation as part of the garden’s riparian zone plantings.

TRAILS

- ☞ Develop a path network that preserves and enhances the garden’s beauty, natural topography, plantings, and views.
- ☞ Improve the garden’s paths so they can accommodate at least two people walking abreast. This will not be possible for all of the trails, but should be done as part of a systematic improvement of the entire trail network in the garden.

JOHNSON CREEK PEDESTRIAN BRIDGE

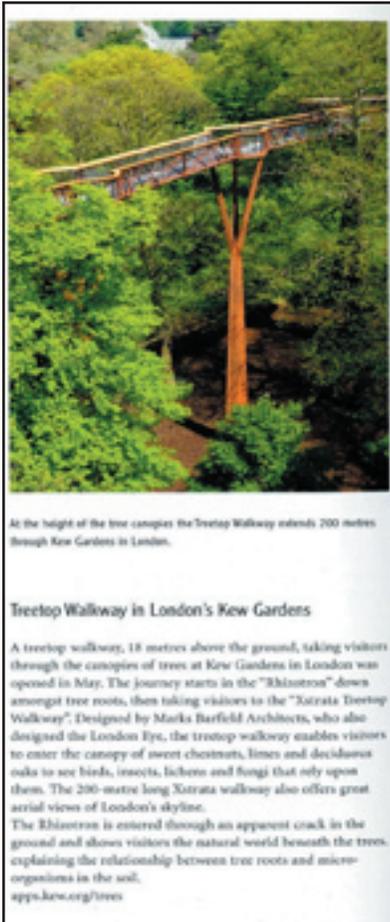
- ☞ Develop a new pedestrian connection between the north and south sides of Johnson Creek, replacing the current bridge. In addition to a new pedestrian bridge, explore the addition of a wider sidewalk along the existing SE 122nd Avenue bridge.



Visitors greatly prefer interactive elements – and other means of participation – in exhibits. Both science and art museums have found that secluded areas where visitors have a chance to interact with materials attract visitors and encourage them to spend unusually long periods engaging in personal inquiries.

Museums – Places of Learning, by George Hein and Mary Alexander; American Associations of Museums Executive Committee, 1998.

Recommendations



A description of the treetop walk in Kew Gardens

ACCESSIBLE TRAIL

- Develop a fully accessible pedestrian trail to connect the upper garden with the lower garden. The trail should meet current ADA standards, include benches and other features, and be sited so visitors will experience a variety of the garden's collections.

CEDAR CANOPY WALK

- Construct a fully-accessible elevated walkway through the cedar forest at the east end of the property. The walkway will emerge from the steep canyon slopes between two cedar trees, extending south through the forest, over the wetland area until it reaches a landing in the cedars at the edge of Johnson Creek.

The landing should be large enough to host small classroom groups or tours. Along the walk, visitors will obtain close-up views of the forest canopy, views of the wetlands and lower garden, and views of the riparian corridor up and down Johnson Creek from the landing. The walkway itself may be straight, or may make a single, sweeping curve through the forest.

