Review of College of Forest Resources Centers, Cooperatives and Programs
University of Washington Botanic Gardens
December 15, 2008

Executive Summary

- Sites that we steward provide a laboratory for restoration, conservation, and urban plant management.
- UWBG is the 3rd largest public outreach program at the UW. Links to the education community of all ages – preschool through high school – enriches lives. Our adult outreach interprets botanical science through formal and informal learning.
- We are the stewards of a historical legacy - Olmsted. The Washington Park Arboretum is the only designated Washington state arboretum.
- Students seek expertise in our graduate programs and after leaving the UW obtain significant professional positions.
- We join with other national public gardens in programs such as Center for Plant Conservation, Cultivated Flora of North America, Acer and Quercus inventory, and identify significant collections.
- UWBG preserves biodiversity through living plant collections, the Hyde Herbarium, Rare Plants & Conservation, conservation practices and the Miller Seed Vault
- Donor funds are being used according to donor wishes for the benefit of the community. An example is the Miller Library, a horticultural library established to serve the community.
- There are organizational challenges as we move with the College of Forest Resources to a new organization focused on the environment.
- There is a notable lack of key academic expertise available to the academic programs – horticulture, plant pathology, and entomology.
- There has been a lack of consistent University of Washington Botanic Gardens leadership over the past few years due to the difficulty of hiring and retaining a director.
- Historically, there has been competition for donors between various fundraising organizations that support the various units within the University of Washington Botanic Gardens.
- In the 1970's, state funds were cut from the units comprising the UW Botanic Gardens; the horticultural staff alone was reduced by 26 positions. The gardens and natural areas continue to struggle with invasive plant species and inadequate staff to maintain the gardens.
- In 2009 the University of Washington is preparing for a 20% reduction in state funds, some of which will probably fall to the UW Botanic Gardens. Already underfunded, the facilities and programs will be further eroded.
- The facilities where CFR faculty and UW Botanic Gardens staff are located are essentially full.
- Rebuilding/expanding SR520 will cut a swath through the center of the University of Washington Botanic Gardens, particularly the Washington Park Arboretum

Introduction

"*The world is becoming increasingly urbanized….At the beginning of the 21st century, the University of Washington's College of Forest Resources (CFR) is poised to take a leadership role in the area of forest and landscape management in this urbanizing environment. An integral part of this role is the Center for Urban Horticulture, along with its associated academic program…" (from the 2000 Professor Loveday Conquest (chair) report on the Center for Urban Horticulture, Affiliated Programs & Facilities – see appendices).*

The following plan summarizes the University of Washington Botanic Gardens (UWBG) goals and vision for the next five years, as requested by Dean Bruce Bare of the College of Forest Resources on October 21, 2008. This report includes the UWBG vision for future research, financial resources, space and facility requirements, and human resources and leadership. Included are the following sections.

I. Mission and Vision
II. Strategic Plan
III. Five Year Plan
    A. Research
    B. Outreach and Education
    C Governance and Financial Resources
    D. Master Plans – Facilities and Space Requirements
    E. Human Resources
IV. Appendices

I. Mission and Vision

The University of Washington Botanic Gardens (UWBG) was established in 2005, combining the organizational responsibilities for the Washington Park Arboretum and the Center for Urban Horticulture/Union Bay Natural Area sites. The name UWBG was chosen to better reflect the education, research, curation and services offered by the united components, and the following mission and vision were established.

Mission

Sustaining managed to natural ecosystems and the human spirit through plant research, display, and education.

Vision

As an international hub for plant science, information, teaching and stewardship, we will promote an educated, inspired, and engaged society dedicated to sustainable ecosystem management.

II. Strategic Plan

The UWBG Strategic Plan was developed in 2006-2007 in alignment with the strategic plan of the College of Forest Resources.

Goals
The following are overarching goals for the organization.

Provide leadership in plant research, display, and education
- Conduct innovative research and promote applications of findings
- Provide high quality instruction and programs that are science-based and/or cultural and use the most appropriate method for informing the particular audience
- Provide and maintain high quality facilities and collections
- Use best practices for land stewardship

Strategies
The following strategies will allow the organization to reach those goals (see Appendix B for full listing of sub-points)

1. Achieve financial sustainability & growth
2. Broaden and diversify constituents; deepen involvement
3. Develop and implement an effective communications strategy
4. Develop and implement an effective marketing strategy
5. Foster excellence in people & resources

These goals and strategies are a close match to the recently developed three-year goals for CFR.

1. Increase morale and a sense of community
2. Improve CFR facilities
3. Increase funding for the College of Forest Resources (e.g., UWBG)
4. Create a positive public image, both on and off campus
5. Take a leadership role in making the College of the Environment successful
6. Increase the number, quality and diversity of students, faculty and staff in the college

After participation in the 2008 College of Forest Resources retreat, UWBG staff work plans have been refined to focus on implementation of these goals and strategies which include the resources required to achieve them, due dates, responsible parties and a system of metrics to measure progress toward achieving the goals. A demonstration work plan is included in the Appendices

III. Five Year Plans

A. Research

Current

Faculty from other departments, including Landscape Architecture and Biology, as well as faculty from throughout the College of Forest Resources, currently partner in research and teaching. Our associated faculty also integrate us with Washington State University and agencies such as the National Park Service and the National Oceanic and Atmospheric Administration. These partnerships expand the research at UWBG. By allowing other faculty within the new College to link to UWBG, we can collaborate on innovative research and we can expand the interpretation of research to the public.

There are many teaching and research collaborations already in place. While other units link with UWBG, several UWBG associated faculty have adjunct appointments in Biology and Landscape Architecture. We also teach students from UW Bothell and UW Tacoma though the Restoration Ecology Network. Students in a number of academic majors are partnered with community groups and city governments to undertake restoration projects. Students get intensive experience in restoration, working with faculty from all three campuses who have won awards in restoration.

In addition to the research on conservation and restoration performed at UWBG, there is also a strong history of research related to the urban environment. As the name "Center for Urban Horticulture" suggests, growing plants in urban areas has been an important part of our academic mission since our inception. Faculty and students have researched such topics as issues in urban forestry, how to prevent fertilizers and pesticides from entering local waters, and the presence of air and soil borne pollutants in urban vegetable gardens.

Future

The University of Washington Botanic Gardens has the potential to serve the new College of the Environment much as the Burke Museum serves the College of Arts and Sciences. Like the Burke Museum, UWBG has core faculty doing research and academic teaching on topics relating to the conservation and restoration of organisms and ecosystems. Like the Burke Museum, there is also significant expertise among the faculty and staff in interpreting this work for the public through displays, publications, and classes. Consequently, UWBG is respected through the region, country, and world for outreach as well as science.

The current faculty intends to continue building on the foundations of research they have already established. The restoration ecology faculty, Ewing, Bakker, and Fridley envision both basic and applied research that improves our understanding of how ecosystems function, especially as pertains to plant communities, and how to restore that function. Reichard will continue research on invasive plants, with her emphasis on understanding the pathways of how they are introduced and spread and the tools needed to prevent invasions. She will also continue rare plant research, including directing the UWBG conservation program, Rare Care. This work emphasizes understanding threats for species recovery. Kim will continue working on climate change and plant physiology, using the urban to wildland gradient to approximate climate change scenarios. In order for the program to grow, however, additional faculty will need to be added. Currently, the UW does not have faculty expertise in entomology, due to two retirements that were not replaced. Biology faculty has expressed an interest in this expertise and might support it within the UW. Many of our students work on aspects of plant/insect interactions such as predation and

pollination. In addition, forest protection is very important to the economy and environment of our state and, with our active ports, several harmful pest introductions have threatened those forests. We would also like to add additional faculty strength in urban horticulture, urban forestry, and plant pathology. This could increase our involvement with the Puget Sound Partnership, an agency of the State of Washington. Much of the pollution in the Sound comes from over fertilization and pesticide use, with poor storm water management. Having faculty expertise in this area will help us meet UW strategic goals on the environment and urban living.

B. Outreach and Education

Current

Arboretum – over 9000 participants in our programs per year, the majority being youth (>8000). Programs include:

- **Seedlings**, a new program introduced in 2006, for preschool audiences. This one-hour program has two themes, Trees and Seasons, and Wetland Wildlife.
- **Saplings**, for grades K-8. Teachers can choose from the following themes for this 90-minute program: Discover Plants, Life Cycle of a Plant, Native Plants and People, Wetland Ecology Walk.
- **Explorer Packs** and **Family Adventure Packs** are self-guided tours, using backpacks supplied with field guides, scavenger hunts, magnifying lenses and activity ideas for children in grades K-6.
- **Summer camps** include Arboretum Adventures, week-long day camps organized in partnership with UW Extension, and Summer Sleuths, 1 ½ hour summer programs for groups.
- **Adult tours** include the free weekend walks on 1st & 3rd Sundays, and scheduled tours, led by volunteer guides.
- **Other outreach** includes participation in events such as the Maple Festival at the Japanese Garden through providing educational activities for children at a booth.

Center for Urban Horticulture – over 1000 participants in programs for adult audiences per year. Programs include:

- **Conferences:** Organized on regular basis with partner organizations, for example stormwater management in 2007 in conjunction with Seattle Public Utilities.
- **ProHort programs** for professionals in the horticultural and tree care industries.
- **Adult programs,** for general audiences, with topics ranging from botanical art to gardening topics to walking tours of Union Bay Natural Area and other areas.
- **Tours** of the building and gardens, including Merrill Hall green building, library, herbarium, Union Bay Gardens, and Union Bay Natural Area.
- **Other outreach** includes presentations, booths (e.g. NW Flower & Garden Show), open house events, art exhibits in the library, volunteer work parties in UBNA, etc.

Other Programs with Significant Education and Outreach Components:

Elisabeth C. Miller Library– The library has over 17,000 visitors every year, including those attending tours and programs, such as the Family Story Time and customized presentations for UW and community college classes, plant and garden societies, library, art, and bibliophile organizations. Staff researched nearly 5,000 reference questions, including questions to the Plant Answer Line, a telephone, e-mail, and web-based reference service. Questions and answers are added to the searchable Gardening Answers Knowledgebase, available to all from the website.

Most of the library's 15,000 books are available to check out by any Washington State resident with 15,000 borrowed each year. The library has extended hours on Monday evening year round and on Saturdays except in summer. Art exhibits with special openings attract more visitors and library remains open for all lectures presented by the Northwest Horticultural Society.

Rare Plant Care & Conservation ("Rare Care") – 80 volunteers contribute 2,600 hours each year in monitoring, seed collecting, seed cleaning, outreach, and germination testing. Outreach includes annual Celebrating Wildflowers event, newsletters, & website.

Otis Douglas Hyde Herbarium – houses over 18,000 plant specimens and provides 300 plant identifications per year.

UW Restoration Ecology Network – The UW REN program is in its tenth year of partnering with community clients to complete restoration projects. The over fifty separate clients who have participated with UW REN have included schools, tribes, parks, preserves, private citizens, colleges, county governments, cities, homeowner's associations, non-profit environmental organizations, environmental learning centers and others. With each project, students have enlisted the aid of community members, students from nearby schools and neighborhood businesses, bringing participatory environmental experience to an extensive network of citizens.

The Grounds Crew logs 2,500 hours of volunteer involvement on projects, with the largest single project being the Earth Day event, held in partnership with the Student Conservation Association. Service learning includes a partnership with Seattle Youth Garden Works for native planting and propagation projects. A new Adopt-a-Bed project in partnership with the Arboretum Foundation aims to increase volunteer participation in grounds maintenance.

Volunteer Involvement is a key component of our activities; we had over 12,000 volunteer hours annually.

Future

Strategic Plan–the UWBG Strategic Plan is nearly complete. In the draft Strategic Plan, the goal directly related to education & outreach is: **Broaden and diversify constituents; deepen involvement,** with the following strategies:

1. Create mechanisms for surveying our stakeholders to collect input and feedback
2. Provide innovative and high quality programs and services that include our stakeholders' expressed needs and desires
3. Develop new, innovative collaborations with public and private organizations, local to international
4. Strengthen collaborative efforts with our existing partners

5. Increase public use of facilities and services

In the Outreach and Education Unit, for adults our emphasis will be in providing a variety of programs for a general audience with an emphasis on those topics that have demonstrated appeal (e.g. botanical art), tap into our research areas and staff expertise (e.g. pruning taught by staff members; tours of Union Bay Natural Area by Kern Ewing & grad students), and showcase sustainability issues (e.g. water conservation in the garden). We will also be exploring new partnerships, such as ethnobotany programs with the NW Indian College.

At the Arboretum, the emphasis will be on developing middle school and high school programs, developing the adult tours, and creating new innovative tours (e.g. "The Nature of Love"). New high school botany and middle school nature journaling curricula have been developed. We are exploring funding mechanisms to replenish our scholarship funds to provide more programming to low-income students. Organization-wide, strategies to reach new & diverse audiences include increasing the use of technology for outreach (e.g. redesign website, electronic newsletter, explore use of cell phone or podcasts for self-guided tours, developing a proposal for integrated information system), and integrating programs across units (e.g. explore offering building/garden tour to rental customers).

Two of the six major goals in the draft Strategic Plan call for **creating communications and marketing strategies** for the organization. Improved communication tools such as signage and brochures and better marketing of programs will assist with education and outreach goals.

Five year plans for the other units can be found in Appendix 4.

C. Governance and Financial Resources

Governance

The UWBG is the governing body for the plants collections at the Washington Park Arboretum, taking responsibility for the overall direction of its collections, interpretations, research use of the collections and educational and outreach programs. The Washington Park Arboretum land is owned by the City of Seattle and managed by Seattle Parks & Recreation Department. The Arboretum Foundation, established in 1935 to support and advocate for the WPA, serves on the WPA Master Plan Implementation Group, and is the major fundraising organization for the Arboretum.

A joint City Parks & Recreation/University/Arboretum Foundation advisory committee titled the Arboretum and Botanical Garden Advisory Committee (ABGC) was established in the 1970's. Since WPA is designated as a State Arboretum, the Governor also appoints a member. The ABGC reviews plans and operations within the Arboretum and is responsible for WPA Master Plan implementation decision-making.

Recently, City Parks, CFR, UWBG, UW Advancement and the Arboretum Foundation formed a project group to improve working relationships around fundraising. A "donor centric" agreement was reached that will be implemented, starting in January 2009.

The Center for Urban Horticulture is the other major component of UWBG and is located on the 90 acres surrounding Union Bay to the north and includes the Union Bay Natural Area. Unlike the Arboretum, the University wholly owns this land.

The Executive Director, the chief operating officer, manages the whole of UWBG and all staff ultimately report to this position. All faculty have their appointments within CFR and do not report to the Executive Director. This was a change in administrative structure made in 1997. The core faculty now report directly to the Chair of the CFR Faculty, not to the Executive Director of UWBG. However, the faculty manage, advise, or engage with many of the programs and services conducted through UWBG, which could not succeed without their contributions. These relationships are critical to the success of UWBG. A shared reporting between CFR and UWBG would better facilitate these interactions. An appropriate UW model, already mentioned, is the Burke Museum. Core faculty there have an appointment in another department, but also work part of the year for the Museum. This model should be explored.

In 2008 the UWBG Advisory Committee was created including members from the professional community with expertise in particular areas that relate to activities and programs conducted by UWBG. These individuals also care about UWBG and support its mission and vision. They advise the Director and senior staff in areas of program development, evaluation, and possible funding.

Financial Resources

A report on UWBG's FY2007-08 financial status, showing a diverse annual income of approx. $1.8 million, can be found in the appendices. This varies from year-to-year, depending on special project gifts and/or grants as well as revenue. (As noted in the footnotes of the report, faculty salaries and research grants are not included, nor is the salary of the Director or the half time Development Officer, both of which are funded by other campus organizations). State funding represents approx. 31% of UWBG's annual budget; endowment income represents approx. 11%; the Arboretum Foundation provides approx. 10% of annual funding, restricted to Arboretum operations; and self-sustaining units represent about 43%. General gifts and Center program-related grants play a minor part in the over all budget.

Also included in the appendices is a listing of the last 8 years of Arboretum Foundation's donations to WPA operations and a report from UW Advancement, totaling the donations to UWBG over the last 3 years. These show an ongoing but inconsistent giving record. Most of the funds received either from endowment income, gifts, grants, or educational programs revenue are restricted in their use. There are very few discretionary funds, making state funding UWBG's largest source of unrestricted, flexible funding.

UWBG's state funding provides support for the unit's core staffing including managers and plant collections stewards. Since 1983 UWBG has only received one state funding increase (beyond standard cost of living/merit allotments). In the late 1990's $25,000 was provided by the Provost's Office to support the restoration of the Union Bay Natural Area (UBNA). However, UWBG State funding has taken a number of budget reductions over the years, with the last cut in Biennium '03-'05. At that time the Center for Urban Horticulture's and the Washington Park Arboretum's state budgets were both reduced by 10%. This cost each of these two units a staff position, leaving us even more understaffed in stewarding the lands for which we are responsible, and the $25K for UBNA was reduced to $20K. It also reduced funding for program-related RA's, and support for a number of other public-outreach programs.

Seattle Parks & Recreation has been an invaluable partner in caring for and improving the WPA. During the past decade a Parks Levy provided over $2.5M to invest in infrastructure improvements, building the Japanese Garden Gateway, and establishing the first series of gardens to be built in WPA in 30 years—the Pacific Connections Garden. Because of the support of the City Council and the citizens of Seattle, another Parks Levy was passed in November 2008, which will provide another $2.5M for Pacific Connections Garden Phase II infrastructure. In addition, the Arboretum Foundation was able to raise significant funds in support of these projects, with these funds going directly to Parks.

In the next five years, we expect to improve our funding in the following ways:

In an effort to increase donations and private support, a Fundraising Project Committee, made up of the partners at the WPA (City Parks, Arboretum Foundation, and the UW) was formed in 2008 and an agreement establish to better manage the donor cultivation process and provide coordination and cooperation to fund the implementation of the WPA Master Plan. This also removes some of the barriers that limited our development officer in pursuing a broader range of opportunities to raise significant gifts and establish endowments. However, this will provide little support if any for activities and gardens at CUH.

In 2006, a UWBG Director's Guild was appointed to establish a development arm similar to the Arboretum Foundation but with the intention that the Guild would raise money to benefit primarily the CUH site and programs. This group has not yet been organized to facilitate fundraising events and donation opportunities of a significant nature, but with the completion of the fundraising agreement mentioned above, progress on developing this resource can now proceed.

Since we are not able to charge an entrance fee at either of the WPA or CUH sites, preliminary study has begun to explore establishing a membership program. This will likely be pursued over the next five years, providing UWBG with a broader group of individuals with varying degrees of interest and involvement in UWBG and its component parts. Membership in this group would be open to anyone who pays membership dues on an annual basis.

Even though the state and national economic situation is bleak, nevertheless, we feel that it is important to inform decision-makers of the importance of our education, research, and outreach. Strategies are being implemented in the following areas - capital requests to the state and federal governments; a request in the form of a bill to the state legislature to establish an endowment matched by donations for a curator; implementation of the recommendations of the Fundraising Project Committee to coordinate fundraising among support groups; continuation and enhancement of the Director's Guild; collaboration with other donor groups to enhance gift-giving; seeking grants; establishment of a corporate sponsorship program; increasing earned income from rentals and other revenue generating activities; and seeking UW investment in operations and donor celebrations.

D. Master Plans – Facilities and Space Requirements

Current

The University of Washington Botanic Gardens is composed of locations surrounding Union Bay – the collections at the Washington Park Arboretum and the Center for Urban Horticulture, which includes the Union Bay Natural Area. Within these locations are greenhouses, classrooms, a library, offices, laboratories, meeting rooms, and event facilities.

UWBG is a valuable University asset, totaling over $100 million. The Washington Park Arboretum plant collections are valued at $82 million. The building sites at the Center for Urban Horticulture are valued at $17 million with the Union Bay Natural Area adding another $3 million. These values were obtained at the time of building construction or at the time that Washington State Department of Transportation needed mitigation information for rebuilding SR520.

Washington Park Arboretum

We have completed a Master Plan for the Washington Park Arboretum. It has received the endorsement of the UW Regents and the Seattle City Council and implementation has begun, with a major new garden dedicated last fall.

Requests have also been made to build a curation building at that site. However, space is very limited in the buildings there now, with the University, city, and Arboretum Foundation staff competing for the limited space. One of the buildings is an old wood building (historic) and should be considered for replacement soon.

The Graham Visitor Center at the WPA is 5,000 SF with a meeting/classroom space, entrance lobby, gift shop, and offices for staff and the Arboretum Foundation. The building averages approximately 24,000 visitors a year. There is a 4,400 sq. ft. maintenance building, a 1,500 SF shed, and a ¼ acre yard which provides security for vehicles, equipment, and supplies. There are approximately 3,000 SF of greenhouse space for educational programs and for less-hardy plants.

Center for Urban Horticulture

In the early 1980s the community came together and donated $17 million to build the Center for Urban Horticulture, with a shared vision of research and teaching about plants in cities and how gardening improves the urban environment. Twenty years later, following an arson, the community and the University of Washington again came together to rebuild the principle research and administration building. The new building was the first LEED certified building on the UW Seattle campus, reflecting the conservation and restoration emphasis of the academic program.

The new Merrill Hall has labs and office space and includes 2,500 SF of research laboratories and a 750 SF Continuing Education workroom. Also contained in Merrill Hall is the 3,500 SF Miller Library and the 1,200 SF Hyde Herbarium.

Other buildings include a 3,500 SF multipurpose conference hall for classes, lectures, events, and meeting space for horticultural groups and the Douglas Research Conservatory, with 5,000 SF of greenhouse space and 8,000 SF of support facilities.

The buildings at both sites total 35,600 SF, set on 230 acres of land at WPA and 90 acres at CUH. Together, these facilities and resources provide support for the research, teaching and outreach activities of UWBG.

Future

Washington Park Arboretum

Additional space is needed at WPA for education, curation, and maintenance staff. Depending on the final plan for SR520, there *may* be space available in the Museum of History and Industry building, assuming it relocates as planned. However, that will be some time away, at best, and may not occur. We need to continue planning to build, as specified in the Master Plan.

Center for Urban Horticulture

We are in the process of updating the existing Master Plan for the Center for Urban Horticulture site to complement the Master Plan for the WPA. Reflecting the more academic mission there, we expect to emphasize displays addressing current issues, such as biofuels, climate change, and stormwater management.

Merrill Hall is large enough to house the programs now there, but there is absolutely no room for growth. In addition, there is very little space for post-doctoral faculty and other visiting scholars, which are important for a vibrant academic program. The library and herbarium will also need expansion in a few years. Expansion of these facilities, as well as additional laboratory and office space, are included in the updated Master Plan.

