Shoreview Park Restoration Plan

2017

Washington Native Plant Society

Master of Native Plant Stewards

Central Puget Sound Chapter 2017

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“Natural resources are not given to us by our fathers, but are loaned to us by our children” – Larry D. Harris (The Fragmented Forest)

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Overview and Current Conditions

The area that encompasses Shoreview Park (and the adjacent Boeing Creek Park) was originally owned by William Boeing, founder

Picture captured by John Bolivar

of The Boeing Company. In the 1930's the lands was platted to create Innis Arden housing development. No specific logging records exist for Shoreview Park. It is possible the park was selectively logged, but the presence of large trees approaching 150 ft. tall and the absence of large tree stumps do not support the presence of historical logging. It is possible the steep slopes in much of the park provided limited access and prevented logging. There is an absence of very large old-growth trees common in PNW forests though.

Boeing transferred the land to the Shoreline Park in the 1960's and it was slated to become Shoreline High School in the mid-1970's. The school levy to build the school failed and King County purchased the land from the school district and it was established as two adjacent parks – Shoreview and Boeing Creek Park to the north. The City of Shoreline assumed ownership of Shoreview Park in 1997. By the late 1990's Shoreview Park contained sports fields, playfields and school parking lots.

Shoreview Park currently contains Shoreline Community college overflow parking lots, a dog walk park and a complex of sports and play fields on the western part of the park. There is a forested ridge with trail system that runs from the parking area west and north along the ridge to Boeing Creek Park to the north. That forested ridge is our restoration site.

The project site is a triangular area with the southern boundary just south of the trail from the parking lot adjacent to the dog park running about 175 ft. to the west and then north where the trail cuts north and ending at a point along the ridge approximately ½ the length of the Dog Park area – about 300 ft. to the north. The Dog Park forms the eastern boundary of the restoration site.

Our assessment area runs from the edge of the parking lot to the south of the dog park, along the trail running to the west. The AA runs approximately 164 ft. to where the trail makes a 90 degree jog to the north. It is about 26 ft. wide running on both sides of the trail.

Site Inventory

Topography, Geology & Soils

The topography of Shoreview Park is a north south ridge with very steep sides in most of the forested area with the ridge running north and south. The highest point in the park is an elevation of 472 feet above mean sea level. The ridge slopes steeply to the west and has gentler slopes towards the college. The ridge extends north into the Boeing Creek Park property before descending steeply to the central riparian ravine, with slopes greater than 20 degrees (Map 3). To the west of the ridge, the elevation drops through a series of benches marked by parking lots, playfields, and finally a previously-cleared natural area before descending steeply to the riparian corridor.

Glacial processes ending about 20,000 years ago heavily influence the geology of the Park. Layers of sands, gravels and silts were distributed by glacial movement and compressed by compaction from glacial ice and movement glacial outwash (streams generated from the melting of glacial ice.)

The geologic composition of Shoreview Park in the forested area of our project site consists primarily of Vashon subglacial till - a mixture of rounded silt, sand and gravel particles, which were glacially transported and deposited under ice and advance outwash deposits - a well-sorted sand and gravel deposited by streams issuing from the advancing ice sheet.

Hydrology

Boeing Creek flows through Shoreview Park. Near the Southwestern corner of Shoreview Park, the creek reaches an earthen dam and creates the manmade reservoir named Hidden Lake before it continues to flow as an open watercourse and empties into Puget Sound (City of Shoreline 2007a). Hidden Lake is an important feature in Shoreview Park but has relatively little influence on our restoration area since our area is mostly on the ridge top.