Education Programs

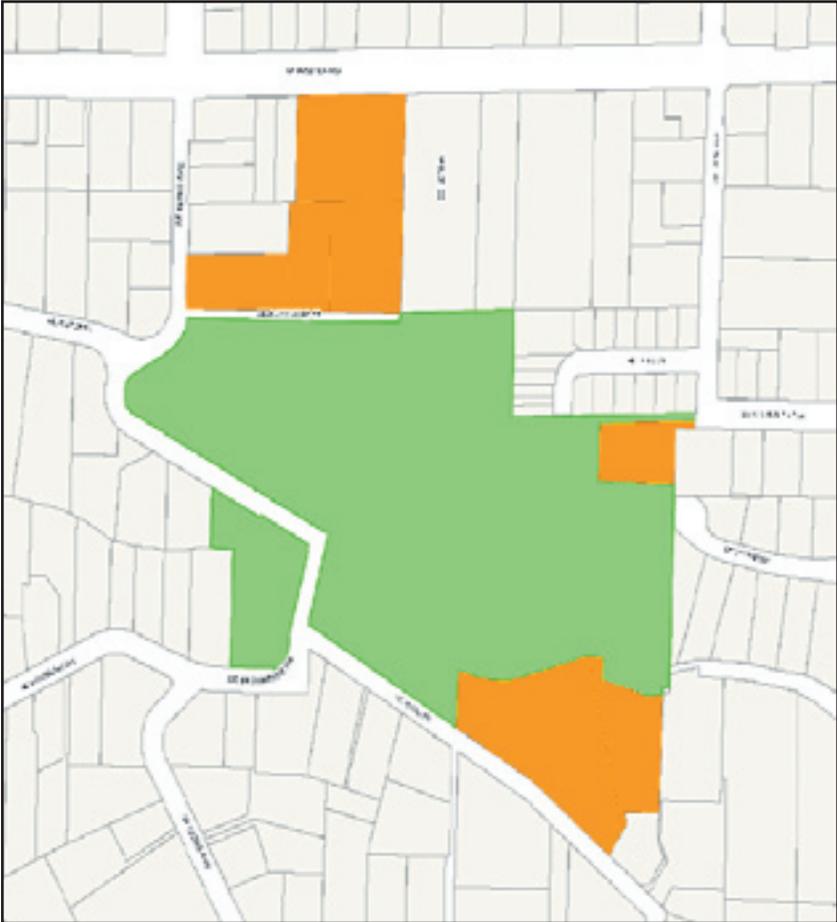
Educational programs have been a cornerstone of the garden and should continue to be a core part of its mission. An expanded approach to how visitors learn and experience the garden is proposed, with greater emphasis on experiential learning and self-directed tours. In addition, strategic partnerships with other organizations can help expand the garden's educational value within its financial resources.

- Expand and improve educational opportunities at the garden, including more programs, more interpretive signs, outreach activities, and partnerships with other organizations.
- Emphasize hands-on and experiential learning opportunities. The focus of the garden's educational program should be on-site learning and teaching opportunities.
- Establish and maintain educational programs that respond to community needs, further the garden's mission, leverage partnerships, and are financially sustainable.
- Develop a system of interpretive signs and exhibits that are informative and engage visitors in an imaginative way such as theme-based tours, soil profile examples, etc. Interpretive signs and other educational features should be designed as part of an overall plan for site furnishings.

- ☞ Develop areas within the garden that can accommodate small groups for educational programs. Improvements could include covered shelters, benches, interpretive exhibits, and trails that have the capacity to handle frequent use throughout the year.
- ☞ Maintain and expand partnerships with community organizations and educational institutions (community colleges and universities) such as the Johnson Creek Watershed Council, David Douglas School District, Zenger Farms, and neighborhood associations.
- ☞ Expand the garden’s programs and events to address the current and growing interest in native plants and environmental sustainability.

Acquisition

Several parcels are recommended for acquisition. These parcels will help expand the collections, protect environmental resources, provide additional room for parking or educational facilities, and expand frontage and exposure.



Funding

- ☞ Develop and implement a business plan that provides a solid financial foundation for the garden's operations and capital needs. The business plan should identify a broad base of revenue sources, including admission fees.
- ☞ Ensure that the garden's board has the financial capacity to carry out the master plan and develop and implement the business plan.

Governance

One of the most important issues facing the garden is the need for a strong and well-managed organization to oversee its operation, maintenance, and programming. Policies and procedures need to be clearly outlined and the garden's board must have a clear sense of its long-term future and how it intends to realize it.

- ☞ Strengthen the capacity of the board to include people with skills in accounting, public relations, marketing, law, fundraising, garden management, horticulture, and land use planning.
- ☞ Develop a strategic plan to address broader governance and management issues.

Implementation Strategy

The following is an outline of recommended actions for the next few years. Many of the tasks focus on organizational structure and projects that can be done relatively quickly. The actions below are listed as Priority 1 (highest) or Priority 2 (activities that are less urgent or depend on other actions and opportunities).

Priority 1

- ☞ Continue to strengthen and diversify the garden's board and overall management policies.
- ☞ Develop a business plan for the garden in conjunction with PP&R. One of the elements of the plan should be a review of fees for weddings and other events as the first step in weaning the garden away from a reliance on receptions as a revenue source.
- ☞ Acquire adjacent properties, as shown on the previous page.

Priority 2

- ☞ Prepare a site concept for the upper garden that provides clear direction for the area's development but is flexible enough to accommodate a range of building types for the education center and

improvements to the nursery.

- ✿ Develop one of the collections or attractions in the upper garden's plan.
- ✿ Initiate a program to improve the garden's trails. The program should be based on an overall assessment and priorities.
- ✿ Continue the process of cataloguing and archiving the collection of Leach antiquities.