E. Human Resources

Current Permanent Staffing Levels at UW Botanic Gardens

Below is a listing of current permanent staff at UWBG. It shows staffing levels for each unit and includes funding sources. (Figures do not include hourly staff, which supports a number of our units):

			UWBG FUNDING SOURCES BY FTE		
UWBG UNITS	**NUMBER OF STAFF**	**FTE**	**State**	**Gifts/Grants/ Revenue**	**Endowment Inc.**
Faculty (4)	4	*3.0*			
Admin (1) (2)	4	3.*4*	2.8		0.2
CUH Grounds (incl. UBNA Staff)	4	2.5	1.86	0.57	0.07
WPA Grounds	6	6.0	4.0	2.0	
Miller Library	4	3.5	0.4	~1.5	~1.6
Herbarium (Grad Stdnt RA'ship)	1	~0.42	~0.42		
Union Bay Natural Area (RA'ship)	1	0.25	0.25		
Rare Plant Care Program/Vault	2	1.6		1.6	
CUH/WPA Facilities/Rentals	6	4.25		4.25	
Adult Education	2	2.0	1.45	0.55	
Children's Education	2	1.75		1.75	
Curation	2	1.5	1.0		0.5
Development (3)	1	*0.5*			
TOTALS	**39**	**30.67**	**12.18**	**+ 12.22 +**	**2.37=26.77**

Notes:

(1) Administration includes the Interim Director (@ 40%), the Manager of Facilities & Grounds, the Manager of Administrative Services, and a Fiscal Specialist.

(2) The Director is not paid from UWBG funds.

(3) The Development Officer is not paid from UWBG funds.

(4) The faculty are on 9-month appointments (75%) and are not paid from UWBG funds.

Future Permanent Staffing Needed at UW Botanic Gardens in Addition to Current Staff:

In addition to the existing positions, in order to meet national standards for botanic gardens, to move ahead with the implementation of WPA and CUH Master Plans, and to begin to model UWBG after the Burke Museum, the following positions will be needed. Below is a summary of those future staffing needs.

Faculty: Two to three new faculty are needed to round out the complement of the disciplines needed. They include: an Entomologist, a Plant Pathologist, and a Horticulturalist.

Administrative/Management Staff:

Full-Time Executive Director: The Director's position has been a full-time position since the inception of CUH in the mid 1980's. Currently, due in part to challenges in hiring a new permanent director, a retired UW employee, who is restricted to 40% time, is temporarily filling this position. Given the demands on this position it requires full time status.

Curator: UWBG collections have been without a curator since 1993. This has left a significant hole in the staffing of this world-class botanic garden and arboretum. This position would focus on the preservation, maintenance, and presentation of the botanic garden's collections and the goals established for the Washington Park Arboretum as the only officially designated state arboretum. A state legislative bill was drafted in 2008 and re-introduced in 2009 that would provide matching funds to support an endowment to fund this position.

Fiscal/Administrative Staff: As the budgets and number of staff increase, more fiscal, personnel, and payroll staff will be needed. Based on a model of 0.5 FTE per $500K of resources and 15 permanent staff, 1-1.5 additional administrative staff will be needed.

CUH/UBNA Grounds & Horticulture Staff: In order to meet national standards for botanic gardens, CUH will need 8.5 additional grounds and horticulture staff to adequately manage the gardens, greenhouses and nursery, and the UBNA.

Miller Library Staff: To more adequately meet the needs of the library users, which span from professionals, students, enthusiasts, and the general public throughout the area, region, nation, and internationally, the Miller Library will need a professional curator to replace the one lost in a recent budget shortfall; a professional librarian to fully staff the Plant Answer Line; and two half time paraprofessionals, one for serials manager and another for family and children's programs.

Hyde Herbarium Staff: The Hyde Herbarium needs to bring its manager position (currently a half-time student position) up to full time and add an additional half-time manager for the Cultivated Flora of N. America project, for which UWBG is the Pacific Northwest lead.

Union Bay Natural Area Staff: Due to previous budget cuts, the UBNA student assistant was cut from half time year round to half time two quarters per year. The program has suffered from this. UWBG would like to restore this position to its previous level.

Rare Plant Care & Conservation Program Staff: The Rare Care program received gift funding to build a seed vault, which needs a full-time manager.

Facilities/Rental Program Staff: This is a self-sustaining program and as it grows, it will require additional staffing. Estimates suggest that one additional full time staff person will be needed.

Adult and Children's Education Outreach Programs Staff: Additional needed staff include a full-time registrar to handle the over 6,000 students that come through UWBG each year; a full-time communications manager; a full-time webmaster; two additional education program assistants; and a volunteer coordinator to recruit, manage, and track UWBG's growing volunteer force that currently numbers approx. 225.

WPA Grounds & Horticulture Staff: In order to maintain the current and future gardens and plant collections the UW owns and manages in WPA, 16 additional gardeners and horticulture staff are needed to meet minimum national standards.

Plant Collection Curation Staff: To adequately maintain records on the nationally renowned collections owned and managed by the UW at WPA, one full-time curator is needed to meet minimum national standards.

Development Staff: Given that much of these additional staff are not likely to be funded through state funding, development (fundraising and donor stewardship) becomes critical in meeting these needs. UWBG estimates it needs 2-4 additional development staff to seek private and foundation support for the staffing and program needs of UWBG.

IV. Appendices

1. Aerial Photo UWBG
2. UWBG Fact Sheet
3. UWBG Strategic Plan
4. Five Year Plans for Units within UWBG
5. Sample Unit Work Plan – Miller Library
6. Bill Request for Curator at WPA
7. UWBG Collections Policy
8. UWBG Conservation Policy
9. Management Chart for UWBG
10. WPA Master Plan: Circulation & Facilities Plan; Illustrative Plan
11. UW Botanic Gardens Master Plan Update – CUH Site
12. Union Bay Natural Area: Executive Summary, Trail Map: Walks & Tours
13. Operation Budget for UWBG FY07/08
14. Omitted
15. UWBG Private Support Report
16. Recent Granting Funding History of the Arboretum Foundation to UW WPA Program
17. Faculty associated with UWBG, Abbreviated CV's; J. Bakker; K. Ewing, S. Kim, S. Reichard
18. Graduate Students – Accomplishments
19. Current and Recent Academic Collaborators of UWBG Core Faculty
20. Partnerships – organizations that UWBG works with collaboratively on an on-going basis
21. Report on the Center for Urban Horticulture, Affiliated Programs & Facilities by Professor Loveday Conquest, et al, 2/16/2000

Footnote: Abbreviations

ABGC	Arboretum and Botanical Garden Committee
AF	Arboretum Foundation
CFR	College of Forest Resources
CUH	Center of Urban Horticulture
CV	Curriculum Vitae/Description of Academic Activities
Parks	Seattle Parks & Recreation
RCEP	Review of College Education and Programs
UBNA	Union Bay Natural Area
UW	University of Washington
UWBG	University of Washington Botanic Gardens

University of Washington Botanic Gardens

The University of Washington Botanic Gardens is one of the College of Forest Resources' most widely recognized education and research units and one of the Pacific Northwest's key horticultural features. UW Botanic Gardens comprises the Center for Urban Horticulture, the Washington Park Arboretum, the Elisabeth C. Miller Library, the Otis Douglas Hyde Herbarium, the Union Bay Natural Area, Union Bay Gardens, and the University of Washington shorelines. The organization's mission is to sustain managed to natural ecosystems and the human spirit through plant research, display, and education. The living plant collection contains 10,013 specimens representing 4,190 distinct taxa. The UW Botanic Gardens serves students, faculty, and staff, as well as the general public interested in horticulture, restoration ecology, and conservation. Over 300,000 people visit annually; 250,000 of them visit the Washington Park Arboretum, which has one of the most important tree collections in North America. Volunteers play an important role and contribute many hours of service through the Miller Library, Saplings School Programs, Rare Plant Care and Conservation, and other programs.

Facilities include:

- The 230-acre **Washington Park Arboretum** is jointly managed by UW Botanic Gardens and the City of Seattle's Department of Parks and Recreation, with support from the Arboretum Foundation. It is free to the public. The Arboretum participates in an international seed exchange program, distributing documented, wild-source seed of species native to the Pacific Northwest; its seed list is distributed to 457 institutions in 59 countries.
- The **Center for Urban Horticulture** serves as the meeting place for over 100 organizations, including 60 horticultural groups. The Center's Merrill Hall is the first sustainable building to be built on the UW Seattle campus; it houses administrative offices and research labs, the Elisabeth C. Miller Library, and the Otis Douglas Hyde Herbarium. It also provides classroom, office, and plant clinic spaces to Washington State University King County Extension and the Master Gardener Foundation of King County.
- The **Union Bay Gardens** consists of five specialized gardens housing 463 herbaceous perennials and cultivars and supporting a nursery undergoing plant production of 340 accessions, 85 percent of which are from wild-collected sources.
- The 74-acre **Union Bay Natural Area** and four miles of shoreline serves as an outdoor laboratory for UW research and as a publicly accessible wildlife habitat where more than 200 bird species have been sighted.

Volunteer Guide training at the Washington Park Arboretum.

- The **Elisabeth C. Miller Library** is the most important horticultural library in the Pacific Northwest. It houses 15,000 books, 200 magazine subscriptions, 1,000 nursery catalogs, and video and electronic resources. It offers a range of free services to the gardening public as well as to the academic community. The Library receives over 15,000 visitors annually.
- The **Otis Douglas Hyde Herbarium** houses over 17,000 plant specimens. The Hyde Herbarium is probably the nation's largest collection of preserved cultivated plants. It serves as the official herbarium for the Washington State Noxious Weed Board and provides free plant identification help to the public.

Restoration work in the Union Bay Natural Area.

Research programs include:

- Biology of invasive species, including assessment of invasive potential of introduced plants and impacts of current invaders.
- Biology of rare plants and their propagation for reintroduction into the wild.
- Restoration ecology, including prairie restoration; Oregon white oak (*Quercus garryana*) stand dynamics and restoration; site conditioning by live willow staking; long-term response of Roemer's fescue to initial site conditions; and work in the Union Bay Natural Area, which serves as an outdoor laboratory.
- Plant physiology and the impacts of global climate change on plants, including the effect of elevated CO_2 on physiology and invasiveness of reed canary grass (*Phalaris arundinacea*).
- Collaboration on affiliated projects, including: the human dimensions of forestry and urban greening; human responses to land use changes along the urban to wildland gradient; the relationship between forests lands and the built environment; assessment of eelgrass (*Zostera marina*) in Westcott Bay, San Juan County; forest soil microbiology and forest pathology; tissue-to-whole-tree responses to environmental stresses; and growth of trees from diverse ecosystems.

Public education programs:

UW Botanic Garden educational programs involve more than 10,000 individuals annually. They reach both professional and general audiences. Youth programs reach 8,000 students in grades K-12 each year through the Youth Saplings School Programs, the Youth Explorer Day Camp, and the Youth Explorer Pack Program.

Partnerships create results:

- The **Rare Plant Care and Conservation** program partners with over 20 federal and state landholding agencies to monitor 350 rare plant populations. In 2003, the only state-of-the-art climate controlled storage and lab facility for seeds of Washington's rare plants, the **Miller Seed Vault**, was built at UW Botanic Gardens; it currently stores seeds of 50 rare Washington species and has received 2,107 accessions.
- **UW's Restoration Ecology Network (UW-REN)**, involves undergraduate students in research through a restoration capstone course; since its inception, the program has completed 41collaborative restorations.
- **UW Botanic Garden's Volunteer Programs** make many projects possible. In 2007, more than 250 volunteers contributed over 10,000 hours.

Youth Saplings Program, Washington Park Arboretum.

For More Information: Visit the University of Washington Botanic Gardens website, www.uwbotanicgardens.org
Contact: (206) 543-8616

UNIVERSITY OF WASHINGTON BOTANIC GARDENS
Plants for Life

College of Forest Resources

Strategic Plan Introduction

This Strategic Plan is the result of months of planning. Senior staffers Fred Hoyt, Elizabeth Loudon, and Karen Preuss were charged with facilitating the overall process. Tamie Kellogg, a strategic planning consultant, was hired to run a day-long Senior Management retreat in August, during which the six goals were developed. From September through November, a series of planning sessions were held during which UWBG faculty, staff, and students provided the input which became the specific strategies. Throughout the planning process, we evaluated the developing strategies as they relate to the College of Forest Resource's Strategic Plan. This Strategic Plan is intended to be in effect through 2008, to align with the College's Strategic Planning timetable.

In considering the UWBG's Vision and Mission statements, we had many conversations about what constitutes an "international hub." We discussed those elements that position the UWBG as the expert among other botanic gardens: our Pacific Northwest-ness, our issues-based and eco-geographic collections, the particular iconic collections in the Arboretum, and the international reputations of our faculty in the areas of conservation biology and restoration ecology.

The UWBG Strategic Plan will guide us in our thinking as we develop plans for the various units, to support in a focused manner our Mission and Vision.

The immediate short-term (one-year) focus suggested by Hoyt, Loudon, & Preuss is capacity-building, to allow the organization to grow and reach its goals. To this end, it is suggested that hiring a grant-writer be considered as a top action for the near future.

UW Botanic Gardens Strategic Plan

Mission

Sustaining managed to natural ecosystems and the human spirit through plant research, display, and education.

Vision

As an international hub for plant science, information, teaching, and stewardship, we will promote an educated, inspired, and engaged society dedicated to sustainable ecosystem management.

Goals

The following are overarching goals for the organization.

Provide leadership in plant research, display, and education

1. Conduct innovative research and promote application of findings (Work plan examples: disseminate findings, host scientific meetings)
2. Provide high quality instruction and programs that are science-based and/or cultural and use the most appropriate method for informing the particular audience
3. Provide and maintain high quality facilities and collections (Work plan example: 'Museum registration')
4. Use best practices for land stewardship

The following strategies will allow the organization to reach those goals.

Strategies

1. Achieve financial sustainability & growth

a. Align development & fund-raising goals and priorities with strategic goals and priorities
b. Investigate opportunities for new revenue streams and develop new fee schedules
c. Increase income from grants, corporations, and other sources
d. Evaluate expenses to best utilize staff and resources
e. Instill ethic of financial stewardship on the part of supporters and visitors
f. Include financial analysis in evaluating old and new programs and services

2. Broaden and diversify constituents; deepen involvement

a. Create mechanisms for surveying our stakeholders to collect input and feedback
b. Provide innovative and high quality programs and services that include our stakeholders' expressed needs and desires

c. Develop new collaborations with public and private organizations, local to international
d. Strengthen collaborative efforts with our existing partners
e. Increase public use of facilities and services

3. Develop and implement an effective communications strategy

a. Create a written communications plan
b. Utilize communication materials, outreach, and the media to keep the public informed about UWBG programs, resources, and services
c. Develop interpretive materials and programs to enhance the public's understanding of UWBG research, programs, resources, and services
d. Develop an integrated information system
e. Improve internal communications

4. Develop and implement an effective marketing strategy

a. Create a written marketing plan
b. Utilize print and electronic formats, and the media, to increase visibility with targeted audiences
c. Use branding to enhance awareness, knowledge and appreciation of UWBG by creating a consistent look and feel to all marketing materials
(Work plan example: develop style guide)

5. Foster excellence in people & resources

a. Recruit and maintain adequate staff and faculty to meet current and future UWBG needs
b. Gear activities and programs to the staffing levels and capacities available to ensure quality results
c. Ensure innovative, timely and equitable training and development opportunities for staff and volunteers to allow them to refine and develop their job skills; develop professional training opportunities for students
d. Evaluate and improve UWBG's integrated organizational structure (breaking down the "silos" structure)
e. Provide the necessary tools for staff, faculty, and students to accomplish their work towards achieving the goals of the UWBG

Five Year Plans for Units within UWBG

Administration:

UWBG administration will continue in the future to provide personnel, payroll, purchasing, travel, and budget management assistance and services to all the units within the Center. Currently, we manage $2.1 million in total resources, including special projects, and we serve 5 principal investigators, 32 permanent staff, and about 20 hourly staff. As the other UWBG units begin to implement their 5-year plans, UWBG Administration will be there to support those activities.

With our current administrative staffing, which includes a Manger of Administrative Services and one Fiscal Specialist, we are just over the maximum of our benchmarked efficiency of 1.0 FTE per $1,000,000 operating funds and approx 30 permanent staff. As the other units' funding and staffing grow as needed to implement their 5-year plans, UWBG Administration will need to increase its staff proportionately to meet those needs.

We also except to improve outr reporting efforts so that the Center Director and budget managers have a clearer understanding of the resources they have available and offer greater grant and contract management expertise as required by the College's reorganization of these services.

Curation

One major goal is to organize a geographic information system (GIS) for the UWBG. This would allow for the increase in efficiency in the management of the collections and would be a major thrust in the development of an Integrated Information System. The GIS would allow us to have layers of information (interpretation, types of plants, paths, maps, etc.) that could be used by any number of personnel on staff and for general use by the public.

The Curation staff would like to become more involved in the North American Plant Collection Consortium. The first part of this would be to enhance the *Quercus* collection by developing relationships and exchange opportunities between members and institutions in Mexico. These Mexican species are currently under represented in North American botanical collections.

It is also important for the Curation Office to increase its staff size and operating budget to adequately support the existing collections and to support the new collections as the come on line.

CUH Horticulture

Develop the front along NE 41st Street into a showcase of interesting plants. The current landscape along this area is without a theme and is a hodgepodge of plants. The idea, working with the Curation Committee, is to present to the public and neighbors an aesthetically pleasing landscape showing what the UWBG is about. Another area that is in need of work is the west side of the Miller Library. Like the front border this has had no theme and is in dire need of plants. Working with the Curation Committee this area is to be developed to enhance the landscape around Merrill Hall with collection material.

The Native Plant Propagation Program was created to engage the local youth in helping to propagate native plants for ongoing project development at the UWBG. This has been a very successful program and it is important to continue this work. The need for sustainable funding is critical and will be sought as a goal. There is also a need to increase the visibility and recognition of the program. One final aspect to be worked on is the development and improvement of the nursery at the WPA.

WPA Horticulture

UWBG plant collections and to a much broader extent, our region's PNW forests and urban landscapes are being threatened now, more than ever, by the introduction of exotic insect, disease and weed pests; therefore, it is imperative that the WPA horticulture staff be as proactive in it's current IPM program, as possible.

Pest monitoring is the best defense against future attacks by unwanted insects, diseases and weeds. WPA horticulture staff, in conjunction with WSDA entomologists, has embarked on an ambitious monitoring program designed to alert the horticulture community at large in the event that an exotic pest has arrived at our doorstep. Our intent is to increase monitoring of all vulnerable core plant collections that are currently threatened by these new pests. For example, the Viburnum leaf beetle, *Pyrrhalta viburni*, has found its way down from Vancouver ,BC and now resides in Whatcom county. If this voracious leaf beetle gains a foothold in WPA, our nation's best Viburnum collection will be hard pressed to survive the onslaught. We know the Viburnum spp. most susceptible, which includes our PNW natives, so we are targeting this group first.

Raison d'être: "By George", I think we've got it!

This quite possibly could become UWBG's greatest marketing tool. UW campus café on Red Square, "By George" is venue to thousands of students, staff and faculty seeking quick dining and UW community news and information. By providing an "eye-catching" display of UWBG plant collections in containers and a kiosk housing most UWBG publications and announcements, we will at last be directly connected to a tangible campus venue, other than our own facilities. As Linda Hanlon, By George supervisor, stated, busloads upon busloads of incoming freshmen arrive daily during the summer months.

UWBG will provide and maintain on a weekly basis (except regular summer watering) 8 lovely planting containers, each showcasing a plant collections sampler, and other attractive amenity plants throughout the year, located in the "By George" courtyard arbor area, outside the café. Also, provide funding and replenishing of an UWBG information kiosk or small board that will contain UWBG publications and announcements.

Facilities and Rental

Create and have in place a marketing plan and develop materials to support the plan. This would be for all the rental facilities and would showcase the UWBG to potential growers, renters, donors and supporters.

Convert the existing Event Management System to the latest version to create efficiencies in the booking and invoicing of nearly 2000 annual events at our two sites. Use the tool for creating reports.

These two ideas will be important in the support of the organization as a whole. The more we can book efficiently and in a timely manner the more income we can derive and have available for the other UWBG programs. These also allow for the safe environment and use of state-of-the-art equipment.

Otis Douglas Hyde Herbarium

As the Washington Park Arboretum moves towards wild-collected material it is increasingly important that specimens be vouchered to document their identity and scientific value. This is the core of the Herbarium's mission and that will remain.

We anticipate increasing our outreach, however. Currently we offer plant identification services for the public and we usually process about 300 requests per year, some simple and some complex. The Master Gardeners also uses us for this purpose. Other ideas to increase our outreach in this area include potentially partnering with nurseries and also having trained volunteers visit residences to provide this service.

We are also committed to following through with our participation in the planned Cultivated Flora of North America, led by the U.S. National Arboretum and the Missouri Botanical Garden. They have indicated we will be taking the lead for the Pacific Northwest, which has a climate in which many species are cultivated. We have been collecting in other gardens to supplement the species found in the Arboretum in developing the collection to support this. However, in order to participate we will need to find funding to add one staff person dedicated to it.

Elisabeth C. Miller Library

The Miller Library is the library for the University of Washington Botanic Gardens and in that role provides library resources and services for the faculty, staff, volunteers, and students of all UWBG units and partner organizations located both at the Washington Park Arboretum and the Center for Urban Horticulture.

The Miller Library also "…exists as a resource for the horticultural public including gardeners, landscape architects, professional horticulturists, garden club and plant society members, and students and faculty of the University…" (from the Statement of Understanding between Elisabeth Carey Miller and the University of Washington, June 22, 1988).

Our five year vision is to continue to meet the needs of these stakeholders and fulfill elements of the UWBG and CFR strategic plans by:

Continuing to provide quality reference services, including the Plant Answer Line; book and periodical collections including curriculum and children's collections; digital resources, including the Garden Answers Knowledgebase; archives, rare books and other special collections; educational programs, exhibits and library tours.

Fully developing the Pacific Northwest Horticultural Archives, as begun by the 2008 Miller Foundation special grant for this purpose, making it the premier Pacific Northwest horticultural history depository, with clear guidelines for acquisitions, preservation, dissemination, usage and collaboration.

Installing an Integrated Library System to replace manual circulation system with automation. Have one web accessible system to manage patron records, circulation records and collections holdings, including books, periodicals and potentially other special collections such as archives and digital resources

Establishing an Image Collection, including acquisition, collection development, and usage policies and procedures. Curate current photo and slide collections, digitizing and disseminating as determined by collection development policy.

Working toward endowments of staff positions, with a specific goal of establishing and substantially funding an endowment for the Plant Answer Line librarian. Meeting annual giving goals, seeking grants, and donor cultivation to raise more money for both long term sustainability and for immediate use for operations and projects, including those listed above.

Continuing to provide professional services by staff through writing, giving presentations, serving on boards and committees and professional development of staff through attending classes, conferences, meetings and workshops.

Associating with a working group of librarians with collections of value to the College of the Environment, with development and coordination of a plan for jointly providing library services and resources. Be an effective partner with UW Libraries by developing Miller collections to enhance and expand on the holdings at other campus libraries and work to provide better access to these other library holdings at UWBG sites.

Continuing to be recognized as the primary horticultural library of the region by coordinating collection development and archival retention with other educational institutions and public library systems, insuring that regional and historical documents and publications are preserved and available for research.

Continuing successful professional associations, such as with the Council on Botanical and Horticultural Libraries, by hosting the annual meeting in May 2010, and providing access to the collective knowledge and collections of CBHL member libraries for the use of Miller Library stakeholders.

Have begun a capital campaign to expand the Miller Library westward as presented in the Union Bay and UW master plans. This additional space will allow for greater holdings of materials useful to UWBG faculty and students, more room for the Pacific Northwest Horticultural Archives, and expanded area for the children and curriculum collections, with a special emphasis on at-risk and ESL students.