Existing Species

Native Trees

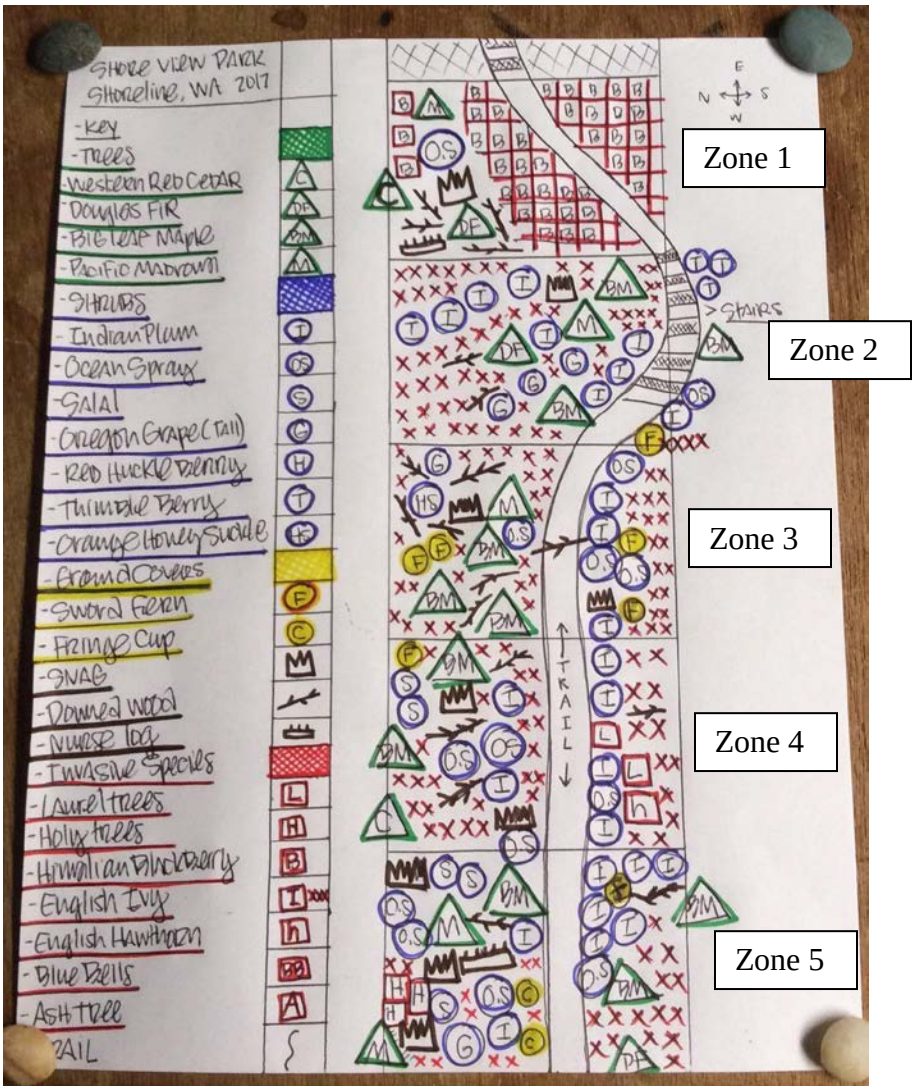
Thuja Plicata (Western red cedar)
Pseudotsuga menziesii (Douglas fir)
Arbutus menziesii (Madrone)
Acer macrophyllum (Big leaf maple)

Native Shrubs and Herbaceous Plants

Oemleria cerasiformis (Indian plum)
Holodiscus discolor (Ocean spray)
Gaultheria shallon (Salal)
Berberis aquifolium (Tall Oregon grape)
Vaccinium parvifolium (Red huckleberry)
Rubus parviflorus (Thimbleberry)
Lonicera ciliosa (Orange Honeysuckle)
Polystichum munitum (Sword fern)
Tellima grandiflora (Fringecup)

Invasive Species

Prunus (Laurel sp.)
Ilex aquifolium (English holly)
Rubus bifrons (Himalayan blackberry)
Hedera ilex (English ivy)
Crataegus monogyna (English hawthorne)
Hyacinthoides non-scripta (Blue bell)
Sorbus sp. (European mountain Ash)



Map created by Matt Kuhar

Site Assessment Data is provided in Appendix 1.

Site Concerns and Management Priorities

Guiding Documents

In 2008 EarthCorps developed a Vegetation Management Plan for the Boeing Creek/Shoreview Park Complex, and our group is working in Management Zones 1 and 2 at the southeast end of the park cradled by Innis Arden Way to the south and Shoreline Community College to the east. In addition, King Conservation District has identified forest stewardship priorities for Zones 1 and 2. Both documents guide restoration decisions of our one-acre project area. These management priorities are referenced in our Implementation Plan Goals and Objectives.