Summary of Costs

This estimate is meant to provide an order of magnitude cost for the concepts in the master plan. Because the estimate is based on a concept plan, many assumptions were made in preparing the cost. The low and high ranges were calculated by applying a 20% and 40% contingency respectively to the initial estimate. A more detailed estimate will be developed when designs are being prepared and/or construction drawings are being developed.

The costs outlined may be higher or lower, depending on when construction occurs and the final size of the features. Detailed notes on some of the features in the estimate are provided on page 31.

Recommendations

| Cost Element | 20% contingency | 40% contingency |
|---|------------------------|------------------------|
| Park Entrance & Administration at SE 122nd | 2,868,000 | 3,346,000 |
| Internal Park Access | 1,866,000 | 2,177,000 |
| Wedding Area & Demonstration Beds | 466,800 | 544,600 |
| Nursery | 567,600 | 662,000 |
| Children's Garden | 352,200 | 410,900 |
| Willamette Valley Prairie | 237,600 | 277,200 |
| New Collection Areas | 474,000 | 553,000 |
| Pacific Northwest Native Forest | 297,600 | 347,200 |
| Historic Leach Improvements | 1,176,000 | 1,372,000 |
| Miscellaneous Site Improvements | 608,400 | 709,800 |
| Construction Sub-total | \$8,911,600 | \$10,399,700 |
| Mobilization, Demobilization, Insurance, Bond (10%) | 891,160 | 1,039,970 |
| Construction Total | \$9,802,760 | \$11,439,670 |
| Soft costs @ 25% | 2,450,690 | 2,859,918 |
| Other costs | | |
| Conditional Use Review Fee | 8,000 | 8,000 |
| Primary Design Fees: | 1,750,000 | 1,750,000 |
| Traffic Study for New Entry @ SE 122nd | 35,000 | 35,000 |
| Total Cost | \$14,046,450 | \$16,092,588 |

COST ESTIMATE NOTES

Allowances

Many of the line item costs are represented by allowances. This is done where the exact scope of the work cannot be determined without more programming, design and investigation. For example the extent of the ROW improvement along SE 122nd cannot be determined without a traffic study and meetings with transportation officials.

Sustainable Practices

In preparing the estimate, certain sustainable practices were discussed such as the use of permeable paving. Upon investigation of the costs for permeable concrete, it was discovered that the cost to install the paving alone can double, or more, for small projects because of special material handling, special installation techniques required, and the scarcity of qualified installation contractors as of this date. As the practice becomes more common, the cost for this material will likely be more competitive. Until that time, individual projects within the master plan should be reevaluated and costs adjusted accordingly based on the respective detailed design program. Budgeting for individual projects should adjust costs toward the “high” end of the scale to accommodate special innovations such as permeable paving and the small scale of some of these projects.

Central Feature

As a way of introducing and organizing the different collections within the garden, a central feature is proposed. This feature will orient visitors and include amenities such as special paving, seating area/benches, interpretive signs or kiosk, special thematic site improvements, etc. This concept has been reflected in the cost estimate with commensurate cost allowances included for the various theme gardens.

Special Features

Grand Staircase above Manor House

With the changing of the primary public garden/park entrance from Manor House to the new annex, it is important to create a strong point of access to the Manor house. The Manor House should be accessed through the garden, when coming from the upper area. Thus a Grand Staircase has been conceived of coming from the upper area down the slope and connecting with the courtyard between the Manor and Carriage House. The design image for this connection is the staircase at the Rose Garden in Washington Park from the parking area into the Rose Garden. The staircase at Leach Botanical Garden is proposed to be brick with some basalt.

Timber Bridge across Johnson Creek

The foot bridge will allow visitors to cross Johnson Creek by connecting the area in front/adjacent to the Manor House to the upper area on the other side of the creek. This would make the Stone Cabin easily accessible from the Manor House. It would provide views up and down the creek and maintain the pedestrian flow in the garden.

Tree Canopy Deck & Boardwalk in the Trees

This feature will get the visitors into the trees to overlook the creek with views in several directions. Currently Hoyt Arboretum is planning to construct a Timber Overlook deck on a steep slope in its Redwood Grove; the deck will be in the trees, and link directly to the adjacent trail switchback with a short boardwalk connection.