UW Restoration Ecology Network – UWREN

The UW Restoration Ecology Network will expand over the next five years as the College of the Environment develops active solutions to environmental problems. Our goal is to increase student numbers in the restoration capstone sequence to 50 per year; this would allow us to have student teams involved in around eight or nine projects during each academic year. A potential way to support this increase would be to have MEH graduate students acting as project managers for one or two projects each year. The structure of the capstone class is evolving to allow student groups to choose projects, meet clients, and get into the field as early as is possible, certainly no later than the end of the autumn quarter.

The community cooperation that is a critical component of the capstone allows UWREN to integrate student learning into community-based, problem-solving work. Students are motivated by this kind of learning. We continue to provide UWREN as a model of teaching that can be exported to other disciplines by writing book chapters, giving seminars, and showing the results of our restoration work to as many audiences as we can.

As our list of prospective clients grows, we can project our work to places where it is important for the message to be heard, such as in underserved neighborhoods where effective methods need to be introduced, and high visibility sites where the impact can be maximized. In addition, we can choose more interesting kinds of systems to work in, including prairies, oak woodlands, and coastal wetlands.

Because we have operated the capstone class for ten years now, we are cooperating with graduate students to analyze the effectiveness and the trajectories of the different kinds of restoration projects that have been installed by student groups. Very good records of methods and materials used are available for some of the older projects and most of the newer ones, so analysis is facilitated by these data.

A proposal is being submitted to make restoration ecology a transcriptable minor, and the list of electives for the minor are being broadened to make it more attractive to students in design, engineering, social sciences and other disciplines.

Washington Rare Plant Care and Conservation Program (Rare Care)

We intend to continue the work that has lead to recognition within the PNW and throughout the country of UWBG as a leader in plant conservation and recovery research and activities. This is the core of our mission.

We will do this through graduate student research, participation on species recovery teams, and research and monitoring conducted by staff and volunteers. We want to have an annual scholarship that we can award to graduate students working on plant conservation related research. This will encourage more students to undertake these topics.

We will also expand the monitoring program to 200 populations per year. This will allow greater security for rare species. Our faculty, students, and staff will also continue to play an active role in developing and assessing their status and the threats to them.

Much of our work in the next five years will include building the collection in the Miller Seed vault to about 150 species, with multiple populations. As we move towards climate change this resource may be all that stands between recovery and extinction for some species. We will also be active in conducting experimental reintroductions in the state.

Education & Outreach

The overarching goal of the Education and Outreach Unit is to provide the highest quality public education, interpretive, and communication programs and materials that further the mission of the UW Botanic Gardens. We will do this by fostering an appreciation of the plant world and instilling a stewardship ethic to promote sustainable practices among visitors and program participants.

We will continue to provide leadership & expertise in plant science, horticulture, & related environmental education issues to audiences of all ages and the community through strategic partnerships.

In K-12 education, we plan to expand programs to middle school & high school audiences, tie in with service learning opportunities, and improve connections internally with restoration projects on the grounds and the academic restoration programs. We will pursue funding to provide scholarships to make programs affordable for all schools, in order to conduct outreach in an equitable way and reach diverse audiences. Our adult public education programs will focus on increasing knowledge and skills in sustainable landscape and ecosystem management. Emphasis will be on building self-sustaining programs that have demonstrated appeal; tap into our research areas and staff expertise; and further knowledge of sustainability issues.

Through communications planning and oversight for the organization as a whole, we will promote a cohesive image and messaging on UW Botanic Gardens to market programs & facilities, and to raise awareness of and build support for the organization. We will explore the use of innovative approaches to reach new & diverse audiences.

We will work with facilities staff and management to improve the workspace at the Arboretum for education staff and volunteers.

Union Bay Natural Area

See Appendix 12

	Unit Work Plan for FY July 2008 - June 2009		
	Unit = Miller Library		
Category	**Project/Program**	**Resource Needs, Budget Considerations**	**Goals**
Ongoing activities	**Reference services**, including Plant Answer Line	staff time, $1,800 for research database subscription (EBSCO)	Provide reliable, timely, well-researched answers to patron questions; increase awareness and use of PAL locally and beyond
Ongoing activities	**Programs**: academic (UW & others) classes, outreach classes, UWBG staff training in library research, tours & customized programs for hort societies, Story Time	staff time, $ for outreach from Ellerbeck Endowment	Educate patrons, students and other interested people in library resources, research techniques and instill a general appreciation of horticultural literature
Ongoing activities	Development, management and promotion of established and new **events**, including book sale, exhibits, displays book launches, etc.	staff time, including after-hours time, $$ for promotional materials and receptions; Ellerbeck endowment	generate revenue, increase community involvement, market the library, increase library visibility
Ongoing activities	Manage and develop **digital resources**: Library website, various internal and public databases.	staff time	Inform the world about ML and to provide the best resources, tools and information. To keep news and announcements current and fresh, add new content, review old content for currency; improve databases that support staff tasks and public information seeking.
Ongoing activities	Gardening Answers **Knowledgebase** maintenance and enhancement with new types of resources	staff time	To make high quality, library selected books, links, articles and Q&A format information easily accessible via the web

Category	Project/Program	Resource Needs, Budget Considerations	Goals
Ongoing activities	**Collection development** and dissemination	staff time; ~$12,000 for acquisitions: Riehl endowment, book sale revenue; in-kind gifts, Dinger pledged gift in the future, special grants and gifts	Fulfill Collection Development policy, provide the best resources for patrons, support Reference Service as implemented by Curator and based on input from Library Committee, reference staff, and users. Disseminate via subject booklists, new booklists, monthly email
Ongoing activities	**Collections** Acquisitions and maintenance: SEE NEXT 5 ROWS FOR DETAILS		
	Books	staff time, $12,000/year for acquisitions: Riehl endowment, book sale revenue; in-kind gifts, Dinger pledged gift in the future, special grants and gifts	find sources and purchase materials, reconciling purchases, catalog (search & download records from consortium vendor (OCLC), customize records, curator review, upload to UW catalog) physical processing
	Periodicals	staff time, $10,000/year for acquisitions - same sources as books	work with primary vendor and independent publishers for acquisitions/renewals; binding; update inventory; on-going record keeping, claiming missing issues
	Children's collections	staff time, see Collection Development for acquisitions funding	find sources and purchase materials, reconciling purchases, catalog (search & download records from consortium vendor, customize records, curator review, upload to UW catalog) physical processing
	Rare Book Room	acquisitions not currently funded, cataloging also dependent on funding	preserve and make available for viewing; staff provides limited patron access on Curator approval
	Archives and **Special** Collections, Slides/Images, Vertical Files and Mail-order Nursery Catalogs	Volunteer time	keep clippings and catalog collections current and organized

Category	Project/Program	Resource Needs, Budget Considerations	Goals
Ongoing activities	**Professional Service & Development**	staff time, registration fees, travel costs	provide professional services through writing, giving presentations, serving on boards and committees. Development through attending classes, conference, meetings and workshops
Ongoing activities	**Fiscal Development**, working towards endowments of staff positions, meeting annual giving goals, seeking grants, and donor cultivation	staff time, $ for cultivation expenses	raise more money for both long term sustainability and for immediate use for operations and projects
Ongoing activities	**Fiscal Management**, administration of five budgets	staff time	maintain accurate and timely records of library financial accounts
Ongoing project	work the other UWBG groups to facilitate **publication exchanges** between UWBG and other botanic gardens worldwide	staff time	implement a system for making sure the exchanges occur and a system for keeping track of the publications included (both UWBG and other)
Ongoing project	Process **backlog** of donated books and other materials, adding to collections or book sale; removing "medium rare" books from storage and cataloging	staff time	make these materials available to patrons if they meet collection development standars
Ongoing project	Review of collections to increase circulating materials and improve classification numbers	staff time, circulation materials	increasing access to resources, both through increased circulation and through an easier layout for finding materials
Ongoing project	Add periodicals to OCLC **consortium** database; add call numbers and Library of Congress Subjects to our holding records	primarily intern time, with staff supervision	Inform other libraries and "WorldCat" catalog users of our periodical holdings; explore arranging our periodicals in call number order to improve access
New Projects	Implementation of **Archives** Grant from Miller Foundation	$16,000 Miller Foundation grant funded for staff time and materials	Develop a collection development policy, workflow for managing archives, organize the archives and create finding aids to support patron use

Category	Project/Program	Resource Needs, Budget Considerations	Goals
New Projects	Automated **Circulation**/ILS (Integrated Library System)	~$10,000 depending on vendor bid + recurring annual service/license fee; estimated supplemental staff time 16 hrs/wk for 6 months (in addition to regular staff & volunteer time)=~$11,000	Replace manual circulation system with automation, have one web accessible system to manage patron records, circulation records and collections holdings, including books, periodicals and potentially other special collections such as archives and digital resources
New Projects	**Reference** policy	staff time	Develop a clear and easy-to-use policy and disclaimer for staff and volunteers who respond to reference questions
New Projects	**Exhibit** policy	staff time	Standardize and make explicit appropriate use of Library display space for art and other exhibits, determine the expected donation from art sales
New Projects	Establish **Image** collection, including acquisition and usage policies and procedures	staff time, grant funding for additional staff, digitizing equipment, storage materials	Curate current photo and slide collections, develop policies and procedures for usage and acquisition of new materials
New Projects	Establish an **Oral History** collection of Pacific Northwest horticulture	$18,000 for initial phase, based on potential interviews with friends of Elisabeth Miller	Establish and development an oral history collection that will document the history of horticulture in this region.
New Projects	Establish a working group of librarians with collections of value to proposed **College on the Environment**	staff time	Development and coordinate an effective plan for providing library services and resources for the proposed components of the COE
New Projects	Establish a planning committee for the 2010 **Council on Botanical and Horticultural Libraries** meeting	staff time	Select a productive and creative team to plan for the May 2010 meeting

S-0197.2

SENATE BILL 5061

State of Washington 61st Legislature 2009 Regular Session

By Senator Jacobsen

Read first time 01/12/09. Referred to Committee on Natural Resources, Ocean & Recreation.

AN ACT Relating to enhancing the natural resource collections at the Washington park arboretum; adding new sections to chapter 28B.20 RCW; and creating new sections.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

NEW SECTION. **Sec. 1.** The legislature finds that the Washington park arboretum is the official arboretum of the state of Washington. The University of Washington and the city of Seattle cooperatively established the arboretum in 1934, with Seattle holding title to most of the property and the University of Washington owning, designing, developing, and managing the collections at the arboretum and botanic garden. The arboretum is a central component of the University of Washington botanic gardens, along with collections around the center for urban horticulture, in the Union Bay natural area, and in the Otis Douglas Hyde herbarium.

The legislature finds that the Washington park arboretum contains a dynamic collection of trees and other woody plants that are hardy in the maritime Pacific Northwest. Collections are selected and arranged to display their beauty and function in urban landscapes, to demonstrate their natural ecology and diversity, and to conserve

important species and cultivated varieties for the future. There is no fee for admission to the arboretum, allowing everyone to enjoy and learn from its collections.

The legislature also finds that the Washington park arboretum holds one of the most prestigious plant collections in the world. The arboretum consists of approximately twenty thousand trees, shrubs, and vines, of which over ten thousand are catalogued. The collection includes approximately four thousand six hundred different species and one hundred thirty-nine endangered species. Collections include rhododendron, azalea, mountain ash, pine, spruce, cedar, fir, crabapple, holly, magnolia, camellia, and Japanese maple. The arboretum's collection of oaks and maples is the richest in the nation, and the conifers, hollies, and magnolias also rank among the nation's finest collections. The arboretum displays ninety-five percent of its holdings, whose estimated value is almost eighty-two million dollars.

The legislature further finds that the Washington park arboretum's mission is to serve the public, students at all levels, naturalists, gardeners, and nursery and landscape professionals with its collections, educational programs, interpretation, and recreational opportunities. Therefore, the legislature intends to provide additional tools and resources to the University of Washington botanic gardens as it preserves and provides public access to the important educational, recreational, social, and cultural state resources that the arboretum and other botanic garden collections have to offer.

NEW SECTION. **Sec. 2.** A new section is added to chapter 28B.20 RCW to read as follows:

It is the goal of the legislature that the Washington park arboretum's collections, exhibits, and facilities be preserved, maintained, and presented in a manner befitting one of the world's most prestigious plant collections. Therefore, the Washington park arboretum must strive to:

(1) Enhance public appreciation for the aesthetic diversity of temperate wood plants;

(2) Educate the public and regional school population about urban landscape use and the natural biology of temperate wood plants;

(3) Conserve and keep healthy native, exotic, and cultivated woody plants to preserve diversity for future appreciation;

(4) Maintain and enhance collections, exhibits, and facilities to create the best possible ambiance and visitor experience; and

(5) Cooperate with local, regional, national, and international entities that have a similar mission.

NEW SECTION. **Sec. 3.** A new section is added to chapter 28B.20 RCW to read as follows:

The University of Washington botanic gardens endowed curatorship is established within the University of Washington to support a staff position within the botanic gardens, which currently falls under the college of forest resources. The purpose of the endowed curatorship is to ensure that perpetual funding exists for a botanic gardens curator who shall focus on: (1) The preservation, maintenance, and presentation of the botanic garden's collections; and (2) the goals established for the Washington park arboretum in section 2 of this act.

NEW SECTION. **Sec. 4.** A new section is added to chapter 28B.20 RCW to read as follows:

(1) The University of Washington botanic gardens endowed curatorship account is created in the custody of the state treasurer. All moneys appropriated by the legislature for the University of Washington botanic gardens endowed curatorship or to the account must be placed in the account. Money in the account may only be released according to the procedures set forth in subsection (2) of this section. The account is subject to allotment procedures under chapter 43.88 RCW, but an appropriation is not required for expenditures.

(2) The state treasurer must release money in the University of Washington botanic gardens endowed curatorship account to the University of Washington board of regents for inclusion in the University of Washington consolidated endowment fund when the University of Washington board of regents determines that it can match the state funds requested with an equal amount of funds contributed by nonstate sources for the University of Washington botanic gardens endowed curatorship and requests that the funds be released. The state and nonstate moneys must each be placed in the University of Washington consolidated endowment fund. The University of Washington may not invade the principal invested for the botanic gardens endowed

curatorship. Distributions from the consolidated endowment fund resulting from this investment must be used solely for purposes of the University of Washington botanic gardens endowed curatorship.

NEW SECTION. **Sec. 5.** (1) The department of natural resources' natural heritage program shall host a working conference on the future of arboretums and botanic gardens in Washington. The objective of the conference is to explore the current status of arboretums and botanic gardens in the state and develop strategies to sustain and enhance these important scientific, educational, and recreational resources.

(2) The natural heritage program shall work with appropriate arboretums, botanic gardens, and interested public and private entities in preparing for and conducting the conference. To enhance the effectiveness of the conference and its products, the natural heritage program shall seek to frame issues and outline options through issue summaries and preliminary meetings with appropriate entities.

(3) Among the topics that the conference should address are:

(a) The challenges currently facing Washington's arboretums and botanic gardens, including funding, maintenance, and collections management challenges;

(b) Strategies arboretums and botanic gardens might adopt to address the identified challenges; and

(c) Recommendations on ways the legislature, state agencies, and local governments might assist arboretums and botanic gardens address the identified challenges.

(4) The natural heritage program shall schedule the conference at a time sufficient to prepare a summary of the conference proceedings and recommendations for submission to the appropriate committees of the legislature by December 15, 2009.

--- END ---

University of Washington Botanic Gardens

Collections Policy

January 1, 2009

INTRODUCTION

The purpose of this document is to guide the development and management of the University of Washington Botanic Gardens (UWBG) living collections at Washington Park Arboretum and the Center for Urban Horticulture (CUH). This policy was first developed by Tim Hohn, when Curator, revised by Christer Lundstrom as an UW EHUF senior project. Subsequently it has been reviewed and revised by the Curation Committee.

Mission Statement

Sustaining managed to natural ecosystems and the human spirit through plant research, display and education

The UWBG collections policy derives from the requirements of the mission statement in the context of the stewardship of a world-class collection of woody plants (largely at Washington Park Arboretum), an outdoor classroom (Union Bay Natural area) and display gardens, including herbaceous plants, at the Center for Urban Horticulture. Development and modification of the collection is dictated by the mission statement. Central to the mission are the concepts of sustainability particularly with regard to conservation and restoration of plant resources and habitats. UWBG subscribes to the St. Louis Codes of Conduct and this document reflects their recommended measures.

Curation Committee

The Curation Committee has the responsibility for discharging the duties set in this policy. The Chair is to be appointed by the Executive Director of the UWBG. It shall consist of the UWBG Curator of Otis Douglas Hyde Herbarium, UWBG Manager of Facilities and Grounds, UWBG Registrar, WPA Horticulture Supervisor, UWBG Plant Propagator, CUH Horticulture Supervisor, Seattle Parks and Recreation Representative, a UW Faculty Member, and a UW Student. The Committee (through the Chair) has the capacity to co-opt further temporary

members as the occasion requires. The Committee will generally meet every two weeks.

The Curation Committee is responsible for defining the policy, governing the development and maintenance of the living collections. The Director is responsible for the administration of the policy. The Curation staff will implement the policy.

COLLECTION TYPES

Taxonomic Plant Collections

This is a type of specialty collection focusing on natural *taxa* from a known wild source; the genera *Rhododendron and Sorbus* are examples of this. This type of collection may also include groups of cultivars such as *Acer palmatum* cultivars to serve as a reference and registration authority. A taxonomic plant collection will possess the following qualities:

- High educational value
- Potential and actual landscape value
- Significance within a regional, national, or international collection

Ecological and Geographic Collections

This type of collection includes plants from homologous climates with similar annual patterns of precipitation and temperature. Ecological and geographic plant collections will possess the following qualities:

- Ability to grow in the Puget Sound basin. Most commonly, these plants originate from temperate regions with similar rainfall and temperature
- Potential and actual landscape value
- Origin from native and/or local habitats of significance
- Research and educational interest

In the Pacific Northwest, the value and beauty of native plant use in the landscape is being increasingly realized. UWBG will strive to ensure that plants native here are used frequently in order to demonstrate these qualities and vigor in this region in addition to creating a more ecologically sound landscape.

Educational Plant Collections

This type of collection can be used to represent current horticultural trends or to illustrate various garden types such as low maintenance pest resistant shrubs for a rock garden. Functional landscape plant collections can also demonstrate collections of plants that are new and currently available for particular landscape applications. Functional landscape collections will possess the following qualities:

- Potential and actual landscape value
- Regional significance
- Demonstrate landscape management and ecology techniques
- Issue based

ACCESSIONING

Woody plants in the collection must be accessioned. Exceptions to this may include plants for sale, research plants, plants used for educational purposes which are not planted and non-notable plants within the WPA Native Matrix.

Herbaceous plants are not the focus of the collections, but they play an integral role. While herbs are generally used only as companion plantings, they also can be a major part of the Ecological, Geographic, and Functional Landscape Collections. To be accessioned, herbaceous species must meet the major guidelines for acquisition as well as one or more of the following criteria:

- Species characteristic of a certain geographic display, e.g. Pacifc Connections Garden
- Species characteristic or important to a Functional Landscape display, e.g. *Ophiopogon planiscapus* 'Ebony Knight' in WPA Winter Garden
- Taxon is rare and/or endangered
- Educational or research interest.
- Plant is not invasive here, e.g. female, but not male, Ilex aquifolium

All acquisitions will be accessioned through the Curation Office before being incorporated into the collection. Propagules and whole plants will be accessioned under the same system. Accessions will be recorded in the current accession book and properly logged into the computer records system. Plants propagated from existing accessions will be given a new accession number with the parent plant accession number retained as a lineage number.

DEACCESSIONING

Deaccessions may be recommended by any member of the Curation Committee. but must be approved by the Committee.

Plants shall be deaccessioned under one or more of the following conditions:

- The accession is no longer relevant to the purposes of UWBG as interpreted in this policy
- The accession has deteriorated, died, or been stolen. If possible, an attempt should be made to repropagate deteriorated significant accessions before deaccessioning the specimen
- The accession has been replaced by a more desirable accession as determined by evaluation
- The accession can be more efficiently preserved in a seed bank
- The accession has been determined to be invasive here

The accession record of a deaccessioned specimen should be preserved as part of the permanent collection records and, whenever possible, also as herbarium material in the Otis Douglas Hyde Herbarium (WTUH).

Non-Accessioned UWBG Living Plants

Native Plant Matrix

This is, in general, a non-accessioned part of the collection, but it plays an integral part at WPA. It can be, in part, considered to be one facet of the Eco-Geographic Collections. A large part of the Native Matrix is a managed forest, representing several stages of succession and various Pacific Northwest plant associations. However, existing native trees also provide a forest ecosystem vital to support many of the exotic collections in the Arboretum. Trees of exceptional size or age will vbe accessed after the Curation Committee has considered the merits of any such proposed.

Plant Evaluations

Certain plant groups or plant species may be grown for evaluation purposes only. These may include annual or perennial (herbaceous or woody) plants that are being tested for performance in this area. Information is tracked over a designated period of time in order to determine the value of the plants. Simple labeling that designates the plants or groups should be maintained. At the conclusion of the evaluation period, plants determined to be worthy of inclusion in a particular collection by the Curation Committee will be entered into the accession system or maintained as a non-accessioned plant. Plants that do not fall into either category will be disposed of in the proper manner, whenever possible also preserved as herbarium material in the Otis Douglas Hyde Herbarium.

Research Plots

A university researcher may request that certain plants be grown on the grounds for the purpose of study. These plants will be evaluated solely by the researcher for a designated period of time and labeled in a simple manner that designates them as non-members of the collection. At the end of this research period, plants may be determined to be worthy of inclusion into a particular collection by the Curation Committee and be entered into the accession system or remain as non-accessioned companion plantings. Plants that do not fall into either category will be disposed of in the proper manner at the conclusion of the project, whenever possible also preserved as herbarium material in the Otis Douglas Hyde Herbarium.

Herbaceous Plants

Herbaceous plants will not be accessioned when they do not meet the criteria listed above; that is, if the herbaceous plants are commonly grown natives, e.g. species of *Oxalis*, or are used in the role of amenity plantings and not a collection type.

CRITERIA FOR ACQUISITION

Acquisition

Accessions may be acquired by purchase, gift, exchange, or collection. The Curation Committee will approve all acquisitions. The collections will conform to five major guidelines:

- The source of the plant must be known
- The breadth of taxonomic diversity at the family level, including naturally important genera, should be represented in the collection as a whole
- Conservation collections of natural taxa should be sanctioned by, or consistent with, national and international conservation programs
- Plants will be reasonably hardy

In general, plants of known provenance will be given highest priority in acquisition and nursery trade cultivars will be given lowest priority.

Herbaceous Plant Acquisition

Herbaceous plants may be sought out if they meet these criteria:

- Must meet general guidelines for acquisition
- Species typical to an established Geographic Collection.
- Educational and research interest

Gifts of Living Plants

Gifts may be accepted only if the plant *taxa* meet the criteria for acquisitions. The staff will not make appraisals of gifts. Extensive gifts of plants or collections must be accompanied by a sufficient endowment to enable curatorial and general maintenance. The Curation Committee must approve these gifts and has the right to waive the endowment. If an endowed collection is deaccessioned, efforts will be made to return the collection to the donor.

RECORD KEEPING

Records

All accessioned plants will have updated records documenting their identity and other relevant data for conservation, research, and education. Records are accessed by reference to the accession number for any given plant.

Each accession record should have at a minimum the following information:

- Accession number
- Scientific name
- Provenance

- Date acquired
- Propagation records
- Collection data (if acquired wild)
- Location in UWBG

Records should be as complete as possible; any other relevant information about the plant should be included in the record.

The Curation Office is responsible for the management of the records system. The staff is responsible for the implementation of the records system. Location and movement of accessions must be registered with the Curation Office for records update. Summaries of accession, deaccession, and evaluation activities will be regularly reported to the Director. All accession records of deaccessioned specimens will be archived for future reference.

Labels

All accessions will have a label that consists of the following information:

- Accession number
- Scientific name
- Cultivar name (if applicable)
- Native origin

Inventory and Verification of Collections

The curation office has oversight responsibility for the horticultural inventory of all accessions in the collection. Rare, threatened, and endangered accessions will be given top priority in the evaluation system. As a goal, all plant collections will be inventoried no less frequently than every five years. More frequent inventory may be done in some collections. The purpose of these inventories is to verify the collection, confirm the health of specimens, determine if specimens require labels, and identify plants in need of repropagation.

The remainder of the collections will be prioritized for inventory according to the volume of change and particular collection has undergone during the interim period relative to its overall importance in the collection as a whole. Written records will be kept on all evaluation results.

Where useful and beneficial for inventories, data will be drawn from existing inventory records utilized by societies and special interest groups dedicated to particular collections. Inventory and maintenance programs will be coordinated for mutual benefit.

Maps will be continuously updated and inventories may be performed on a continuous basis. Maps and inventories will be grid-based and maintained on computer with computer aided design software.

Maintenance

Maintenance will be planned and implemented according to a maintenance management system, which includes priorities, maintenance intensities, tracking procedures, and scheduling information. Maintenance will utilize data from the plant records and mapping systems for tracking and reporting maintenance activities. Maintenance activities will be taken into account in the design and installation of collection displays.

PLANT DISTRIBUTION AND DISPOSAL

Access to Collections for Propagation

Institutions, organizations or individuals may apply to the Curation Committee for permission to obtain plant material for purposes of propagation. Plant material may only be collected for research or individual use. Plant material may not be collected if it, or propagules from it, will be sold for profit. If a permit is issued, a member of the grounds staff must accompany the representative or individual collecting the plant material. A notation will be made in the accession record including the date, type of material taken, for what use it was taken and by whom it was taken.

Disposal of Plants

Disposal of deaccessioned plants may occur by sale, donation, exchange or destruction. Approval must be obtained from the Curator or Curation Committee before disposing of deaccessioned plants. Invasive and diseased plants will be destroyed.

Codes of Conduct

The University of Washington and UWBG have endorsed the St. Louis Codes of Conduct (http://www.centerforplantconservation.org/invasives/) and implemented and invasive species policy. The collection policy, as stated above, includes elements of the Codes. Others that are relevant and should be kept in mind by the curatorial committee include:

- Exclusion or marking of invasive species in Index Seminum listings
- Promptly managing any new invasions detected at UWBG
- Promoting alternatives to regional invasives through new accessions
- Reporting concerns of new invasions to county and state noxious weed boards

University of Washington Botanic Gardens

Plant Conservation Policy

January 1, 2009

Mission: *Sustaining managed to natural ecosystems and the human spirit through plant research, display and education*.

Conservation of wild plant species intrinsically guides our mission and activities here at the University of Washington Botanic Garden (UWBG). Although it is recognized that plant species are best conserved *in situ*, in their native settings, it is evident that botanic gardens provide the means for conserving biodiversity outside the natural range. As a sanctuary, an *ex situ* collection such as UWBG conserves plant species and from areas potentially threatened by biological invasions, habitat destruction and, as a consequence of human induced global climate change, shifting climatic zones. "*Ex situ* collections have a key role to play in securing the conservation of wild plant species as natural resources, as an insurance policy for the future, as a basis for restoration and re-introduction programs and as support for the adaptation of livelihoods to climate change and shifting climatic zones (*Gran Canaria* Declaration on Climate Change and Plant Conservation, 2006)." *Ex situ* plant conservation therefore sustains natural systems in parts or recreated as whole communities. Yet *ex situ* conservation is not the only mode of plant conservation at UWBG. Recognition of the importance of *in situ* plant conservation is exemplified at UWBG by the Washington Rare Plant Care and Conservation organization (Rare Care), founded at UWBG in 1999. Washington State focused exclusively on conservation of native rare plant species. Furthermore, *in situ* conservation is a key focus of many UWBG graduate and undergraduate research projects. The University of Washington Restoration Ecology Network (UWREN), whose mission is the integration of students, faculty and community interests in ecological conservation and restoration is an important program at UWBG. UWBG plant conservation programs present an educational opportunity increasing public awareness about the values of biodiversity and other biological conservation issues thereby broadening provincial experiences, further sustaining the human spirit. As a member garden of the Botanic Gardens Conservation International (BCGI) and the Center for Plant Conservation (CPC), UWBG respects and honors plant conservation and supports the conservation of plants in this botanic garden. "In the long run, there can be no more important effort than conserving plant diversity. Plants are the ultimate source of renewable chemical energy and materials. They provide food, medicine and many other necessities; they are the basis of a sustainable society," U.S. Botanic Gardens Executive Director Holly Shimizu.

Objectives: (adopted in part from North American Botanic Garden Strategy for Plant Conservation)

1. **Understanding and documenting plant diversity**:

   Catalogue collections and contribute to respective national flora projects, in an effort to complete a North American flora.

2. **Conserving plant diversity:**

   Support *in situ* conservation regionally and abroad, increase *ex situ* conservation efforts, and take a role in invasive species management and education.

3. **Promoting public education and awareness about plant diversity**: **Research, display, and education.**

   Inspire visitors, local community members, partners, staff, and volunteers to take appropriate action to protect plant diversity.

4. **Building capacity for conservation of plant diversity:**

   Integrate a conservation ethic and environmental awareness into all operations, providing leadership and innovative research to the public regarding genetic diversity, taxonomy, ecology and conservation biology of plants and plant communities.

Strategies:

1. **Understanding and documenting plant diversity**:

   - Provide an annually updated plant list for the three collections at the UWBG: the Washington Park Arboretum (WPA), the Otis Douglas Hyde Herbarium and the Miller Seed Vault.
   - Assess the species richness, relative abundance and composition of local and regional flora.
   - Revisit all known populations of rare plant species in Washington State to update information on rare plant occurrences**.**

2. Conserving plant diversity:

- Conduct research on the ecology and population biology of imperiled and rare plant species and on management strategies to protect wild populations.
- Perform physical inventory in the collections of International Union for Conservation of Nature (IUCN) listed plants.
- Maintain an *ex situ* collection of seeds of rare native Washington plant species in the Miller Seed Vault and develop propagation protocols for these species.
- Increase *ex situ* conservation by curating at least 75% of the regional threatened, endangered, and culturally important plant species plant species in the Washington Park Arboretum's taxonomic, ecological and geographic collections as well as the non-accessioned UWBG plant matrix.
- Facilitate restoration of native ecosystems locally, regionally and internationally. Primarily focus on ecological restoration and re-vegetation projects in the Union Bay Natural Area (UBNA) and Washington Park Arboretum, as well as through statewide efforts by the UWBG's Restoration Ecology Network.
- Coordinate with state agencies and other stakeholders to develop methods of risk assessment and early detection of invasive plants before they impact native systems. Use the Hyde Herbarium to identify and report new invaders.
- Collaborate with international communities in *ex situ* conservation efforts through seed banking and tissue culture, and duplicate collections for non-regional taxa; coordinating primarily with institutions from similar climate regimes focusing on acquisition of threatened plant species, in accordance with CITES guidelines.

3. Promoting public education and awareness about plant diversity: **Research, display, and education.**

- Organize and influence public opinion regarding plant conservation with outreach programs and workshops for the numerous amateur horticultural societies located at the Graham Visitor Center and the Center for Urban Horticulture.
- Provide guided tours and interpretative signage at the UBNA.
- Hosting large group and media events highlighting importance of conservation in public gardens.
- Collect and archive conservation information at the Elisabeth Carey Miller Library located at Miller Hall at the University of Washington, which houses one of the richest collections of plant books in the region.
- Host informational lectures and display UWBG graduate research in public common areas such as Merrill Hall or the Graham Visitor Center,

communicating the importance of plant diversity are crucial for all targets: children, policy-makers and community members.

- Include conservation information in UWBG publications such as the *Camas Quarterly* and *E-Flora*.
- Instill conservation ethic in all courses taught at UWBG and by the REN develop different programs for different target audiences not only in the environmental curricula but in broader mainstream education policy.
- Address diverse target audience through mainstream education policy such as WPA youth outreach: Saplings, and Spruce Programs.
- Support Rare Care's Celebrating Wildflowers annual Spring event.
- Provide guidance and learning opportunities to community service volunteers, such as the Native Plant and Ivy Out Programs.
- Promote external conservation campaigns, such as:
    - National Invasive Weed Awareness Week
    - Earth Day
    - Arbor Day
    - National Wildflower week
    - National Endangered Species Day
    - Plant Conservation Day
    - International day for Biological Diversity

4. Building capacity for conservation of plant diversity:

- Epitomize the philosophy "the sustainable use of plants should imbue all aspects of a garden's operation, from administration and public education to horticultural displays and retail outlets." (APGA)
- Showcase the values and beauty of native plant use in residential and commercial landscapes, without compromising rare or threatened native populations.
- Capitalize on existing scientific and educational activities to link between government officials, scientists visitors, scientist and commercial interests
- Conserve and collect ethno-botanically important plant species and plants with historic, social and economic importance.
- Foster use of *ex situ* plant materials (seeds, cutting, living specimens) by researchers working in plant taxonomy and conservation.
- Foster ecological restoration skills thereby promoting *in situ* conservation.
- Encourage certification and reward programs for employees exemplifying the conservation mission, while raising awareness of local cultural indigenous knowledge and uses of plants. This awareness may be developed through training days and accreditation and higher learning credits for employees, as well as through encouraged or requisite appropriate volunteer hours for staff.
- Dedicate financial and staffing resources focusing on *in situ* and *ex situ* conservation.
- Update conservation plan annually. Create an ad hoc, student driven, committee, overseen by a Curation committee member (other than the

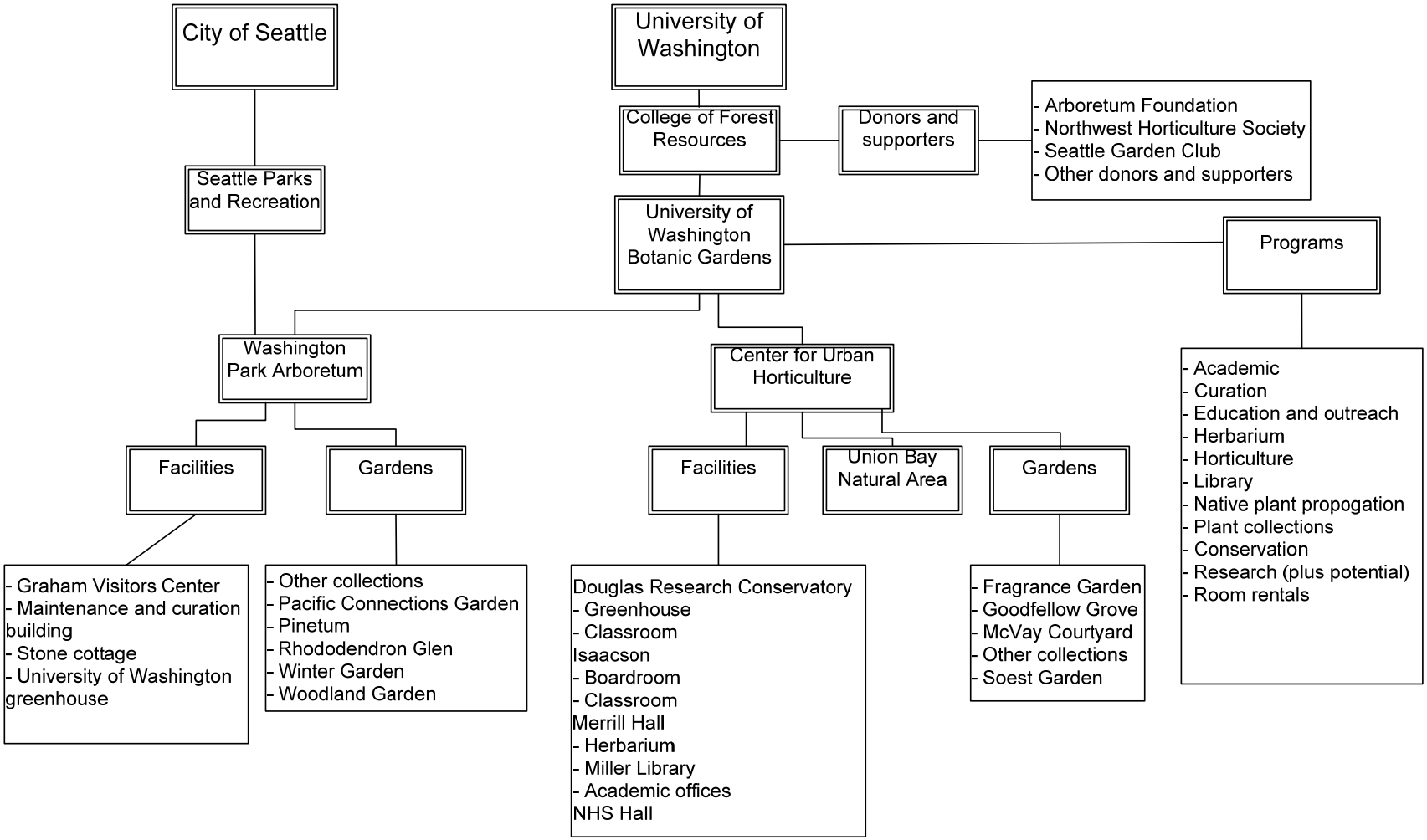
representative student member), to review operations and report how successfully the UWBG is achieving the objectives and employing the strategies herein. The ad hoc committee may also suggest additions or subtractions to the conservation plan objectives and strategies, which will be adopted or rejected upon approval by the Curation committee.

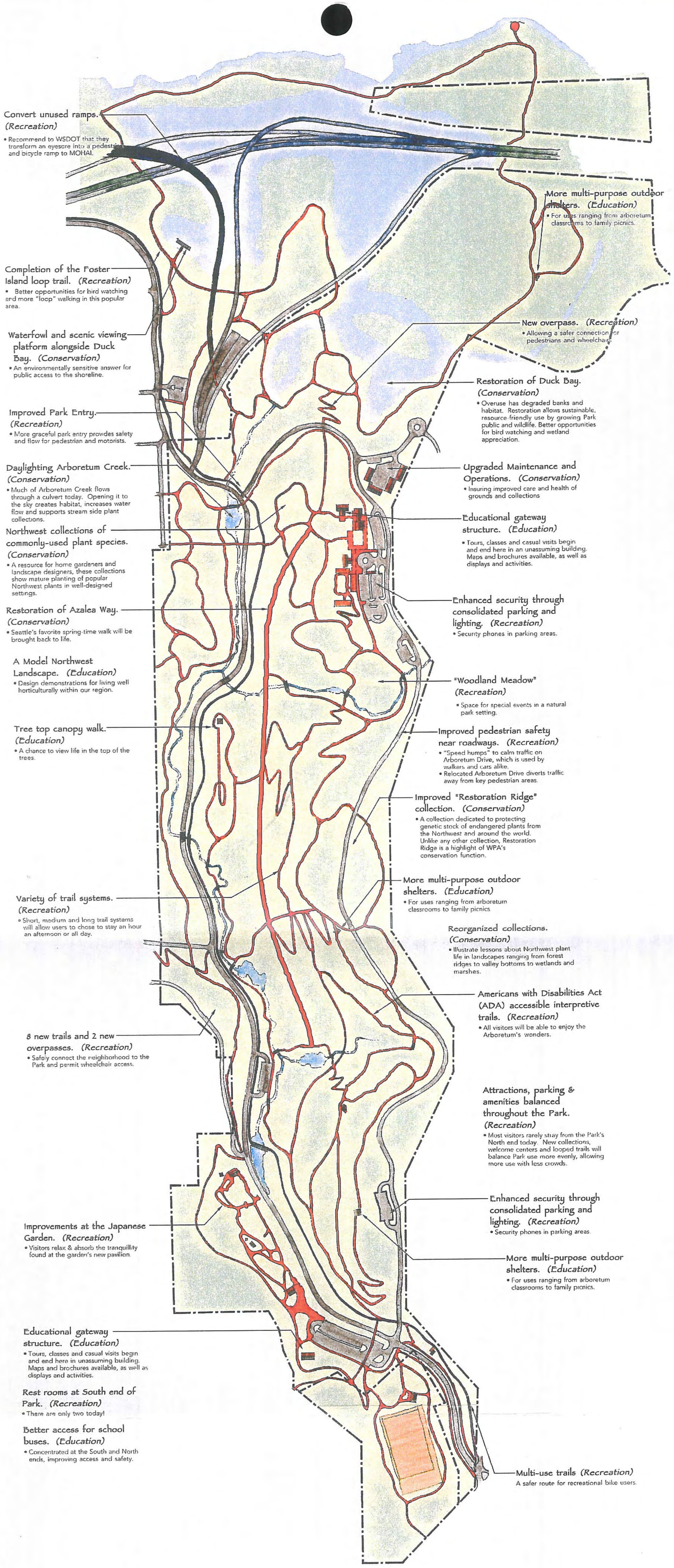
Codes of Conduct

The University of Washington and UWBG have endorsed the St. Louis Codes of Conduct (http://www.centerforplantconservation.org/invasives/) and implemented and invasive species policy. The collection policy includes elements of the Codes. Others that are relevant and should be kept in mind by the curatorial committee include:

- Reducing pest and pathogen outbreaks by employing best management practices.
- Identification and Exclusion of invasive species in *Index Seminum* listings
- Promptly managing any new invasions detected at UWBG
- Promoting alternatives to regional invasives through new accessions
- Reporting concerns of new invasions to county and state noxious weed boards

Management Chart for UWBG





Washington Park Arboretum

Circulation & Facilities Plan

Proposed Master Plan

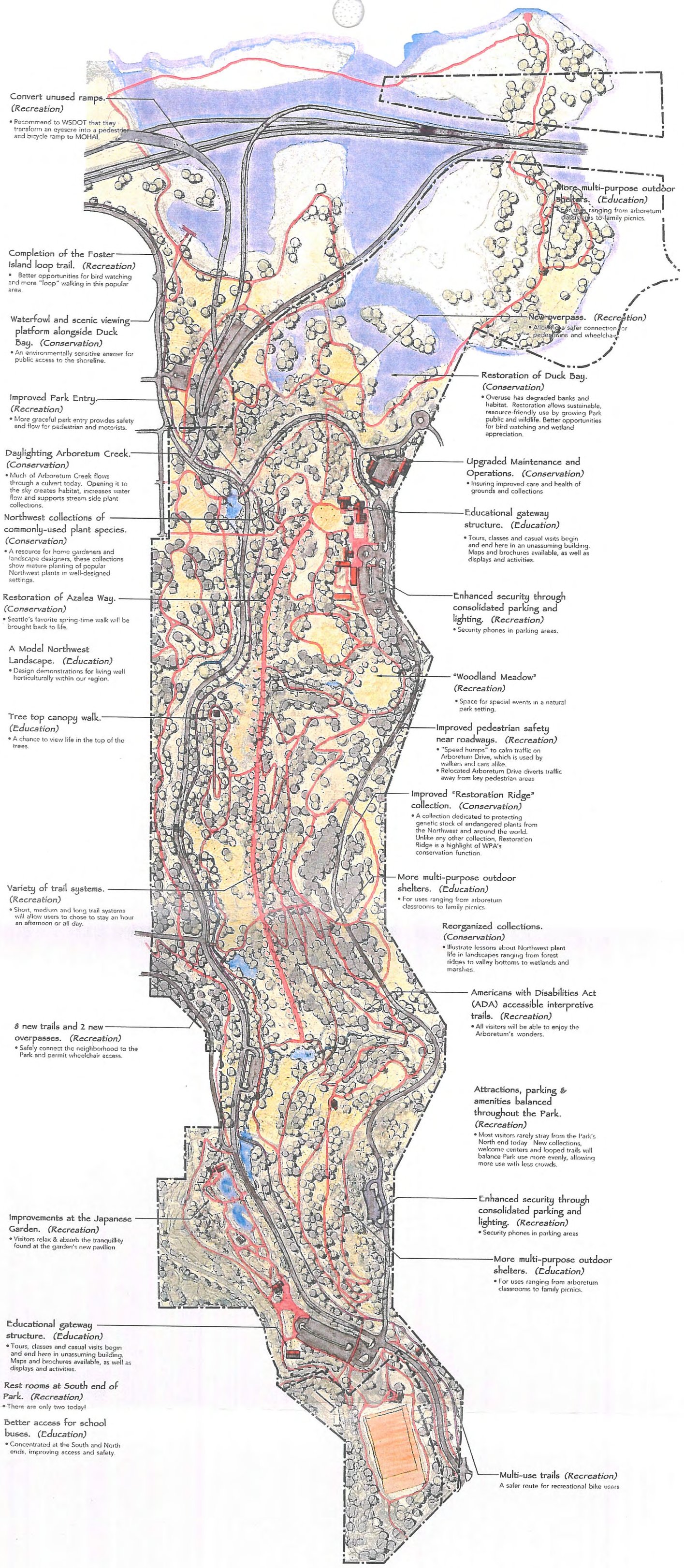
A Proposal by the Arboretum and Botanical Garden Committee

December 2000

THE PORTICO GROUP

0 50' 100' 200'

Seattle Department of Parks and Recreation
The Arboretum Foundation
The University of Washington



Washington Park Arboretum

Master Plan

Illustrative Plan

January 2001

THE PORTICO GROUP

N 0 50' 100' 200'

Seattle Department of Parks and Recreation
The Arboretum Foundation
The University of Washington

AREA DIAGRAM

1 UPLAND FOREST

2 ISSUE BASED GARDENS
- APIARY
- BIO-FUELS/ ECO-FUELS GARDEN
- CLIMATE CHANGE MONITORING
- GARDEN
- ECO-REGIONAL GARDEN
- EVOLUTIONARY GARDEN
- GOODFELLOW GROVE
- LANDFILL RESTORATION
- DEMONSTRATION
- LOW WATER-USE GARDEN
- PERMACULTURE GARDEN
- PERMEABLE PARKING AREAS
- PESTICIDE RUNOFF TEST SITES
- PLANT EVALUATION GARDEN
- RAIN GARDENS/ BIORETENTION
- DEMONSTRATION
- RAIN WATER CELEBRATION GARDEN
- RARE/ NATIVE PLANT GARDEN
- SEATTLE YOUTH GARDEN WORKS
- URBAN FARM
- URBAN COMMUNITY GARDEN
- VINE DISPLAY STRUCTURE
- WATERLESS GARDEN/ XERISCAPE

3 WETLAND

4 CHILDREN'S GARDEN & PARKING

5 CIRCULATION SPINE

6 NURSERY/STORAGE AREA

7 EVENT LAWN

8 EXISTING BUILDINGS -
APPROXIMATELY 25,500 SF +/-

9 NEW BUILDINGS -
20,000 SF FOOTPRINT SHOWN
(ASSUMES 1-2 STORIES TO ACHIEVE
30,000 SF TOTAL)

10 GATEWAY TO UBG

UW BOTANIC GARDENS MASTER PLAN UPDATE

UNIVERSITY OF WASHINGTON BOTANIC GARDENS
Plants for Life

The Berger Partnership PS
Landscape Architecture

ILLUSTRATIVE PLAN

UW BOTANIC GARDENS MASTER PLAN UPDATE

UNIVERSITY OF WASHINGTON BOTANIC GARDENS
Plants for Life

The Berger Partnership PS
Landscape Architecture

Executive Summary

This document serves to update of the Union Bay Natural Areas and Shoreline Management Guidelines, developed in 1994.