Leach Botanical Garden Master Plan Concept



Appendix A: Desired Future Condition

The Desired Future Condition (DFC) is a systematic process to guide ecological restoration and is part of PP&R's Ecosystem Management Strategy. Ecosystem management is an organized approach to improve the quality of habitat for fish and wildlife and other natural resource functions and values. It consists of the following steps: (1) Inventory, (2) Determination of Desired Future Condition, (3) Assessment, (4) Prescription, (5) Intervention (if needed), and (6) Monitoring. Applied over time, the sequence of steps forms a recurring cycle known as an adaptive management loop. Using consistent protocols and GIS technology, Ecosystem management will enable PP&R's natural resources staff to qualify and quantify the condition of natural resources in its portfolio of responsibilities.

The DFC for Leach Botanical Garden is a combination of semi-native upland habitat and native riparian habitat. The upland areas are generally expected to retain the native canopy species that are currently on site, while the understory will be planted with native and non-native species. Along Johnson Creek, two riparian areas will be rehabilitated with native plantings and habitat improvements consistent with Salmon-Safe practices. The following habitat types are recommended for the DFC.

Western Red Cedar Forest (WRCF)

(Thuja plicata Forest Alliance)

Western red cedar is the dominant tree species in this forest type, with a canopy less than 50 meters in height. Western red cedar usually occurs in mixed-species stands and is found in pioneer, seral and climax stages of forest succession. Other species that can be found in the overstory include Douglas fir, western hemlock, and grand fir. Big leaf maple and black cottonwood may form a subcanopy in stands of this alliance. Some of the many species found in the shrub layer include vine maple, dull Oregon grape, thimbleberry, and salmonberry. Sword fern, maidenhair fern, deer fern, lady fern, western trillium, and large-leaf avens can be found in the herbaceous layer. Wide seed distribution allows western red cedar to invade disturbed habitat.

North of Johnson Creek on the eastern boundary of the property is a 1.6-acre upland area that is currently dominated by western red cedar in the canopy and regeneration layer (LBG*008). The native canopy will be left undisturbed and shade-loving native and non-native herbs and shrubs will be planted in the understory (Scott Fairchild, Leach Botanical Garden). The DFC for this area is Western Red Cedar with a mixed native and non-native understory.

Douglas Fir-Big Leaf Maple Forest (DF-BLMF)

(Pseudotsuga menziesii and Acer macrophyllum Forest Alliance)

These forests are characterized by a broad-leaf deciduous and needle-leaf evergreen tree canopy from 35-50 meters high and with over 60% canopy cover. Typically the canopy is two-tiered with Douglas fir emergent through the deciduous tree layer. Western hemlock, western red cedar, and grand fir may also be present in the canopy. A shrub layer is usually present ranging from 20-60% cover, including salmonberry, black elderberry, western beaked hazelnut, vine maple, red huckleberry, and snowberry. The herbaceous understory typically comprises a diverse and dense mixture of shade-tolerant forbs and ferns, including sword fern, western trillium, Pacific waterleaf, and wild ginger.

West of SE 122nd Drive are two parcels dominated by Douglas fir and big leaf maple on either side of the creek (LBG*013 and LBG*014). Pacific ninebark, dull Oregon grape, sword fern, and western beaked hazelnut are found in the understory on the northern parcel. Red-osier dogwood and cranesbill are currently found on the parcel on the south side. Big leaf maple is regenerating and is likely to remain a canopy

Appendix A – Desired Future Condition

dominant along with Douglas fir. The DFC for these areas is Douglas Fir-Big Leaf Maple Forest (DF-BLMF) with some non-native understory species. This DFC does not differ from current conditions.

Oregon Ash Seasonally Flooded Forest (OASFF)

(Fraxinus latifolia Seasonally Flooded Forest Alliance)

This forest community is dominated by Oregon ash in the tree canopy and occurs on poorly drained swales and riparian areas. The tree canopy has 50-80% cover and reaches a height ranging from 10-25m. Toward the drier edges of a stand, big leaf maple or Oregon white oak may occur in small numbers. In stands near active stream channels, red alder, black cottonwood, and willow species are common. The shrub layer is usually sparse, and can consist of black hawthorn, Douglas' spiraea, snowberry, and trailing blackberry, while the herbaceous layer is usually dominated by slough sedge.