Site:
The combined area of the UBNA and the University shoreline is 73.5 acres. Of that area, 14.4 acres have been restored, most of it with volunteer labor. An assessment of the condition of the restored sites indicates that 6.9 acres are in danger of reverting to a weed-dominated condition; 0.9 acres already need to be restored again to the desired condition. Resources are needed both to begin new restoration projects and to maintain areas that have been restored.

Staff:
UBNA is maintained by a staff gardener, less than half an FTE; faculty supervised students in class work; volunteers; and a half-time Research Assistant (RA), two academic quarters each year. The majority of the work is invasive weed control; most of the planting has been done by classes and volunteer groups. Two shoreline projects (Dempsey Indoor Practice Facility and Conibear Shellhouse) were installed for the University by contractors. Based on staffing rates for maintenance in the Arboretum Master Plan, for primarily low intensity care, the core areas of the UBNA, the University Slough, and the shoreline will require 3.5 FTEs to provide an adequate level of maintenance and care.

Volunteers:
Volunteer work is important for restoration and maintenance of the natural ecosystem that has developed in the UBNA. The RA works almost entirely with students in classes with restoration as a component of the course and students in natural science courses that can take advantage of the site. There is also the potential to restore, teach, and gain active support among volunteers from the interested community. A volunteer coordinator is needed to organize the work of volunteers and, taking advantage of the public interest in restoration, nature, and horticulture, recruit new volunteers. The time of the position of volunteer coordinator could be shared among the programs of the UWBG.

Site Improvements:
The trails of the UBNA are explored extensively by the public and offer an important opportunity for teaching and outreach and building support for the UWBG. The trails follow the shore of Lake Washington and extend through the managed and restored areas. The value and use of the site can be increased by expanding the trail system. A loop trail is proposed for the northwest sub-area: from Shovelers Pond, northwest between wetland and grassland, intercepting the University Slough at Clark Road; south along the Slough, perhaps in a new forested riparian buffer, to Wahkiakum Lane at the footbridge. Trail and boardwalk systems are also needed, 1) to provide access from the Center for Urban Horticulture to the lakeshore by way of the small creek that runs into Lake Washington just east of Shovelers Pond and 2) to open the swamp forest in East Basin. The area behind the Center for Urban Horticulture would require only a short section of

boardwalk, while the trail in East Basin would need at least 750’ of boardwalk construction. These plans would be coordinated with state agencies responsible for shoreline management.

Site Expansion:
Parking lot E-5 has been envisioned as part of the UBNA for many years. It has great potential for restoration to a South Puget Sound prairie ecosystem (since it is all gravel, similar to natural prairies). Approximately one-third of E-5 was turned over to the Center for Urban Horticulture in the mid-nineties and now supports camas, Garry oaks, and Idaho fescue. The expected date to obtain E-5 is 2012. The site is suitable for part of a future system of trails and native plant communities. Plant propagation may begin earlier in anticipation of restoration.

Structural Improvements:
Structural improvements would offer many desirable features to the UBNA. These might include such things as bird photography blinds, kayak pullouts, wildlife structures and feeding stations, trail drains; short paths with lookouts for access to wetlands, slough, and the shoreline; and interpretative signage.

OPERATION BUDGET FOR UW BOTANIC GARDENS FY07/08*

FY07/08 INCOMING RESOURCES	Notes	Amount	Sub-Totals	Grand Totals
State Funds *(excl centrally pd benefits)*	A	566,286		
Endowment Income *(restricted; excl Self-Sust Units)*		53,444		
Gifts General (partially *restricted; excl Self-Sust Units)*		24,705		
UWBG-Project Grants *(restricted; excl Self-Sust Units)*		41,663		
Arboretum Foundation Grant *(restricted)*		181,047		
Revenue *(restricted; excl Self-Sust Units)*		107,928		
Special Project Funding *(restricted)*				
Arboretum Collections Development		58,000		
Union Bay Gardens & Other Collections		22,000		
Self-Sustaining Units within UWBG (see units below)		780,630		
TOTAL OF YEAR'S INCOME:			1,835,703	1,835,703
Restricted Obligations Funds in Reserve				*296,703*
TOTAL FUNDS AVAILABLE FOR THE YEAR:				*2,132,406*
FY07/08 EXPENSES	**Notes**	**Amount**	**Sub-Totals**	**Grand Totals**
Administration & Management				
Salaries and Benefits (FTE 3)	A/E	191,054		
General Admin & Office Expenses	B/C	91,931		
Totals:		282,985		
Development	D			
Public Education (Adult & K-12)				
Salaries & Benefits (FTE 3.75 & hourlies)	A	211,832		
Other Expenses		47,162		
Totals:		258,994		
Gardens & Grounds Maintenance	F			
Salaries & Benefits (FTE 9)	A	381,752		
Other Expenses		123,371		
Totals:		505,123		
Curation Records				
Salaries & Benefits (FTE 1.5)	A	63,296		
Other Expenses		5,292		
Totals:		68,588		
Hyde Herbarium				
Salaries & Benefits (FTE 0.5)	A	14,510		
Other Expenses		1,000		
Totals:		15,510		
Sub-Total of Above Expenses:			1,131,200	
SELF-SUSTAINING UNITS WITHIN UW BOTANIC GARDENS				
Rare Plant Care & Conservation				
Salaries & Benefits (FTE 1.6 & hourly)		95,815		
Other Expenses		10,200		
Totals:		106,015		
Miller Library				
Salaries & Benefits (FTE 3.1 & hourlies)		178,385		
Other Expenses		45,225		
Totals:		223,610		
Rental Facilities				
Salaries & Benefits (FTE 4.25 & hourlies)		227,324		
Other Expenses		163,784		
Totals:		391,108		
Sub-Total of Self-Sustaining Units' Expenses:			720,733	
Restricted Future Obligations			*280,473*	
TOTAL OF EXPENSES:				*2,132,406*
Projected Carry-Over at Year End				*0*

NOTES:

A. Benefits for staff paid from State Funds are centrally paid (not paid from UWBG funds). This includes some, but not all permanent staff.

B. General office and administrative expenses include in part phones, postage, copying svcs, office supplies, computers, etc. Heat, light, and other overhead expenses are paid centrally by the UW.

C. Indirect costs such as building maintenance; heat and light; central financial, payroll, and benefits services are not included as they are funded centrally by the UW.

D. A half-time Major Gifts Officer (Development) for UWBG is provided by the UW Development Office via the College of Forest Resources. Her salary, benefits, and some general operating expenses are not paid for by UWBG and therefore not included.

E. The Director's salary and benefits as well as all faculty salaries and benefits are paid by the College of Forest Resources, and are therefore not included.

F. Some grounds maintenance is managed by and paid for directly by the City or the UW Central Facilities Unit. At WPA the park functions are managed by the City. At Union Bay Gardens the lawn care is managed by UW Facilities.

** UW FISCAL YEAR IS JULY 1-JUNE 30*

UW Botanic Gardens
Private Support Report

The following information was pulled from the UW's Advance Database. This database is used by the Advancement Office to tracks incoming gifts to the UW. It includes current use and endowment gifts to the UW Botanic Gardens as well as endowment distributions. It does not include any revenue, grants, or funding that comes from the State of Washington.

All money listed under the breakdowns is restricted for that purpose, with the exception of the CUH amount, which is both unrestricted and restricted.

Endowments distribute 5% of principal per year to their intended purpose and reinvest the remaining earnings to help build the principal.

All figures are rounded to the nearest thousand. Fiscal year is July 1 - June 30

2007/2008 Fiscal Year

Amount from AF	$160,000	(support for K-8 education programs and our Arborist program)
Total Endowment Distributions	$206,000	
Other Money Raised	$504,000	
Total Amount Raised	**$870,000**	*

Breakdown of all gifts	**Other Money Raised**		**Endowment Distributions**	
CUH	$52,000		$6,000	
Education	$22,000			
Herbarium	$1,000			
In-Kind gifts	$17,000			
Library	$133,000		$144,000	**
Rare Care	$75,000			
WPA	$204,000	*	$56,000	
Totals	**$504,000**		**$206,000**	

* includes a $200,000 endowment gift designated for the WPA, which will generate approximately $10,000 additional endowment income annually once it begins distributions in early 2009.

** one of the library endowments receives additional principal funds each year from a donor, thus building the principal of that endowment more quickly

UW Botanic Gardens
Private Support Report

2006/2007 Fiscal Year

Amount from AF	$188,000	(support for K-8 education programs, our Arborist program, the Herbarium,
Total Endowment Distributions	$183,000	and seasonal gardeners)
Other Money Raised	$201,000	
Total Amount Raised	**$572,000**	

Breakdown of all gifts	**Other Money Raised**	**Endowment Distributions**	
CUH	$53,000	$4,000	
Education	$3,000		
Herbarium	$3,000		
In-Kind gifts	$2,000		
Library	$96,000	$129,000	**
Rare Care	$16,000		
WPA	$28,000	$50,000	
Totals	**$201,000**	**$183,000**	

** one of the library endowments receives additional principal funds each year from a donor, thus building the principal of that endowment more quickly

UW Botanic Gardens
Private Support Report

2005/2006 Fiscal Year

Amount from AF	$151,000	(support for K-8 education programs, our Arborist program, and seasonal gardeners)
Total Endowment Distributions	$168,000	
Other Money Raised	$258,000	
Total Amount Raised	**$577,000**	

Breakdown of all gifts	**Other Money Raised**	**Endowment Distributions**	
CUH	$67,000	$4,000	
Education	$1,000		
Herbarium	$0		
In-Kind gifts	$0		
Library	$124,000	$118,000	**
Rare Care	$44,000		
WPA	$22,000	$46,000	
Totals	**$258,000**	**$168,000**	

** one of the library endowments receives additional principal funds each year from a donor, thus building the principal of that endowment more quickly

These figures have not been verified by the UW general ledger (FIN)

RECENT GRANTING FUNDING HISTORY OF THE ARBORETUM FOUNDATION
TO UW WPA PROGRAM:

Updated: 12/12/2008

	Arborist Program	Education Program	Permanent Gardners	Seasonal Gardeners	Gardens-Spec Prjcts	Curation	Horticulture Program	Herbarium	** Undesignate	Master Plan Impl	Misc	TOTAL
FY01/02	37,800	42,500		15,000	30,000	3,000		2,000	9,700			140,000
FY02/03	38,000	46,500		15,000	15,000	3,000	5,000		5,500			128,000
FY03/04	56,050	47,972		17,000			20,000		8,978			150,000
FY04/05	76,000	60,972		17,000		10,978	30,000		5,050			200,000
FY05/06	64,000	71,533		17,000	1,500					5,000		159,033
FY06/07	80,000	62,260		15,000				2,740		2,000		162,000
FY07/08	97,000	84,000									250	181,250
FY08/09	102,340	95,000										197,340

** Requires specific request for use by UW and approval from AF

NOTES:

FY06/07 we were awarded an add'l $30K for Master Plan implementation for native matrix removal, which was redirected to the City as agreed upon by all parties.

Jonathan D. Bakker

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Website: http://faculty.washington.edu/jbakker

RESEARCH VISION

My research vision is to discover answers to questions of fundamental ecological interest and practical significance regarding the restoration and management of terrestrial ecosystems. My lab is active and vibrant, with a diverse group of undergraduate students, graduate students, and post-docs. We collaborate with other programs regionally, nationally, and internationally. Within five years, we will be part of an institute that provides visibility to UWBG's teaching, research, and extension.

EDUCATION

2005	**Ph.D.**, with distinction, Ecosystem Science (Forestry), Northern Arizona University, Flagstaff, AZ
2003	**Graduate Certificate**, Applied Statistics, Northern Arizona University
1996	**M.Sc.**, Plant Ecology (Biology), University of Regina, Regina, SK
1994	**B.A.**, Biology and Environmental Studies, Dordt College, Sioux Center, IA

EXPERIENCE

2006 – present	**Assistant Professor**, Restoration Ecology and Management, College of Forest Resources, University of Washington, Seattle, WA
1996 - present	**Plant Ecology Consultant**
2001 – 2006	**Senior Research Specialist** (2005-2006) and **Research Specialist** (2001-2005), Ecological Restoration Institute, Northern Arizona University, Flagstaff, AZ
2000 - 2002	**Assistant Professor**, Au Sable Institute of Environmental Studies, Coupeville, WA
1996 - 2001	**Forestry Technician**, TRP Forestry Consultants, Vernon, BC
1994 - 1996	**Research Assistant**, University of Regina, Regina, SK

SELECT PEER-REVIEWED PUBLICATIONS

Bakker, J.D. 2008. Increasing the utility of Indicator Species Analysis. *Journal of Applied Ecology* 45:1829-1835.

MacDougall, A.S., S.D. Wilson, and J.D. Bakker. 2008. Climatic variability alters the outcome of long-term community assembly. *Journal of Ecology* 96:346-354.

Bakker, J.D., and M.M. Moore. 2007. Controls on vegetation structure in southwestern ponderosa pine forests, 1941 and 2004. *Ecology* 88:2305-2319.

Laughlin, D.C., M.M. Moore, J.D. Bakker, C.A. Casey, J.D. Springer, P.Z. Fulé, and W.W. Covington. 2006. Assessing targets for the restoration of herbaceous vegetation in ponderosa pine forests. *Restoration Ecology* 14:548-560.

Bakker, J.D. 2005. A new, proportional method for reconstructing historical tree diameters. *Canadian Journal of Forest Research* 35:2515-2520.

Kooistra, C.M., and J.D. Bakker. 2005. Frozen-stored conifer container stock can be outplanted without thawing. *Native Plants Journal* 6:267-278.

Bakker, J.D., and S.D. Wilson. 2004. Using ecological restoration to constrain biological invasion. *Journal of Applied Ecology* 41:1058-1064.

Wilson, S.D., J.D. Bakker, J.M. Christian, X. Li, L.G. Ambrose, and J. Waddington. 2004. Semiarid old-field restoration: is neighbor control needed? *Ecological Applications* 14:476-484.

Bakker, J.D., S.D. Wilson, J. Christian, X. Li, L. Ambrose, and J. Waddington. 2003. Contingency of prairie restoration success on year, site and competition from introduced grasses. *Ecological Applications* 13:137-153.

SELECT FUNDED RESEARCH GRANT PROPOSALS

Moore, M.M., J.D. Bakker, and D.C. Laughlin. 2008-2011. Controls on conifer regeneration patterns (1909-2011) and implications for future stand development (2012-2062) in southwestern forests. USDA CSREES National Research Initiative Program. $399,774. UW subcontract: $134,546.

Dunwiddie, P.W., J.D. Bakker, and S.A. Hall. 2008-2011. Vegetation impacts of recurring fires on sagebrush ecosystems in Washington: implications for conservation and rehabilitation. Joint Fire Science Program. $399,888. UW subcontract: $347,231.

Bakker, J.D., and P.W. Dunwiddie. 2008-2009. Prairie habitat restoration for rare species. US Fish and Wildlife Service, Western Washington Fish and Wildlife Office. $80,000.

SELECT ACADEMIC AND PROFESSIONAL ACTIVITIES

2008 – present **Member**, College of Forest Resources Curriculum Committee, University of Washington, Seattle, WA

2008 – present **Faculty Advisor**, UW Student Guild, Society for Ecological Restoration International

2008 - present **Member**, Expert Panel Developing Patch Dynamics Models for the Taylor's Checkerspot, Mazama Pocket Gopher, and Streaked Horned Lark. US Fish & Wildlife Service, Lacey, WA

2007 - present **Member**, Fort Lewis Army Compatible Use Buffer Technical Review Panel, Fort Lewis, WA

Peer Reviewer for scientific journals, including: *Ecological Applications*, *Ecology*, *Ecology Letters*, *Forest Ecology and Management*, *Global Change Biology*, *Journal of Applied Ecology*, *Journal of Ecology*, *Restoration Ecology*

External Peer Reviewer for scientific grant proposals from: BC Forest Investment Account Forest Science Program, Vancouver, BC; Tahoe Science Consortium, Tahoe Center for Environmental Sciences, Incline Village, NV; California Bay-Delta Authority, Ecosystem Restoration Program, Sacramento, CA

CV current to: December 15/08

Curriculum Vitae

KERN EWING

POSITION: Professor, College of Forest Resources, Univ. of Washington

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Homepage: http://faculty.washington.edu/kern/

EDUCATION:
B.S. in Civil Engineering, Texas Tech 1962
M.S. in Botany, University of Washington 1978
Ph.D. in Botany, University of Washington 1982

PROFESSIONAL:
John Rieger Award, SER, 2004 (with Warren Gold)
Registered Professional Engineer, Texas.

RESEARCH:
Techniques of ecological restoration in a number of ecosystems, including thornscrub, eelgrass, wetlands, prairie, oak savanna and arid grasslands. Application of horticulture and ecology to restoration.

ADMINISTRATIVE:
Co-Director, UW Restoration Ecology Network
Faculty Manager, Union Bay Natural Area, UWBG

NON-ACADEMIC EXPERIENCE:

1986-1987 Research ecologist. Wetland project for King County (Seattle)

1982-1983 Plant ecologist, ERTEC Corporation, Seattle, Pipeline impact

1974-1976 Director, Environmental Planning Division, Texas General Land Office.

1973-1974 Chief Planner, Long Range Planning Division, City of Corpus Christi, TX

1971-1973 Director, Community Renewal Program, City of Corpus Christi, Texas.

1970-1971 Assistant Director, Community Renewal Program, City of El Paso, Texas

1966-1968 Design Engineer, Winston and Greenwood Consultants, Mercedes, Texas.

1964-1966 Engineer, Kistenmacher Engineering Co., El Paso, Texas.

1963-1964 Field Engineer, McClelland Engineers, Houston, Texas.

PUBLICATIONS:

Shebitz, D. and K. Ewing (in press). Preliminary observations of using smoke-water to increase low-elevation beargrass (Xerophyllum tenax) germination. Native Plant Journal.

Gold, W., K. Ewing, J.Banks, M. Groom, T. Hinckley, D. Secord and D. Shebitz. 2006. Collaborative Ecological Restoration. Science 312:1880-1881.

Kim, K.D., K. Ewing and D. E. Giblin. 2006. Controlling Phalaris arundinacea (reed canarygrass) with live willow stakes: a density-dependent response. Ecological Engineering 27:219-227

Ewing, K., S. Windhager and M. McCaw. 2005. Effects of summer burning and mowing on central Texas juniper-oak savanna communities during drought conditions. Ecological Restoration 23(4):255-260.

Carney, L. T., J.R. Waaland, T. Klinger and K. Ewing. 2005. Restoration of the bull kelp *Nereocystis luetkeana* in nearshore rocky habitats. Marine Ecology Progress Series 302:49-61.

Cahill, A., L. Chalker-Scott and K. Ewing. 2005. Wood chip mulch improves woody plant survival and establishment at no-maintenance restoration site (Washington). Ecological Restoration 23(3):212-213.

Ewing, K. and C. Best. 2004. South Texas Tamaulipan thornscrub restoration experiment measures growth of planted woody vegetation. Ecological Restoration. 22 (March).

Ewing, K. 2002. Mounding as a technique for restoration of Puget Sound prairie on a capped landfill. Restoration Ecology 10:289-296.

Ewing, K. 2002. Effects of initial site treatments on early growth and three-year survival of Idaho fescue. Restoration Ecology 10:282-288.

Marzluff, J. and K. Ewing. 2001. Restoration of fragmented landscapes for the conservation of birds: a general framework and specific recommendations for urbanizing landscapes. Restoration Ecology 9(3):280-292.

Ewing, K. 2000. Environmental gradients and vegetation structure on South Texas coastal clay dunes. Madroño 46(4):10-20.

Mazer, G., D. Booth and K. Ewing. 2001. Limitations to vegetation establishment and growth in vegetated stormwater biofilters. Ecological Engineering 17(4)..

Drake, D., K. Ewing and P. Dunn. 1998. Germination of native plant seeds from the south Puget Sound prairies of Washington state. Restoration and Management Notes. 16(1):33-40.

Dunn, P. and K. Ewing (eds.) 1997. Ecology and Conservation of the South Puget Sound Prairie Landscape. The Nature Conservancy, Seattle, 289 pp.

Ewing, K. , I. Mendelssohn and K. McKee. 1997. A field comparison of indicators of sub-lethal stress in the salt marsh grass, *Spartina patens.* Estuaries 20:48-65.

Ewing, K. Tolerance of four wetland plant species to flooding and sediment deposition. 1996. Environmental and Experimental Botany 36 (2):131-146.

Ewing, K., K. McKee, I. Mendelssohn and M. Hester. 1995. A comparison of indicators of sub-lethal salinity stress in the salt marsh grass, *Spartina patens* (Ait.) Muhl. Aquatic Botany 52:59-74.

Ewing, K., K.L. McKee, I.A. Mendelssohn and M.W. Hester. 1995. A comparison of indicators of sub-lethal nutrient stress in the salt marsh grass, *Spartina patens*. Environmental and Experimental Botany 35:331-343.

Ewing, K., and J.P. Dobrowolski. 1992. Vegetation dynamics and shrub die-off in salt-desert plant communities. Journal of Range Management 45: 194-199.

Ewing, K., S.R. Pezeshki and W. Stepniewski. 1991. Spectral properties of maize as related to soil oxidation-reduction conditions. Environmental and Experimental Botany 31:99-105.

Biographical Sketch

SOO-HYUNG KIM

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a. Academic Preparation

Ph.D., 2001, Ecology, University of California, Davis, California, USA

M.S., 1994, Agronomy, Seoul National University, Seoul, Korea

B.S., 1992, Agronomy, Seoul National University, Seoul, Korea

b. Recent Positions

Assistant Professor, 2006-Present, College of Forest Resources, University of Washington, Seattle

Affiliate Faculty, 2008-Present, Interdisciplinary PhD Program in Urban Planning and Design, University of Washington

Postdoctoral Plant Physiologist, 2002-2006, Plant Sciences Institute, USDA-ARS, Beltsville

c. Research Interests

An overarching theme of my research lies in examining how plants interact with abiotic and biotic factors in the environment at scales from leaf to whole-plant through canopy and ecosystem. Major areas of my scholarly research include:

- Plant responses to climate change and urbanization
- Process-based modeling of plant-environment relationships and ecosystem services
- Resource management in urban and managed ecosystems
- Comparative ecophysiology of native and invasive plants

d. Professional Activities

- Secretary, 2008-2009, Environmental Stress Physiology Working Group, American Society for Horticultural Science
- Honorary Scientist, 2006-2008, Rural Development Administration, Korea
- Executive Council Member, 2007-2009, Korean Society of Agricultural and Forest Meteorology
- Organizing Committee, 2007, Biological Systems Simulation Group Annual Conference
- College Planning Committee, 2008, College of Forest Resources, University of Washington
- University of Washington Botanic Gardens Curation Committee, 2007 – 2009

In addition, I have been giving invited talks to professional societies and community organizations, serving as reviewer for grant proposals and peer-reviewed scientific journals, and establishing the partnerships between the University and local communities as part of my teaching activities.

e. Selected Recent Publications

1. Bae H., **S.-H. Kim**, M.S. Kim, R.C. Sicher, M.D. Strem, S. Natarajan, and B.A. Bailey. 2008. Coordinated regulation of polyamine biosynthesis in *Theobroma cacao* (cacao) tissues responding to stress. Plant Physiology and Biochemistry 46: 174-188
2. **Kim, S.-H.,** D.C. Gitz, R.C. Sicher, J.T. Baker and V.R. Reddy. 2007. Temperature dependence of photosynthesis, growth, and development in maize under elevated CO_2. Environmental and Experimental Botany 61(3): 224-236.
3. **Kim, S.-H.,** P.R. Fisher and J.H. Lieth. 2007. Analysis and modeling of gas exchange processes in *Scaevola aemula*. Scientia Horticulturae 114(3): 170-176.
4. Timlin, D., Fleisher, D., **Kim, S.-H.**, Reddy, V. and Baker J. 2007. Evapotranspiration measurement in controlled environment chambers: a comparison between time domain reflectometry (TDR) and accumulation of condensate from cooling coils. Agronomy Journal 99: 166-173.
5. **Kim, S.-H.,** R.C. Sicher, H. Bae, D.C. Gitz, J.T. Baker, D.J. Timlin and V.R. Reddy. 2006. Canopy photosynthesis, evapotranspiration, leaf nitrogen and transcription profiles of maize in response to CO_2 enrichment. Global Change Biology 12:588-600.

f. Other Selected Publications

1. Timlin, D., M. Kouznetsov, D. Fleisher, **S.-H. Kim**, and V.R. Reddy. 2008. Simulation of nitrogen demand and uptake in potato using a carbon-assimilation approach, p. 219-243, *In* L. Ma, et al., eds. Quantifying and understanding plant nitrogen uptake for systems modeling. CRC Press, Boca Raton, FL.
2. **Kim, S.-H.**, V.R. Reddy, J.T. Baker, D.C. Gitz and D.J. Timlin. 2004. Quantification of photosynthetically active radiation inside sunlit growth chambers. Agricultural and Forest Meteorology 126: 117-127.
3. **Kim, S.-H.**, K.A. Shackel, and J.H. Lieth. 2004. Bending alters water balance and reduces photosynthesis of rose shoots. Journal of the American Society for Horticultural Science 129(6): 896-901.
4. Baker, J.T., **S.-H. Kim**, D.C. Gitz, D.J. Timlin and V.R. Reddy. 2004. A method for estimating carbon dioxide leakage rates in controlled-environment-chambers using nitrous oxide. Environmental and Experimental Botany 51:103-110.
5. **Kim, S.-H.**, and J.H. Lieth. 2003. A coupled model of photosynthesis, stomatal conductance, transpiration for a rose leaf (*Rosa hybrida* L.). Annals of Botany 91 (7): 771-781.

SARAH ELIZABETH HAYDEN REICHARD

CURRICULUM VITAE
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EDUCATION

Ph.D. 1994. University of Washington, Seattle: College of Forest Resources. "Assessing the potential of invasiveness in woody plants introduced in North America."

M.S. 1989. University of Washington, Seattle: College of Forest Resources. "The systematics and horticultural potential of the *Drimys winteri* (Winteraceae) complex of Chile and Argentina." Field work in Chile and Argentina, 1987.

B.S. 1981. University of Washington, Seattle: Botany.

EMPLOYMENT

Associate Professor of Conservation Biology, College of Forest Resources and the University of Washington Botanic Gardens, Adjunct Associate Professor of Landscape Architecture, University of Washington. 1997 to present (Research Assistant Professor 1997-2001, Assistant Professor 2001-2005) Curator, Otis D. Hyde Herbarium, Center for Urban Horticulture. 1999 to present.

Director, Rare Plant Care and Conservation Program, University of Washington Botanic Gardens, 1998 to present.

FUTURE RESEARCH DIRECTIONS

I have developed a solid base of research on the biology of both non-native invasive and native rare plants. For invaders, this has focused on risk assessment methods for determining invasive ability in new introductions and on their impacts. For rare species, I have worked on determining threats to the populations and how to help them recover. I expect to continue this work, with increasing emphasis on risk assessment and plant responses to climate change.

SELECTED PUBLICATIONS

Urgenson, L., S. Reichard, and C. Halpern. In press. Community and ecosystem consequences of giant knotweed (*Polygonum sachalinense*) invasion into riparian forests of western Washington, USA. Biological Conservation.

Shebitz, D., P. Dunwiddie, and S. Reichard. In press. Consequences of low- and high-severity fire in anthroponetically-maintained beargrass habitat in the Olympic Pennisula lowlands. Ecological Restoration.

Beck, K.G., K. Zimmerman, J. Schardt, J. Stone, R.K. Lukens, **S.** Reichard, J. Randall, A. Cangelosi, D. Cooper, and J.P. Thompson. 2008. Invasive Species Definition Clarification. Invasive Plant Science and Management 1:414-421.

Shebitz, D., S.H. Reichard, and W. Woubneh. 2008. Beargrass on the Olympic Peninsula, Washington: Autecology and Population Status. Northwest Science. 82(2): 128-140.

Virtue, J.G., R.D. Spencer, J.E. Weiss, and S.E. Reichard. 2008 Australia's Botanic Gardens Weed Risk Assessment Procedure. Plant Protection Quarterly. 23: 166-178.

Reichard, S. 2007. The St. Louis codes of conduct: providing a framework to prevent invasions from horticulture. Pages 157-162 in: Harrington, T.B.; Reichard, S.H., tech. eds. Proceedings, Meeting the challenge: invasive plants in Pacific Northwest ecosystems. Gen. Tech. Rep. PNW-GTR-694. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station.

D. M. Lodge, S. Williams, H. MacIsaac, K. Hayes, B. Leung, S. Reichard, R. N. Mack, P. B. Moyle, M. Smith, D. A. Andow, J. T. Carlton, and A. McMichael. 2006. Biological Invasions: Recommendations for U.S. Policy and Management. Ecological Applications. 16: 2035-2054

Clarke, M., S. Reichard, and C. Hamilton. 2006. Prevalence of different forms of English ivy (*Hedera* spp., *Araliaceae*) in invading populations. Biological Invasions 8:149-157.

Reichard, S. 2005. The tragedy of the commons revisited: invasive species. Frontiers in Ecology and the Environment 3:109-110. [Reprinted with permission in Wildland Weeds 9:7-8]

Dougherty, D. and S. Reichard. 2004. Factors Affecting the Control of *Cytisus scoparius* and Restoration of Invaded Sites. Plant Protection Quarterly 19:137-142.

Reichard, S. 2004. Conflicting values and common goals: codes of conduct to reduce the threat of invasive species. Weed Technology 18:1503-1507.

National Research Council (Richard Mack, committee chair, S. Barrett, P. DeFur, W. MacDonald, L. Madden, D. Marshall, D. McCullough, P. McEvoy, J. Nyrop, S. Reichard, K. Rice, and S. Tolin) 2002. The Scientific Basis for Predicting the Invasive Potential of Nonindigenous Plants and Plant Pests. Washington, DC: National Academy Press.

Reichard, S.H. and P. White. 2001. Horticulture as a pathway of invasive plant introductions in the United States. BioScience 51: 103-113.

Reichard, S. and C.W. Hamilton. 1997. Predicting invasions of woody plants introduced into North America. Conservation Biology. 11(1): 193-203.

Reichard, S. 1997. Preventing the introduction of invasive plants. *In* Luken, J. and J. Thieret, eds. Assessment and management of plant invasions. New York: Springer-Verlag. pages 215-227.

BOOKS

Boersma, D., S. Reichard, and A. van Buren, 2006. Invasive species in the Pacific Northwest. University of Washington Press. 285 pages.

SELECTED PROFESSIONAL SERVICE AND POLICY APPOINTMENTS

Natural Areas Journal, Associate Editor, 2007-present.

Sustainable Conservation, California Horticultural Invasive Prevention steering committee, 2004-present.

International Union for the Conservation of Nature, Invasive Species Specialist Group, 2000 to present.

Washington State Noxious Weed Committee, Washington Noxious Weed Board. 1997 to present.

Invasive Species Advisory Committee, Advisor to U.S. Cabinet Council on invasive species issues, 2000-2006.

The Heinz Center on the Environment, analysis of using invasive species as indicator of ecosystem health, 2003-2005

International Society for Conservation Biology, North American Section, Board of Governors 2002-2005.

Delegate, Global Invasive Species Programme (International Union for the Conservation of Nature), September 2000, Cape Town South Africa. Lead two workshops: “Trade Issues for the Future” and “Ecological Information Needed for Effective Databasing”

“Safeguarding America’s Plant Resources,” National Plant Board review of USDA/PPQ policies and procedures, participant on committee reviewing information of international pests, 1999.

SELECTED HONORS AND AWARDS

Garden Club of America, Contributions to Conservation, 2006

Professional Citation Award, American Public Garden Association, annual award given to an individual whose has made significant contributions to public horticulture, 2006

"Conservation Partner of the Year" awarded to rare plant program by the Bureau of Land Management and the U.S. Forest Service, 2004.

Graduate Students – Accomplishments

From 1982 until the end of 2008, 113 graduate students have completed degrees with us. This includes M.S. and Ph.D. students, as well as students earning a professional Master of Forest Resources (recently replaced with the Master of Environmental Horticulture).

Our students all pursue jobs in their fields. Several are university faculty, including one who is now a provost the Channel Island location of California State University. Others work in diverse professions, reflecting the dynamic and interdisciplinary nature of the UWBG academic program. This include:

Dr. Perry Gayaldo (1996) is in charge of the national ecological restoration program for the Environmental Protection Agency.

Scot Medbury (1990) is the President and CEO of the Brooklyn Botanical Garden.

Lisa Chen (1994) is the horticulturist for the Landscape Renovation Program at Seattle Parks and Recreation.

Jennifer Brickey (2004) is a botanist for the Bureau of Land Management in Nevada.

Tom Smarr (2001) is the Director of Horticulture for the New England Wildflower Society's Garden in the Woods

Matt Ramsey (2004) is a consultant with Envirowest Environmental Consultants in Burnaby, British Columbia.

Dr. Daniela Shebitz (2006) is an assistant professor at Kean University, New Jersey.

Current and Recent Academic Collaborators of UWBG Core Faculty

National

Bureau of Land Management

US Department of Agriculture, Agricultural Research Service

U.S. National Parks Service

U.S. Forest Service

U.S. Fish and Wildlife Service

Department of Defense

Northern Arizona University

Au Sable Institute of Environmental Studies

Plant Urban Response Network (Part of Plant Stress Initiative sponsored by Worldwide Universities Network)

Climate Change Monitoring Gardens (Led by Chicago Botanic Garden, and UWBG is one of the five pilot sites for this project funded by USBG)

The Nature Conservancy

Nutrient Network Global Research Cooperative

State

Department of Natural Resources

Natural Heritage Program (Department of Natural Resources)

Department of Fish and Wildlife

State Parks and Recreation

Washington Native Plant Society

Pend Oreille County PUD

Local

King County Department of Ecology

Green Seattle Partnership (Cascade Land Conservancy, Seattle Parks and Recreation, and Seattle Public Utilities)

Magnuson Park Community Gardens

Mountaineers

UW Restoration Ecology Network Community Partners, 2000 to now

Evergreen School, Shoreline

Seattle Parks Department

Rita Moore (landowner)

Jeff Lane (landowner)

Earth Sanctuary, Whidbey Island

City of Redmond Parks Department

City of Bothell

Islandwood

The Nature Consortium

Snohomish County

Friends of Hylebos

Tacoma Community College

Snoqualmie Tribe

City of Shoreline

Greg Peterson (landowner)

King County Parks

Waterford Park Homeowners Association

Tacoma Power

City of Woodinville

King Conservation District

Port of Seattle

Pierce College, Fort Steilacoom

City of Kirkland

Friends of Ravenna Ravine

Matt and Christy West (landowners)

Partnerships

From the beginning, the Arboretum, Center for Urban Horticulture, and now the University of Washington Botanic Gardens have thrived due to community support and partnerships with community organizations. For the purposes of this document, partners are defined as "organizations that UW Botanic Gardens works with collaboratively on an on-going basis".

As of the time of this writing (12-15-08), partners include the 39 groups listed below, ranging from international organizations to local horticultural societies.

- American Society of Botanical Artists – Pacific Northwest Chapter
- Arboretum Foundation
- Burke Museum
- International Society of Arboriculture
- Master Gardener Foundation of King County
- Northwest Horticultural Society
- Seattle Audubon Society
- Seattle Art Museum
- Student Conservation Association
- Society of Ecological Restoration (SER)
- The Seattle Public Library
- University of Washington GEAR UP
- University of Washington Libraries
- Washington Native Plant Society
- Washington State University Cooper Extension, King County

Horticultural Groups:

- African Violet Society
- Boone Bonsai Study Group
- Cascade Cactus & Succulent Society
- Gardner Bonsai
- Great Plant Picks
- Hardy Fern Foundation
- King County Iris Society
- Master Gardener Foundation of King County
- Northwest Fuchsia Society
- Northwest Orchid Society
- Pacific Northwest Chapter of the American Bamboo Society
- Pacific Northwest Palm and Exotic Plant Society
- Plant Amnesty
- Puget Sound Beekeepers
- Puget Sound Bonsai Association
- Puget Sound Mycological Society
- Rock Garden Society
- Seattle Garden Club
- Seattle Rhododendron Society
- Seattle Rose Society
- Seattle Tree Fruit Society

- Seattle Youth Garden Works
- Washington Butterfly Association
- Washington Ornithological Society
- Wild Steelhead Coalition

REPORT ON THE CENTER FOR URBAN HORTICULTURE, AFFILIATED PROGRAMS & FACILITIES

Prepared By

PROFESSOR LOVEDAY CONQUEST, CHAIR

MS. DEBORAH ANDREWS
MR. ROD BAILEY
MS. STACEY HARRIS
PROFESSOR LINDA CHALKER-SCOTT
PROFESSOR ROBERT EDMONDS
MS. DOROTHY RAEDEKE
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February 16, 2000

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I. Executive Summary

The world is becoming increasingly urbanized. At the beginning of the 21st century, the University of Washington's College of Forest Resources (CFR) is poised to take a leadership role in the area of forest and landscape management in this urbanizing environment. An integral part of this role is the Center for Urban Horticulture (CUH), along with its associated academic program, Environmental Horticulture and Urban Forestry (EHUF), and the Washington Park Arboretum (WPA). Unfortunately, CUH is currently not in a strong position to do this, with a vacant Director's position, many vacant staff positions, and a small faculty group; only 3 of the original 6 authorized positions now exist. In spite of this, CUH programs are in great demand: outreach programs are well subscribed, graduate and undergraduate programs are growing, and outside community and industry support is strong. The review committee has analyzed the current problems with CUH and relationships with CFR and has made a number of strong recommendations to remedy the situation so that the great potential of CUH and CFR can be fulfilled.

This report is organized around the following sections: I. Executive Summary, II. The Review Process, III. History of CUH, IV. CUH/EHUF Potential for the College, V. Community Leadership (including outreach, public service and industry relations), VI. Academic Programs, VII. Relations between CUH and WPA, VIII. Relationships with Other UW Entities, IX. Organizational Structure, and X. Recommendations. (An Appendix contains detailed attachments.) Highlights of each section are given below.

The Review Process - In September 1999, Dean David Thorud of the College of Forest Resources (CFR) appointed an eight member committee consisting of three faculty, three outside representatives, and two students to conduct a review of the Center for Urban Horticulture (CUH). The committee met from October 1999 to February 2000 to interview and/or take statements from CUH and Washington Park Arboretum (WPA) staff and affiliated faculty, other faculty from CFR and the university, current and former students, and representatives from the horticulture and environmental restoration industry

History of CUH - CUH, which includes the WPA, was established in 1980 under the Provost's Office and became a division of CFR in 1988. The Center is dedicated to research, teaching, and public service concerning the selection, management, and role of plants and of ecosystems in urban landscapes. Initially, CUH was developed around outreach and graduate programs; an undergraduate major was added in 1991. In 1997, the CUH division was disbanded, and today faculty are in the Division of Ecosystem Sciences, one of two CFR academic units; they are responsible for undergraduate and graduate instruction in EHUF. Center staff answer to a Director (position currently vacant) who reports to the CFR Dean. Until 1992, the CUH director also had the additional title and responsibility of Director of Arboreta; at that time, a CUH faculty member was appointed Director of WPA. CUH manages the WPA, the Union Bay central site, the Elisabeth C. Miller Horticultural Library, the Hyde Hortorium (the horticultural herbarium), the Douglas Research Conservatory, the Union Bay Natural Area (UBNA), research laboratories in Merrill Hall, conference facilities and offices in Merrill Hall, Isaacson Hall, Northwest Horticultural Society Hall, and the Graham Visitor Center at WPA. WSU's Cooperative Extension office is also located in Merrill Hall.

CUH/EHUF Potential for the College - Both CUH and CFR have great potential. Forestry will continue to be a large industry in Washington in the 21st century; the landscape and nursery businesses will be even larger. The Center is poised at the cutting edge regarding the future of horticultural research. With appropriate support from the College, CUH/EHUF is in a position to provide research for a vast, under recognized constituency. With proper funding and management, it is a valuable resource to the College and to the University.

Community Leadership - CUH plays a significant role in community leadership and public outreach. The Center, including the Washington Park Arboretum (WPA), annually totals the second highest public contact hours in the University. Industry relationships are strong, but could be improved. In particular there is not enough interchange of ideas and input to the program from industry.

Academic Programs - Because of strong student interest, academic programs have been expanding. However, there are only 3 tenure track faculty (2 full time and 1 part time teaching faculty) to handle the entire EHUF program, including supervision of the majority of graduate students. There are also three research faculty. Both the undergraduate and graduate programs are active. Although small, EHUF is the only program in the College whose undergraduate numbers are increasing; additionally, students from many departments and Colleges across campus take EHUF courses. Undergraduates expressed the need for more classes, while recognizing that faculty numbers are small. Graduate students are generally satisfied with faculty guidance; they expressed some concern about the rigor and quality in the graduate program. They were also concerned about the lack of support for doing research at CUH, especially the cost center arrangement. Most graduate students come to the EHUF program for specific faculty associations, but have no concept of the Center itself. Graduate students have a tendency to divide themselves into two "camps", horticulture or restoration. A new cooperative attitude is needed that could be fostered by a new director.

CUH/WPA Relations – The relationship between CUH and WPA is unclear; the administrative chain does not function well. Both sites are experiencing staffing problems. Staff vacancies at both sites need to be filled if the potential of WPA and CUH are to be fulfilled, particularly the curator and outreach education positions. The role of WPA in the University is not clear; it is perceived as an "attractive nuisance" to the University. WPA needs to be reviewed.

Relationships with other UW entities - Over the years CUH has built strong relationships with Botany, Landscape Architecture and (recently) UW Bothell and Tacoma through the three campus Restoration Ecology network. However, lack of leadership at CUH has been felt over the last 5-6 years resulting in a "fuzzy" perception about CUH and its mission. Outside faculty, however, stressed that CUH is important to the university and they will continue to support CUH/EHUF.

Organizational Structure - The current organizational structure with a CUH Director and an Arboretum Director does not allow WPA and CUH to function as one unit within CFR. In addition, lines of authority between CUH and CFR administrative staff need to be clarified to make the system more efficient. Faculty need to be directly affiliated with CUH, perhaps through curatorial appointments. Despite the strong EHUF program, faculty feel a lack of connection with the Center. Because of recent administrative changes, faculty feel more like tenants than members of CUH and have become reluctant to participate in CUH outreach activities. Such activities are not rewarded in the tenure and merit process in CFR. In light of recent changes in the UW Faculty Code, the committee recommends that CFR consider a model more akin to the land grant University model for evaluating CUH faculty. Appointing a permanent CUH Director is a critical need; there was strong consensus that it should be a faculty appointment at the full professor level. Issues of staff replacement, the cost center, building rental, security issues, relationships with WSU, and alternative management models used by similar organizations (such as the Missouri Botanical garden and the Botanical Garden and Arboretum at the University of Michigan) are discussed in this section. Five management options are presented for consideration; (1) No change, (2) CUH Director as Associate Dean, (3) Moving CUH back to the Provost's Office on a temporary basis, (4) Splitting CUH and WPA, and (5) a more independent CUH and WPA. Current isolation of CUH from the rest of campus (which affects organizational issues) could be rectified by extending the Health Sciences UW/COH bus service to CUH.

Recommendations - The committee believes that UW and CFR must fully accept and embrace CUH/WPA and EHUF, with complete and visible support at all levels. This factor appears to be the key to unlocking the full potential of CUH, WPA, and EHUF; the committee's recommendations reflect this. If CFR is unable or unwilling to support CUH/EHUF, it is recommended that Option 3 above be followed. Thus, the recommendations to CFR and UW are:

1. Restore state-line faculty positions (6 full-time, 1 director) per original agreement between CUH, CFR, and the Provost's office.

2. Conduct a national search for a new CUH Director, who should be a senior faculty member.

3. Devise a more appropriate model for evaluating and rewarding EHUF faculty

4. Increase the opportunities for EHUF students and other UW community members including extending UW/COH bus services to CUH.

5. Replace staffing (particularly the curator and outreach education positions) and increase the operating efficiency at CUH.

6. Improve relationships with external constituents.

7. The Washington Park Arboretum should undergo a similar review process.

Details on these recommendations are found in Section X.

II. Summary of Process

The Review Committee was comprised of the following individuals: Prof. Loveday Conquest, Fisheries (chair); Profs. Robert Edmonds and Linda Chalker-Scott, College of Forest Resources (CFR); Dorothy Raedeke, Raedeke Associates, Inc., a CFR alumna and principal of an ecological consulting company; Deborah Andrews, Executive Director, Arboretum Foundation; Rod Bailey, retired president of Evergreen Services Corporation, representing the regional horticulture industry and its trade associations; Christine Scannell, CFR graduate student; and Stacey Harris, CFR undergraduate. The committee met between late October 1999 and early February 2000. The committee interviewed and took written statements from individuals with various relationships with the Center, including faculty from within and outside CFR, graduate students and undergraduates from the EHUF program, CUH and Arboretum staff, current and former administrators, and people from the horticulture industry.

The official charge to the committee from CFR Dean David Thorud is included in an attached letter. Repeated here are the general questions guided the review:

1. Is the current mission of the Center relevant to contemporary University and societal needs?
2. Are the University functions of education, research, service, and outreach well defined within the Center's mission?
3. Is the substantive focus of the teaching, research, service and outreach functions well articulated, with the relationship of Center programs to the College of Forest Resources clearly defined?
4. Is the Center appropriately organized to perform its functions?
5. Is the existing model the most appropriate management design for the Center?
6. In seeking a new Center director, what background qualifications are desired, and should the appointment be a professional or faculty appointment?