The DFC for three riparian areas bordering Johnson Creek is Oregon Ash Seasonally Flooded Forest (OASFF) with additional native riparian species, including, but not limited to, western red cedar, salmonberry, red-osier dogwood, red elderberry, various willows, and a variety of ferns and other herbaceous species. The central stretch of riparian habitat north of Johnson Creek on the large property supports mostly native shrubs and herbs (LBG*r001). Oregon ash, red alder, red-flowering currant, salmonberry, thimbleberry, red elderberry, and Pacific yew are some native species (PP&R Riparian Survey). Invasive species include reed canarygrass and English ivy. Habitat bordering Johnson Creek west of SE 122nd Avenue currently supports Oregon ash, red alder, sword fern, and a non-native ornamental redwood (LBG*r002). Invasive species include garlic mustard and English ivy. Leach Botanical Garden (Scott Fairchild, Leach Botanical Garden) has expressed interest in developing the area south of Johnson Creek into a wetland/riparian interpretive display with a mixture of riparian plants.

Western Red Cedar Seasonally Flooded Forest (WRCSF)

(Thuja plicata Seasonally Flooded Forest Alliance)

Vegetation within this alliance is usually characterized by a dense to somewhat open coniferous canopy (50-90% cover) dominated by western red cedar (35-50m). Trees may be large diameter and widely spaced. Western hemlock is a typical associate in these stands, but may be confined to higher microsites such as buttress roots, stumps, and nurse logs. Douglas fir and grand fir may also share the upper tree canopy. Deciduous trees, including red alder and big leaf maple, often form a subcanopy layer. Vine maple, salmonberry, trailing blackberry, devil's club, and red huckleberry are the most common shrubs. The herbaceous layer is diverse and dominated by wetland and moist forest species including yellow skunkcabbage, deer fern, lady fern, maidenhair fern, sword fern, wild ginger, western trillium, and vanillaleaf. Mosses and lichens are common on trees, downed logs, and the forest floor.

The DFC for two separate riparian areas is Western Red Cedar Seasonally Flooded Forest (WRCSFF) augmented with Oregon ash, red alder, snowberry, and any other desirable native riparian species. North of Johnson Creek in the southeastern corner of the property is a one-acre riparian bench (LBG*010) that is currently dominated by red alder with a robust layer of western red cedar regeneration (Site Visit, Steve Lower, PP&R, 1/30/07). If left undisturbed this area would likely develop into Western Red Cedar Seasonally Flooded Forest (WRCSFF). Himalayan blackberry and stinging nettle are problems on this unit. East of SE 122nd Avenue and south of Johnson Creek is riparian habitat that currently supports a suite of native species, including western red cedar, Oregon ash, salmonberry, western wahoo, thimbleberry, red elderberry, snowberry, vine maple, piggy-back plant, lady fern, maidenhair fern, and sword fern (LBG*r003).

Western red cedar dominates the canopy and is regenerating (PP&R Riparian Survey). English ivy is an invasive problem.

Botanical Expansion

The botanical collection consists of thousands of native and non-native species. These areas have a well-developed trail system and buildings used for education and maintenance. Douglas fir, western red cedar, big leaf maple, and red alder are the most frequently encountered native canopy species.

The botanical collection north of Johnson Creek will be expanded eastward into a 1.2-acre upland that borders the Western Red Cedar Seasonally Flooded (WRCSFF) and Western Red Cedar Forest (WRCF) units. This area (LBG*009) is currently dominated by red alder. If left undisturbed, Douglas fir and/or western red cedar will replace the red alder through succession, particularly given the ample seed source for western red cedar in the area. Douglas fir and sword fern have been planted by Leach Botanical Garden staff. There are no DFC recommendations regarding vegetation in this area.

Wildlife Habitat

The forest community at Leach Botanical Garden will provide structurally complex and diverse habitat for a wide range of native wildlife species. The surrounding forest will support birds, reptiles, and small mammals. A few of the bird species that have been observed at Leach Botanical Garden include red tail hawk, great blue heron, wood duck, pileated woodpecker, Townsend's warbler, and Anna's hummingbird (see Appendix B for Latin names). Some mammals include common raccoon, gray fox, black-tailed deer, and Douglas' squirrel. Dead trees will be left standing for cavity-nesters and other wildlife, while downed trees will provide shelter for small mammals and reptiles on the forest floor. Riparian habitat along Johnson Creek will support fish, amphibians, and aquatic mammals.

Leach Botanical Garden Desired Future Condition (DFC)