At the 10/25/99 meeting with the review committee, Dean Thorud also asked the committee to consider the following:

7. Examine two components of the mission: (1) the mission statement itself within the context of the facilities, the field, the location and the region and (2) the balance of activities within the mission statement. Specific questions are: Do the current activities of the Center address its mission? Given its geographical and academic setting, is the mission of the Center appropriate to meet the needs of today and the next decade? What constitutes the science of Urban Horticulture and do the Center's mission and its academic and public programs appropriately/adequately address this unique field? Do all of the members of the Center as well as its stakeholders share the same vision for the Center? Are the three parts of the mission equally addressed and valued? Does the Center have the facilities, staff and faculty to adequately accomplish its mission?
8. Given the limited resources of the University and the College of Forest resources, how might the Center best direct its activities and growth?
9. Which linkages to the College, campus and community are functioning well, which are not? Are there opportunities for improved internal and external administration of the Center? In what ways does the College of Forest Resources support and not support the Center?
10. What is the appropriate model for the Center (e.g., a museum or a university)?

III. History of CUH

Chronology/Overview

The Center for Urban Horticulture (CUH), established in 1980, is the first and largest institution of its kind in the world (Thorud, 1999). The Center developed in response to strong community interest and the vision of former Provost George Beckman. Under the direction of Professor Harold Tukey, it developed a strong community service and research profile. Administratively, the Center was first linked to the Provost's office with faculty positions in the College of Forest Resources (CFR). The Center became a division of CFR in 1988. In 1991, an undergraduate major in Urban Forestry was added to the existing graduate program in Urban Horticulture. Following Dr. Tukey's retirement in 1992, Dr. Clement Hamilton served as Director until 1999. Today, faculty are in the Division of Ecosystem Sciences, one of two CFR academic units, while Center staff answer to a (faculty) Director who reports to the Dean. The faculty are responsible for undergraduate and graduate instruction in Environmental Horticulture and Urban Forestry (EHUF). The Center, including the Washington Park Arboretum (WPA), annually totals the second highest public contact hours in the University, offering 300 hours in adult education and public outreach programs in 1999.

Mission and Facilities

The Center for Urban Horticulture is dedicated to research, teaching, and public service concerning the selection, management, and role of plants and of ecosystems in urban landscapes. As one part of this mission, the Center manages the 230 acre WPA, the Center's 10-acre Union Bay site, the Elisabeth C. Miller Horticultural Library (not officially linked to the University library system), the Hyde Hortorium (the horticultural herbarium), the Douglas Research Conservatory and two-acre nursery area, the Union Bay Natural Area (UBNA), research laboratories in Merrill Hall, conference facilities and offices in Merrill Hall, Isaacson Hall, Northwest Horticultural Society Hall, and the Graham Visitor Center at WPA. An integral part of the public service mission of the Center is Washington State University's (WSU) Cooperative Extension office in Merrill Hall.

In the Center's first ten years research facilities, attractive buildings and grounds and a unique library were developed, all in an ecologically sensitive area bordering Laurelhurst and Lake Washington in the region now known as UBNA. The development of this infrastructure is seen as a model at both the national and international levels (Nowell et al., 1991). While the facilities are attractive and the site mission-appropriate, the peripheral location of the Center has resulted in practical and intellectual isolation from other University programs.

Washington Park Arboretum

The University is responsible for the curation and care of WPA's botanical collection, with administrative and fiscal oversight through the Center. Until 1992, the CUH director also had the additional title and responsibility of Director of Arboreta; in 1992 a CUH faculty member was appointed Director of WPA. The leadership provided by the University for WPA and the University's relationship with The Arboretum Foundation (the private support group) and the City of Seattle (property owners and managers of turf, trails and streets) has been inconsistent and at times inadequate. Though the working relationship and effectiveness of WPA's management partners has greatly improved, as indicated in 1997 when WPA's new Master Plan was released, the University's response to WPA needs and the scope of its future involvement remain uncertain.

IV. CUH/EHUF Potential for the College of Forest Resources

The College of Forest Resources is in a position to lead natural resource management from 19th century models into the 21st century. In 1998, USFS Chief Michael Dombeck made the statement that twenty to forty years from now, the public will care about open space, wilderness, naturalness and the quality of life in the front and backyard of their homes. Such environmental concerns fall under the umbrella of urban and community forestry (Campanini and Cates, 1999). Thus, the College of Forest Resources can use the potential contained in the Center for Urban Horticulture to lead plant sciences education and research into the center of modern people's lives. The Center's relevance extends beyond city borders to virtually every disturbed system: urban, rural, and wild. By educating the future leaders of plant sciences and managers of landscapes in disturbed systems, by performing research on plants in the urban environment, and by effectively communicating the results of this research to the public, CUH can be a primary and essential element of the future College of Forest Resources in terms of teaching, research, and outreach.

Teaching

The College needs to continue to build a reputation for innovative and interdisciplinary programs, teaching methods, and education that helps it to attract students. Despite rather limited visibility on the University campus, the Center has developed a reputation for shepherding undergraduate programs that appeal to a wide range of students. EHUF has recently revised its undergraduate program to increase its flexibility and attractiveness to students, and its numbers are increasing. Similarly, the MS/PhD and MFR graduate programs in EHUF are relevant, flexible curricula and are second largest in the College behind Ecosystem Sciences. EHUF provides for a high level of interdisciplinary opportunity with students from Botany, Program on the Environment, Landscape Architecture, Conservation Biology and Urban Planning.

Research

For the last several years, the EHUF faculty research focus has been on restoration ecology. This is currently expanding to include landscape management and other aspects of conservation in human-altered environments. The direction in research parallels the increased awareness and concern that the public has expressed in the conservation of natural resources. There is growing activity and interest in many aspects of the horticultural and restoration industries, including gardening as one of the top three outdoor leisure activities. According to Carkner and Moore (1998), landscape and nursery businesses employ 55,000 people and comprise an $842 million dollar industry in Washington State; this may surpass the state's forestry and fishing industries combined. As long as forests are managed for the production of wood and paper products, traditional issues related to the management of trees, habitats and species within will continue. At the same time, urban growth issues relative to the continual development of the forest fringe demand different types of expertise. The Center is therefore poised to contribute to an ever-growing body of knowledge in the many aspects of human-altered environments. With cooperation and support from the College, CUH/EHUF will be in a position to advance research and become a major contributor to urban landscape issues.

Outreach

Every biennium, the State Legislature looks to the University to justify its funding through relevance to the entire state population. President McCormick and University administration place a high priority on the University role in the outside community. In this world of decreasing resources, the public demands more of the institutions for which it pays. University units are responsible to deliver the results of their research and to provide transfer of that knowledge. As a community leader, the University is the source of advances in knowledge, and it should actively use that knowledge to help the community make educated and informed decisions.

The Center serves an important role within the University in both education and research; it also

excels in outreach. CUH has affiliations with most of the major horticultural organizations in the Northwest and houses WSU Cooperative Extension, a major vehicle for public education. CUH responds to citizen interest with classes and symposiums, such as the ProHort (professional education) seminars that meet ongoing professional needs.

The Center for Urban Horticulture serves as the organizational link between the education/scientific purpose of the University and WPA. The Center, through WPA and Miller Horticultural Library, has the second highest number of public contact hours after the University Medical Center. Miller Library is an excellent horticultural library well used by the landscape and nursery industry, by the Seattle community and by the neighborhood in which it is located. The Center has a generally positive image in the community and is supported as an institution dedicated to the establishment and growth of plants in human-altered environments.

Opportunities

The fact that CUH has no permanent Director, Outreach Coordinator, Administrative Assistant, Center Receptionist, Arboretum Curator, and very few EHUF faculty may be viewed as an opportunity. CFR can step up to the challenge of filling these positions in recognition of the vital role that CUH and its associated programs play in the University and outside community. The committee notes that the Ecosystem Sciences faculty (with a single dissenting vote) recently voted to support EHUF's request for a faculty line over and above any other CFR faculty requests. With similar support and advocacy from the College and the University, with faculty numbers that comprise a critical mass, with proper staffing levels, CUH can help the College and University meet many new challenges. It is incumbent upon the College and the University not to allow the potential contained in the Center for Urban Horticulture and the EHUF undergraduate and graduate programs to slip away.

V. Community Leadership

Outreach and Public Service

Public outreach is one of the three areas of focus at the CUH. The current mission statement states that "the CUH is dedicated to research, teaching, and public service concerning the selection, management, and role of plants and of ecosystems in urban landscapes." CUH's outreach program is geared toward meeting the public's need for horticultural information through continuing education classes, lectures, professional seminars (ProHort), WPA tours, and school, youth, and family programs. These are held at both CUH and WPA facilities. In 1988, approximately 15,000 people participated in the various outreach programs offered at CUH (University of Washington 1989). Ten years later, in 1998/1999, a conservative estimate of over 30,000 people attended these programs (Eric Gay, MFR project, 1999).

Currently, an Acting Education Coordinator oversees adult professional programs and reports to the Director of CUH. The Coordinator is assisted by two staff and approximately ten volunteers. Concurrently, the outreach programs offered to schools, youth, and families, such as public tours, are managed by an Education Coordinator located at WPA; this person reports to the Director of WPA.

CUH's facilities, meeting halls and classrooms can be rented by various groups for horticultural and other functions. The funds collected from these functions, along with state dollars, support the self-sustaining public outreach portion of the Center.

Issues and Concerns

Since its beginning, the outreach program has been successful. Many people associated with CUH, both inside and outside the university community, commented on its importance. CUH's outreach program is working; the key is to find what will make it more cohesive relative to its overall organization structure, management, and the use of resources. The committee heard the following issues and concerns:

- The position of CUH Director should be filled permanently.
- The position of Education Coordinator at CUH is critical to the continuing success of the program and needs to be filled permanently.
- Coordination between CUH and WPA public outreach programs needs improvement.
- There are two Education Coordinators managing the outreach program; this management structure is reported to be cumbersome and inefficient (see also section VII). An Education Director (a new position) could oversee the entire program, thus increasing effectiveness and efficiency.
- As the inclusion of public outreach is a focus of the CUH mission, and since faculty from CUH and CFR participate in the program, faculty contributions should be properly acknowledged, supported, and rewarded, especially during the promotion, merit and tenure (PMT) process. Not acknowledging or rewarding participating faculty for their contributions has fostered a sentiment of disrespect. (Rectifying this is addressed in IX. Organizational Structure.)

Horticultural Industry Relations

A large number of industry associations define the outside community with whom strong relationships could be established. Members from several associations were contacted during this review:

National/Regional	International Society of Arboriculture (ISA)
Local/Regional	Washington State Nursery & Landscape Association (WSNLA) Washington Association of Landscape Professionals (WALP) ISA Northwest (ISA) Regional Office Portland Northwest Parks and Recreation Association (NPRA) Associated Women in Landscaping (AWL) Northwest Flower and Garden Show

When CUH was originally established, there was eager anticipation that relationships could be established to focus on (1) identification of research projects directed at horticultural industry problems and needs, (2) a source of trained graduates to meet the rapidly growing needs for professionals in industry, and (3) use of the outreach and continuing education programs and seminars for training and education of employees currently working in the industry. Industry is accustomed to establishing relationships nationally and locally with academic horticultural programs through interactions with faculty as well as membership on industry advisory boards.

Industry representatives contacted in this review generally acknowledge that the outreach activities have been a strong, successful part of CUH, particularly ProHort seminars, seminars focusing on industry and horticultural issues, interactions with the Northwest Flower and Garden Show, and faculty- or industry-led WPA tours and activities. The industry views these relationships as very important. However, during the course of the interviews with industry representatives several concerns emerged:

1. There is not enough interchange of ideas and input to the program from industry. For example, an advisory board formed several years ago has seldom met. Industry input on training, curriculum, research and program needs has seldom, if ever, been sought. Thus, an active advisory board needs to be re-established.
2. There has been insufficient articulation of program goals and character to the industry for it to know what is really at EHUF/CUH. The academic and research programs are not well communicated to the industry.
3. There is an insufficient number of faculty to interact with industry, and such interactions do not seem to be respected within the University. A number of key faculty members have left and have not been replaced. In the industry's eyes, the program at CUH/EHUF does not appear to have been fully embraced and supported by CFR since its absorption into the College. EHUF/CUH began with lines for 6 full-time, teaching faculty positions and a Director; there are now only three. There is simply not enough time available for existing faculty to function in this outreach arena.
4. To improve industry relationships, there needs to be adequate recognition of staff and faculty involvement in such activities. The opportunity for increased involvement between applied sciences and industry should be recognized as a crucial University role.
5. Industry is concerned that the position of CUH Outreach Coordinator be permanently filled on a timely basis. This aspect of the CUH program is too important to let languish.
6. The Center needs a strong Director with status in the University structure to accomplish what needs to be done or CUH/EHUF will never reach its full potential.

There is substantial interest in seeing the undergraduate program expand as rapidly as possible to fill the demand for qualified graduates in the industry. One contact stated, “There is no other program in the United States that adequately addresses both the science and practice in the fields of horticulture, arboriculture and landscape management; this program is unique and valuable in that regard” (Jim Clark pers. comm. 12/17/99).

VI. Academic Programs

CUH provides office and research space to three state-line faculty members (Dr. Linda Chalker-Scott, Dr. Kern Ewing, and Dr. John Wott) and three research faculty members (Dr. Sarah Reichard, Dr. Al Wagar, and Dr. Kathy Wolf). Because Dr. Wott has primary responsibility as Director of WPA, the bulk of the teaching in the undergraduate and graduate programs is covered by Drs. Chalker-Scott and Ewing. Although CUH does not administer these programs nor evaluate the faculty, much of the teaching and research done with students is conducted at CUH. We therefore have included the academic programs in our review.

Undergraduate Program

In 1998 the undergraduate curriculum group completely revised and renamed the undergraduate major; these changes were accepted by the College of Forest Resources (CFR) and implemented in September 1999. The revised major, Environmental Horticulture and Urban Forestry (EHUF), has been successful in attracting new students, according to CFR's Student Services Office. The revised major has three clearly defined curricular options - Environmental Horticulture, Public Horticulture, and Urban Forestry – that have more flexible requirements than the previous major (Urban Forestry).

The EHUF major is interdisciplinary in nature as it includes courses from areas such as Engineering, Human Resource Management, Landscape Architecture, Law, Museum Studies in addition to areas within CFR. An important part of the curriculum is student internships, which continue to evolve with various private companies and with governmental agencies; such relationships have also developed into research and leadership opportunities. With regard to research opportunities for undergraduates, EHUF has also had three Mary Gates Scholars in the last two years. Interest continues to grow in this major, which, although currently small, is the only CFR undergraduate curriculum whose enrollment has not dropped in the last five years.

Courses offered through the EHUF major also attract students outside the major. A large proportion of students in these courses includes majors from Landscape Architecture, Botany, Biology, Engineering, and Urban Planning. Regrettably, few students from the other CFR majors enroll in these classes. The committee surmises that this is partly due to the off-campus location of CUH and partly due to other parts of CFR viewing EHUF courses as not being relevant to their curricula.

Industry interest in the EHUF major is very high. Graduates from the EHUF program find relevant positions in the public and private sectors. Careers include landscape management, parks and recreation land supervision, public garden management, habitat restoration, and environmental policy and regulation.

Relationship with the Undergraduate Program on the Environment (PoE)

Approximately 10% of PoE's undergraduates have taken EHUF classes. EHUF currently has several classes listed in the PoE Ecology and Conservation matrix: ten courses in the Natural Science Domain, and one each in the Social Science and Law/Policy/Management Domains. PoE looks forward to its majors doing senior capstone courses through EHUF/CUH. PoE "anticipates continuing to educate students about options available through both the Center for Urban Horticulture and the curriculum of Environmental Horticulture and Urban Forestry. As the number of students enrolled in the Program on the Environment increases, [we] anticipate that the number of students selecting EHUF courses as a component of their curriculum will increase as well." (R. Vaughn, PoE advisor, pers. comm. 1/31/00)

Undergraduate Perspectives

The committee heard from four undergraduates who are currently in the EHUF program. The major themes of the undergraduates' responses included faculty, the curriculum, and relationships within the Center.

According to these students, previously it was difficult to access information about the Center through the University of Washington website. Apparently, little written information was available to

undergraduates that described the EHUF program in sufficient detail, and it was mainly by word of mouth that many students were able to learn what EHUF offered. This situation appears to have been rectified with the assistance of Michelle Trudeau in CFR Student Services.

Currently, EHUF offers classes that are hands-on, service-oriented, group learning experiences. Increased linkage of classes with other departments could benefit undergraduates. For example, one student mentioned that EHUF jointly offers one plant identification class with Botany, but others in the Botany Department could be similarly linked. Students also suggested adding courses in propagation and conservation of rare plants, restoration analysis, street tree management, advanced plant management skills, and a current issues seminar.

The undergraduates who responded to the committee all mentioned the need for more classes, and also realized the need for more faculty members. One student specifically acknowledged the pressure and time constraints that faculty members are faced with when attempting to add new classes. Part of the appeal of EHUF courses is the small class size; however, without more faculty, a growing program would not be able to maintain such a luxury for undergraduates.

The undergraduates claimed that their relationships to the faculty of the center were good; one student mentioned a supportive atmosphere for undergraduates in the program. It was noted that more faculty and student relationships could be developed through increasing transportation options between the main campus and CUH.

Research opportunities, although they do exist, are often difficult to establish for several reasons. The lack of faculty to mentor students in research projects is an obvious problem. Second, the cost center at the greenhouse and nursery discourages all but the most persistent students from pursuing research ideas. Insufficient greenhouse management, both in terms of care and cooperation, are also impediments to student projects. In addition, there is no secure outside space for undergraduates to do their research.

A final concern is the appearance of CUH grounds. One student claimed the gardens and grounds outside the Center are not maintained properly. As CUH is perceived as being a leading example of innovative greenspace management, it is crucial to its credibility that its landscape management be held to the highest standards.

Graduate Program

The graduate program in EHUF has existed since CUH began and is an active program with the second highest number of students in the College. PhD, MS, and MFR degrees are offered in areas that roughly correspond to the three options in the undergraduate program. Faculty are currently reviewing the curriculum, which will probably be revised to include a slightly more structured approach to the degree programs. At the same time, the differences between the MS and MFR degrees will be clarified.

Graduates from the EHUF MFR/MS/PhD program have been successful in establishing themselves in a number of different arenas. Graduates are in management positions throughout the region's municipalities as urban foresters in Tacoma and Seattle Parks, as well as leaders in plant exploration and the nursery trade (Table 1).

Graduate Perspectives

The students have high regard for the EHUF faculty. Most graduate students come to the EHUF program for specific faculty associations, but have no concept of the Center itself. The close association with the entire faculty, beyond an individual advisor, is one of the strongest points of the program. Prior to Dr. Chalker-Scott's arrival, only Dr. Ewing (who specializes in ecological restoration) was accepting graduate students into a research program. Hiring Dr. Chalker-Scott has broadened the expertise within EHUF/CUH. Her work in landscape plant ecophysiology (in part, the science of growing and maintaining plants in human-altered environments) contributes to the mission of the Center; such work provides a scientific link to horticulturists and other constituents in the region. Dr. Reichard (a research faculty member) contributes to the success of the graduate research program with her interest in rare plant conservation and invasive species. The students benefit regularly from contact with all three faculty members.

In addition to traditional coursework offered through EHUF and the rest of CFR, students in the graduate program are encouraged to explore offerings across the University, especially those in Business, Landscape Architecture, and Museum Studies. The committee recognizes that some students view the flexible nature of the program as lacking in structure or focus. The committee recognizes that this is not necessarily a shortcoming of the program itself; it does recognize the need to accept students that thrive in such an interdisciplinary program.

Some students have been confused by the apparent disconnect that exists between CUH's mission and the EHUF program. The Center's stated mission is strongly oriented towards horticulture; yet until recently the research component of EHUF focused largely on restoration and ecology. This duality between the public image of the Center (public gardens) and the realities of the recent research focus is confusing and has been perceived by some students to be misleading. New courses offered by Dr. Chalker-Scott in plant stress physiology, Drs. Wolf and Wagar in urban forest management, and Dr. Wott in public garden administration have begun to address the discrepancy between the program as perceived and the offerings actually provided. It is important that these programs be nurtured by the College and communicated effectively to industry and the larger community, especially if EHUF/CUH is to maintain its national reputation as a leader in horticultural education.

Student relationships with the staff of the Center have been beneficial to both. Students have enjoyed 'mentor' relationships with staff, and several have become actively involved in the outreach component of the Center. An area of concern is the difficulty students have gaining access to research facilities at the Center. What would seem like a natural relationship between the Center and students in EHUF has been slow to develop. Some students feel that CUH/EHUF/CFR do not provide enough financial support for research. The cost center model is a financial barrier that discourages student use of the facilities. Despite the charges for the facilities, students do not receive basic plant care (e.g., watering). Similar issues have discouraged more than one student from using the facilities at CUH for research.

Students point out that leadership of the Center needs to be stronger; recent leadership failed to pull diverse groups into a cohesive unit. Additionally, in the past, students generally divided themselves into two 'camps' of horticulture vs. restoration. A new cooperative attitude in a strong Center Director can effectively communicate the focus of the Center while encouraging diversity. A strong leader can also help to cultivate the relationships that have been neglected. Departmental relationships students would like to see strengthened include those with Botany, Fisheries, Landscape Architecture, Museology, Public Affairs, and Urban Development and Planning.

The primary area of concern for graduate students with regard to the program appears to be the level of academic rigor. Graduate courses are not offered in any of the focus areas of graduate students. Additionally, some students have expressed concern over the range of quality of graduate students within EHUF. Because the graduate experience in EHUF requires students to be well-prepared and self-motivated, students who have a poor definition of their goals will be less successful. Students expressed general consensus in a desire for faculty to select quality students and hold them to high standards. Students perceive that the entire program suffers from lack of faculty: the two full-time faculty and one part time faculty member associated with the EHUF program are stretched too thin; they have too many responsibilities, students, classes, and conflicting expectations from others. In the students' eyes, EHUF/CUH and the associated programs need more resources in order to fulfill their potential.

VII. Relations Between CUH and the Washington Park Arboretum (WPA)

The management relationship between the Washington Park Arboretum and the University of Washington's College of Forest Resources is set up organizationally through the Center for Urban Horticulture. The committee heard numerous remarks regarding the unclear nature of this relationship.

Direction/Management

Both staff and volunteers need clarification of the relationship between WPA and CUH. WPA is considered to be an integral part of the Center by a number of people, but by no means everyone. Surprise was expressed that WPA did not merit greater mention in the charge letter to the committee.

An unclear organization structure/relationship currently exists between the two sites; chains of reporting do not function well. The current structure results in mixed communications, uncertainty among staff members and ineffectual use of resources, including volunteers. There is insufficient or inconsistent staff/faculty support and evaluation. Part of the problem is attributed to having a Director at each site. The relationship between the two Directors should be clarified. Once accomplished, the same needs to be done for the other staff and faculty at each site.

Physical isolation from the College and between the two sites contributes to redundancy of tasks. The current structure results in a lack of efficiency, often ending in the delay or failure of desired outcomes. When reporting lines and job descriptions are unclear, and when there is not a clear support for the unit, then staff are left feeling adrift.

Staff

Both sites are currently experiencing staffing problems. Multiple positions are vacant at WPA and at the Center. Staff are frustrated because leadership has not been provided and, therefore, they feel they are not able to do the job that they know they can do.

A specific instance is the loss of the Curator at WPA. It is generally felt that both sites functioned best with a Curator. The result of this position not being filled has caused the loss of the common thread between the two sites. Several staff reported that their jobs have changed since the loss of the Curator and that curation duties have been split between different existing personnel. A curatorial committee was formed after the position was vacated, but apparently meets only to address WPA issues. WPA is suffering from the lack of a Curator with public garden management and plant knowledge.

There appears to be no clear definition of roles, either for the two Directors or for the staff members that have responsibilities at both sites. Many feel that if the two sites are indeed to function as one unit, or even to have a fully functional relationship, there should be one Director who has a comprehensive view of the entire program.

Management of the education program follows similar lines. There are two Education Coordinators (one permanent position currently vacant): one sited at CUH and the other at WPA. One focuses on adult and professional education, the other on youth programs; one reports to the CUH Director, the other to the WPA Director. A clear, comprehensive vision for the education program does not result from such organizational structuring, nor do resources get used effectively.

Arboretum Utilization and Role

WPA serves important needs of education, research and outreach, but is underutilized as a resource for both academic and continuing education. Current WPA education programs are not using the collections sufficiently. While a woody plant collection as important as WPA's is not a necessity for educating children, it does serve as a tool for academic, professional and adult education.

Both EHUF/CUH and WPA staff/faculty feel the mission of the Center is misunderstood by CFR. If the staff /faculty at CUH/EHUF feel disconnected from CFR, the feeling is even stronger at WPA. Being yet one more layer removed results in under-use of an important resource, one with international recognition and importance.

WPA appears to be viewed as an "attractive nuisance" by the University (Iain Robertson, pers. comm., 1/5/00). The value of WPA and its needs are overlooked, resulting in an Arboretum that is undersupported, underdeveloped and undervalued.

During the interview/fact finding process a number of recurring themes emerged:

- The mission of the Center is even more important now than when it was first created. It is feared that the vision for the Center is gone.
- The loss of the position of WPA Curator has had serious implication at both sites.
- Incredible potential exists for the Center and WPA.
- It is time for a complete review of the WPA.

VIII. Relationships with other UW Entities

Interactions with Botany

There was unanimous agreement among the Botany faculty who met with the committee that CUH is a vitally important part of the University of Washington but "has never received the support it has deserved from the College." To amplify this statement, Botany faculty noted that too much teaching is required of the EHUF faculty, which decreases their abilities to conduct research or to interact with other units on campus (such as Botany). Without assigning blame, the Botany faculty believes that more effort needs to be made by both groups to enhance faculty interactions. Currently, interactions are generally limited to serving on graduate student committees. EHUF is recognized as being integral to the Botany program; the Botany Chair notes that "urban horticulture is *the* most important thing happening right now (in terms of whole plant science)."

A lack of leadership at CUH has been felt for the last 5-6 years by Botany faculty, resulting in a "fuzzy" perception of CUH and its mission. Botany faculty agree that the Director of CUH needs to be a faculty member and that a national search must be conducted. However, the teaching demands of this Director must be minimal to allow more time to be spent in supervising and promoting activities at CUH. The Botany Chair also feels that the Director needs to have the authority to supervise faculty and that CUH should therefore be its own unit. Furthermore, the Botany Chair states that a minimum of four state-funded faculty are necessary to run EHUF programs, but an optimal number would be closer to eight state-funded lines.

An additional comment heard from the Botany faculty testimony focused on the “cost centering” of the greenhouse. This policy has routinely discouraged Botany faculty and graduate students from undertaking projects at CUH. This practice decreases the already infrequent collaborations between Botany and CUH/EHUF researchers.

The Botany faculty was in agreement that 1) more visibility is needed for CUH and the EHUF program; 2) "UW could gain a lot by keeping CUH alive and well - it has great potential"; and 3) they support CUH, its programs, and its faculty, without reservation.

Interactions with Landscape Architecture

The Landscape Architecture (LA) program has been associated with CUH since its inception. EHUF courses are required of LA majors, and many EHUF majors opt to take LA courses. There is evidence of increasing respect among these two very different groups. LA would like to increase these associations, especially in joint projects with several of the EHUF teaching and research faculty. There was an expressed interest in EHUF/CUH strengthening its social sciences, perhaps through Environmental Psychology. LA faculty and students recognize the increasing importance of urban environments; the Chair of LA opined that CFR needed to recognize it as well. The Chair of LA mentioned the assumption by the horticultural and green industries that CUH should be primarily addressing their “agendas”, which the LA Chair believes is incorrect. The new CUH Director needs to address this misconception.

The Chair of LA also noted that CUH was created using a land-grant university model. This model, with its defined emphases on research, teaching, and outreach, has created tension between CUH/EHUF, CFR, and UW. CFR (and UW) need to decide whether or not public outreach is important. Although unusual in a liberal arts university, the unique opportunities afforded by CUH/EHUF and its outreach programs should be embraced and publicized. Faculty associated with these programs should have a formal association with CUH and be evaluated accordingly.

The LA Chair also noted a tension between WPA and CUH due to geographic and administrative problems. It was reported that the CUH directorship has been weak and the creation of a separate WPA directorship has contributed to the tension. It is the opinion of the LA Chair that there should be a single Director of CUH and WPA. The lack of a Curator at WPA was termed “scandalous” and should be rectified. The hiring of a new Director should be via a national search and should not rely on existing faculty, who are already stretched too thin. The LA Chair suggested that, due to the complexity of the position, the Director of CUH should also be an Associate Dean of CFR.

Interactions with the UW Restoration Ecology Network (REN)

EHUF/CUH is also involved in the emerging UW Restoration Ecology Network (UW-REN, funded through the UW Tools for Transformation initiative (http://depts.washington.edu/uwren/index.htm), primarily through EHUF's Prof. Kern Ewing and Ecosystems Sciences Division Director Tom Hinckley. UW-REN is a tri-campus endeavor among UW Tacoma, UW Bothell, and UW Seattle, to provide educational outreach and research leadership in ecological restoration. Professors John Palka and Mike Wallace, co-directors of the Program on the Environment, are also part of REN; they emphasize the crucial role of Dr. Ewing in the project. The Union Bay Natural Area of CUH is listed as one of the "living laboratories" of UW-REN. The purpose of UW-REN is to promote restoration education and student research, including undergraduate research, and to develop linkages between the university and the community in regional restoration efforts. CUH/EHUF form a critical part of these linkages.

IX. Organizational Structure

Organization in the College of Forest Resources and the University

The Center for Urban Horticulture was originally placed in the Provost's Office largely because the College of Forest Resources did not have available faculty positions, while the Provost's Office did. Provost Beckman had a very strong interest in CUH and provided 6 faculty positions in addition to a Director. There was an understanding that the Provost's Office would not be the permanent home for CUH and in 1988 CUH administration was moved to CFR with some degree of independence. Faculty were originally included as non-voting members of the Biological Sciences Division and finally formed their own division of Urban Horticulture affiliated with the Center for Urban Horticulture. The last director was both Chair of the Division of Urban Horticulture and Director of CUH until 1997. With the College's reduction of academic divisions in 1997 from four divisions (Urban Horticulture, Ecosystem Science and Conservation, Forest Management and Paper Science and Engineering) to two divisions (Ecosystem Sciences and Forest Management and Engineering), EHUF faculty now report to the Chair of the Ecosystem Sciences Division, not the CUH director, and are not directly affiliated with the Center. The CUH permanent Director position is currently vacant.

The current organizational structure is shown in Figure 1. The structure is not strongly hierarchical, but the Director of WPA does report to the CUH Director. There are benefits and disadvantages to this structure. The major disadvantage is that WPA and CUH do not function as one unit, particularly with respect to staff members who have responsibilities in both locations (e.g., in the area of plant propagation). Prior to the incorporation of the Division of Urban Horticulture into the Ecosystem Sciences Division in 1997, the administrator for CUH had signing authority, was provided directly with budget data, administered the staff payroll, reimbursed petty cash purchases, and had purchasing authority. In the current structure, CUH is now managed by the College. Thus, CUH budget information is sent to the College Administrator and then moves to the CUH Administrator. There was expression, particularly from staff members, that CUH functioned more efficiently under the Provost's Office than under CFR.

The committee observed widespread feeling among the CUH/EHUF faculty and staff that CFR does not fully understand, embrace, support, nor reward people and activities crucial to the stated mission of CUH. There is a perceived history of broken promises between CFR and CUH; this perception is heightened by a recent decision by the College Strategic Planning Committee not to recommend the hiring of an additional EHUF faculty person, supporting other programmatic needs instead where faculty had recently retired (Bare, 2000).

Faculty Association with CUH

At the time of its creation, the Center for Urban Horticulture had a Director (also a faculty member) and six faculty lines. These faculty were associated with the Center, and when CUH was added to the College of Forest Resources, it maintained the distinction of being a Division within the College. Recently this has changed with the consolidation of CUH into the Division of Ecosystem Sciences. With this administrative change the faculty housed at CUH are no longer affiliated with the Center; instead, they are faculty in the Division of Ecosystem Sciences. This change has caused a great deal of confusion and sometimes tension among faculty and staff, as faculty now have no formal input into decisions that are made at CUH. Such decision-making processes might solicit input from faculty, but ultimately they are made by the CUH director and associated staff. The faculty have felt disenfranchised and more like tenants than members of CUH.

A solution to this problem would be to create formal associations between the EHUF faculty and CUH. Similar faculty associations have been formalized at the Burke Museum. Suggested titles would include CUH Ecologist, CUH Horticulturist, CUH Conservationist, CUH Taxonomist, CUH Forester, etc. Not only does this give faculty the opportunity to help guide CUH affairs, it also would help in solidifying, recognizing, and rewarding the outreach activities associated with the Center.

The dissociation of the faculty from CUH has caused faculty to be reluctant to participate in CUH outreach activities, as these are perceived to be activities of little value to the Division of Ecosystem Sciences Promotion, Merit and Tenure (PMT) committee. Previously, PMT decisions were made by the faculty of CUH and the importance of outreach activities was recognized and rewarded. CUH outreach activities will be able to benefit from faculty participation only when such undertakings are recognized and rewarded by the Division and College administration. The original CUH Management Guidelines Agreement language states, "Center Faculty approves its own membership and sets its own criteria for evaluation, as defined in the University Code" (see attachment). In light of recently passed UW Faculty Code legislation regarding PMT decisions, it would be forward-thinking of CFR and its PMT committees to review EHUF (and other CFR) faculty using a land-grant university model, such as that developed at Oregon State and used widely elsewhere.

Nature of CUH Directorship

One of the questions from Dean Thorud's charge letter to the committee is concerned with the nature of the appointment for a new Director. The committee concludes that the Director's appointment should be a faculty appointment at the level of full professor. Because the Director would need to interact/negotiate with other UW administrators, deans, chairs, and other faculty, the committee strongly feels that this needs to be a faculty appointment. As an analogy, the committee notes that Dr. Karl Hutterer, Director of the Burke Museum (which shares some issues similar to those of CUH), is a full professor of Anthropology.

The Director's duties will be multiple and varied, and will require the Director to operate in a number of complex and different arenas. S/he will have to engage in a tremendous amount of institution building; will have to decide how to manage two physical facilities (CUH and the WPA); will have to build relationships with people and organizations in the urban horticulture and environmental restoration industry; and will have to engage in a considerable amount of fund-raising. Thus, the committee recommends that the teaching expectations of the Director be minimal.

The committee notes that Urban Horticulture is no longer a division within CFR. Thus, under the present system, the Director has no divisional standing within the College, is not requested to provide input for faculty evaluations (e.g., annual merit or promotion and tenure) and may have been perceived as simply the manager of physical facilities. The complexity of this position is such that the committee recommends that the Director carry the title of Associate Dean. The Director needs a direct and formal pipeline to the dean; it is not enough to rely upon collegial personalities. The organizational connection needs to be real.

Issues of Staff Replacement

Staff levels are not adequate; several positions are open and need to be filled. Particular needs include replacement of the Continuing Education Coordinator and a Curator for WPA. The lack of a paid staff person at the reception desk is extremely frustrating for outside callers and visitors, and inexcusable for a facility with a defined and significant public component. The role of the CUH Administrator also needs to be re-evaluated. A CUH Administrator with local signing authority would relieve the administrative backlog at CUH. The committee recommends that this person work very closely with CFR administration to the extent that s/he might have part-time office space in Anderson. Final decisions would be reviewed with the CFR Administrator. Relationships among CFR, CUH and the WPA Continuing Education Programs need to be clarified.

Cost Center and Building Rental

A self-sustaining cost center was set up in 1996 for facilities use due to the lack of university support. There is a charge per square foot for facilities use, including the greenhouse, growth chambers, nursery, and grounds. Graduate students, faculty, federal and state agencies and industry are eligible for facilities use, but fees differ depending on the user. EHUF faculty have been allocated $200/month for facilities use, but this appears to be inadequate. There are currently funds in reserve in the cost center, but there is

a general feeling that the current fee structure has inhibited facilities use, particularly by graduate and undergraduate students.

The NHS Conference Hall and 3 classrooms are rented to the university and outside users. A number of organizations also rent permanent space, including the Northwest Horticulturist Society, Puget Sound Mycological Society and Seattle Garden Club. Portions of several CUH salaries are paid from rental income. Parking was initially a problem because University Parking controlled the facility and required permits. CUH now controls parking and pays the Parking Division $23,000 per year; Center staff and EHUF faculty pay a monthly fee to the University. Parking issues still exist, however, when facility rental use exceeds Center parking space and CUH staff or EFUH faculty are left without parking space. While the committee recognizes that no UW faculty or staff are guaranteed parking in any particular location, the fact that the aforementioned organizations outside the UW have offices (and therefore ongoing activities) at CUH exacerbates the parking problems for CUH staff and EHUF faculty. The needs of those persons that pay a monthly fee to park at the Center should be addressed, perhaps through reserved parking spaces.

Security Issues

The remote location of CUH has been a security problem. Bicycles, wallets and other personal items have been stolen; grounds have been vandalized; nursery specimens have been stolen and even destroyed. This problem is magnified for female staff, students and faculty who are often nervous about working after hours or on weekends. The issue of security needs to be reviewed to ensure safety for persons and property.

Relationships with Washington State University (WSU)

Since the inception of CUH there have been ongoing discussions about relationships between WSU and CUH. Discussions concerning sharing of courses and students have been conducted, but no agreements have been made. Part of the problem has been that WSU is on a semester system, while UW is on a quarter system. Thus, students would have to dedicate a whole academic year to such an exchange.

On the other hand, WSU faculty have participated in EHUF courses and two WSU faculty from Puyallup are affiliate faculty members (Rita Hummel and Ray Maleike). Dr. Hummel has helped teach EHUF 431 (Landscape Plant Selection) and Dr. Maleike taught EHUF 445 (Landscape Plant Management) for several years before the arrival of Dr. Chalker-Scott. Dr. Maleike was paid by EHUF to teach the course.

Dr. Robert Gara (EHUF Adjunct Professor in the FME Division) and Dr. Art Antonelli (WSU Puyallup) attempted to teach a joint urban entomology course but the course was cancelled due to low enrollment. However, a number of WSU faculty, including Dr. Antonelli, have participated over the years in EHUF 451 (Urban Plant Protection), taught by Drs. Gara and Edmonds.

In 1994 a memorandum of agreement for a Cooperative Extension Program in Horticulture was entered into WSU, CUH, CFR, and King County to cooperate in public and professional continuing education in urban horticulture and pest management. This is part of the overall WSU Cooperative Extension Program and is housed at CUH. King County provides office equipment, support staff, and operations while CUH provides the necessary office and lab space. Educational events for Master Gardeners continue to be exclusive to Master Gardeners program and are identified as WSU Cooperative Extension Programs. Currently, Joan Helbaka is the WSU program coordinator and Mary Robson is the King County extension agent.

It has been noted that while there is a friendly, low-key relationship between WSU and CUH/EHUF faculty and staff (primarily due to co-location), there could be a dynamic, mutualistic partnership instead. The potential for such a partnership should be explored.

Management Models Used by Other Urban Horticultural Centers with Arboreta and University Affiliations

As part of the information gathering process, the committee considered management models used by other urban horticultural centers with arboreta and affiliations with universities. Two centers that are similar to CUH are the Missouri Botanical Garden and Shaw Arboretum affiliated with Washington University, and the Matthaei Botanical Garden and Nichols Arboretum affiliated with the University of Michigan.

The Missouri Botanical Garden is directed by Dr. Peter Raven, a faculty member in the Division of Biological and Biomedical Sciences in the Biological Sciences Department at Washington University, St. Louis. It is run as an organization with considerable independence from Washington University. It was founded in 1859 and is located on 79 acres in the City of St. Louis. The Shaw Arboretum (2,500 acres) was founded in 1925 and is located approximately 35 miles west of St. Louis. The organization of the Missouri Botanical Garden is shown in the Appendix to this document; further detailed information is available on the world wide web at: www.mobot.org/servermap.html. The Division of Horticulture has a director and a staff of 65. The graduate program has a manager; students are from four nearby institutions (Washington University, University of Missouri-St. Louis, St. Louis University, and southern Illinois University-Edwardsville). Twenty-one Missouri Botanical Garden scientists have adjunct appointments at one or more of these universities. Fourteen faculty members from these universities serve as research associates at the Garden. Horticultural short courses are offered in the Education Division.

The administrative structure at the University of Michigan is different. The Matthaei Botanical Garden is located about 5 miles from the main campus and has a staff of 23. The Director, Dr. James A. Teeri, has a faculty appointment in the Department of Biology in the College of Literature, Science and the Arts. Dr. Teeri is also the Director of the Michigan Biological Station. The garden is strongly associated with the university as indicated by the world wide web site (www.lsa.umich/mbg).

The Nichols Arboretum is 123 acres and is managed by the School of Natural Resources and the Environment. This is in contrast to the Matthaei Botanical Garden, which is managed in the Biology Department in a different college. (The arboretum web site address is: www.umich.edu/~snrewww/arb/.) The Director of the Arboretum is Dr. Harry Morton a faculty member in the School of Natural Resources and the Environment. The Arboretum in association with the natural History Museum and Matthaei Botanical Garden, form the University's exhibit museums.

A number of other horticulture programs have affiliations with universities, but they are independent. Good examples are the New York Botanical Garden (www.nybg.org) which is affiliated with Lehman College, Columbia University, Cornell University, New York University, and the School of Environmental Studies at Yale University. Longwood Gardens is affiliated with the University of Delaware (www.udel/LongwoodGrad).

Options for Organization of the Center for Urban Horticulture

The committee has considered a number of options regarding the organizational structure of CUH, including the status quo. The committee recommends that the UW and CFR give them serious consideration and think through the consequences of each. Five options for the organization of CUH are described briefly below.

Option 1 – No change.

Under this option the Director of CUH would report to the Dean's Office of CFR and the WPA Director would report to the CUH Director. EHUF faculty would continue to report to the chair of the Ecosystem Sciences Division.

Option 2 – CUH Director as Associate Dean.

Under this option the Director of CUH would be perceived as having a more complex role than that of a Chair. All other relationships would remain as currently arranged.

Option 3- Moving CUH back to the Provost's Office on a temporary basis.

Under this option the Director of CUH would report to the Provost's Office and the WPA Director would report to the CUH Director. Given the fact that CUH may require special attention from the University to increase faculty numbers from its current 3 tenured faculty (WPA Director and 2 teaching faculty) to the 6 it was originally allocated, such a temporary arrangement may be necessary for a period of time to ensure that the program builds in strength and is not vulnerable to more faculty cuts. In time it could go back to CFR. EHUF faculty would continue to report to the chair of the Ecosystem Sciences Division and the CUH Director would also have a faculty appointment in CFR. Undergraduate, graduate and extension education would continue to be accommodated.

Option 4 – Splitting CUH and WPA.

Under this option the Director of CUH would report to the Dean of the College of Arts and Science and would be a faculty member, perhaps in the Botany Department, as would the other EHUF faculty. The WPA Director would report to the Dean of CFR. This model is somewhat like the University of Michigan model. Undergraduate, graduate and extension education could be accommodated with this option. However, there may be problems with respect to how faculty extension activities are evaluated.

Option 5 – A more independent CUH and WPA.

Under this option CUH would be an independent organization affiliated with the University. The CUH Director would hold a faculty appointment either in the College of Arts and Sciences or CFR. The WPA Director would report to the CUH Director. Faculty would have curatorial or other types of appointments in a variety of departments. This option is more like the Missouri Botanical Garden model and perhaps the proposed new model for the Burke Museum on the UW campus. It allows for development of outreach activities and graduate programs, but may have some limitations for a coherent undergraduate program. More cooperation with Washington State University and other horticultural programs in community colleges may be facilitated.

X. Recommendations

The Center for Urban Horticulture serves an important and relevant function within the University and in the external community. Currently, all three dedicated aspects of the CUH mission ("the CUH is dedicated to research, teaching, and public service concerning the selection, management, and role of plants and of ecosystems in urban landscapes") are being performed at different levels and with different degrees of success as a result of a number of factors. The committee concludes that the overall research/teaching/outreach program associated with CUH is important and has great potential; that there are also a number of impediments to be overcome. Many of the people interviewed felt that one of the primary reasons for the success of CUH over the years was the dedication of the associated faculty, staff and volunteers. The concern heard most frequently by the committee regarded the management of CUH, specifically its overall organizational structure, relationship to CFR management, relationship with outside constituents and industry, and the amount and use of its resources.

Unlocking the full potential of CUH, EHUF, and the WPA requires an embracement by the University and the College of Forest Resources, with complete and visible support of faculty, staff, and students. All of the committee's seven recommendations are connected to this conclusion. If CFR is unwilling or unable to support CUH/EHUF, it is recommended that Option 3 (see Section IX.) be followed. Thus, the committee's recommendations to CFR and UW are:

1) **Restore state-line faculty positions (6 full-time, 1 director) per original agreement between CUH, CFR, and the Provost's office.** (See attachment)

2) **Conduct national search for new CUH Director**
   - Senior faculty with an academic background but minimal teaching obligation
   - Fund-raising and outreach skills
   - Associate Dean designation

3) **Devise more appropriate model for evaluating and rewarding EHUF faculty**
   - Revise promotion, merit and tenure measures based on the land-grant university model (i.e. specify percentage time spent on research, teaching, and outreach)
   - Create formal CUH affiliations for EHUF faculty (Burke Museum model)

4) **Increase opportunities for EHUF students and other UW community members**
   - Restore faculty lines (as recommended in #1)
   - Support the continuation of the existing courses offered by EHUF
   - Encourage and support the development of rigorous courses for graduate study
   - Remove cost center model for undergraduate and graduate research
   - Increase security around CUH
   - Extend UW/COH bus services to CUH

5) **Replace staffing and increase operating efficiency at CUH**
   - Replace CUH Director (as recommended in #2)
   - Replace chief administrator for CUH and restore local signing authority
   - Replace receptionist at the CUH front desk
   - Replace CUH Education Coordinator
   - Replace WPA Curator
   - Create CUH/WPA Education Director position
   - Improve management of CUH greenhouse, nursery, and grounds
   - Increase security around CUH (as recommended in #4)
   - Ensure adequate parking for staff, faculty students who pay a monthly fee

6) Improve relationships with external constituents

- Restore faculty lines (as recommended in #1 and #4)
- Recognize faculty outreach activities (as recommended in #3)
- Replace the CUH Education Coordinator (as recommended in #5)
- Increase dialogue with external community via active advisory board
- Increase interactions with WSU
- Create CUH/WPA Education Director position (as recommended in #5)

7) Review Washington Park Arboretum

XI. References

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