Furthermore, we followed plant number recommendations calculated by our stewardship coordinator as summarized below:

Shoreview Park Planting Recommendations

Habit	Total Plant Space (ft^2)	Portion	Density (ft oc)	# Total
Potted Trees	10,890	3%	8	41
Potted Shrubs	10,890	5%	4	136
Live stake shrubs	10,890	0%	1.5	0

Site Concerns

Along with invasive species, the steep topography and popularity of the trails from humans and canines alike pose the majority of challenges for this site. The one-acre area we plan to restore in Shoreview Park is highly sloped to the southwest and northwest of the entrance at the off leash dog park. Working on these slopes may pose dangerous working conditions for certain volunteer groups and thus will be reserved for steward-only work parties. This also limits the areas within our acre that are approved for volunteer work, and may result in few or small sized volunteer events.

Using GIS, slopes were calculated at Shoreview Park to range from 20% to 35%.4 At the eastern end of the site the slope is gentle, but the invasive blackberry and ivy cover is substantial. Upon invasive removal, and prior to native planting, stewards plan to engage volunteers to mulch this area. It is advised to sheet mulch, using a burlap base for invasive and erosion control because bare soil will be exposed here as the current native plant cover, (including tree canopy) is sparse. Fortunately on the steeper slopes, current native plant cover includes hardy and prolific trees and shrub species such as Indian plum, sword fern, salal, ocean spray, tall Oregon grape, and fringecup.

The location and multipurpose uses of Shoreview and Boeing Creek Parks make for a well-loved and well-used park system. From a restoration perspective however, these are red flags in our restoration efforts. Already, we have found excess trash and dog feces on and off the trail due to off-leash practices in the park. These create hazardous conditions for volunteers, and stewards, to work in. There are also a plethora of social trails throughout our site which have caused soil compaction. We plan to work with the City of Shoreline, or as a stewards-only work party, to remove the unknown trash and dog feces as one of our primary actions in the park. Temporary fencing (flagging tape strung across a series of stakes) and signage will be implemented to close down social trails and hopefully encourage appropriate leashing and clean up for dog owners.

Lastly, removal of invasive species present such as *Rubus bifrons* (Himalayan blackberry)*, Ilex aquifolium* (English holly) and *Laurus sp.* (Laurel tree) are primary concerns for our team. There is a large, dense thicket of Himalayan blackberry at the entrance near the off leash dog park

parking area which requires mechanical control methods. This will be done first with brush cutting by either the City of Shoreline Parks and Recreation or by the stewards, followed by a grubbing work party. The laurel and holly trees will need to be mechanically removed and either controlled mechanically by the stewards or chemically controlled with herbicides by contractors employed by the City of Shoreline. The park has many users, and we hope many are interested in helping with or at least learning about the restoration of the park, though the skilled work and difficult terrain will limit the size and number of volunteer work parties during the initial stages of our restoration plan.

Implementation Plans

Restoration Goals

It is rare to find good examples of old growth forests, or complete non-interrupted large ecosystems in the Puget Sound area. But Shoreview Park / Boeing Creek are great examples of the possibilities of future healthy succession. With monitoring and human intervention, these areas will one day be a healthy climax forest, fine-tuned and able to resist disease, rebound from forest fires, and adapt to climate change. Restoring this area benefits local, native flora and fauna in forest and aquatic ecosystems, in addition to the countless benefits for human communities.

Why restoration ecology?

"When we try to pick out anything by itself, we find it hitched to everything else in the universe" – John Muir

Restoration ecology is the scientific practice of renewing and restoring degraded, damaged, or destroyed ecosystems by human intervention and action.

Through restoration ecology, we can maintain or improve the health of a natural ecosystem by restoring and creating complex environments for native flora and fauna. Restoration promotes biodiversity of plants, animals, and insects (e.g. pollinators).

- *Who restoration benefits (social):* Humans, agriculture, forestry, and fisheries,
- *What restoration benefits (natural):* Natural benefits in terms of the preservation or conservation of biodiversity and environmental quality

Restoration Goals Summary

The diversity and complexity of a forest structure is directly connected to the diversity and complexity of wildlife living in that eco-region. Therefore, structure and function are inseparable because the forest functions *because of and through* its many complex parts. Forest preservation and restoration are necessary efforts that are needed now more than ever – with rapid human population growth in the Puget Sound area diminishing green spaces. However, with continual efforts and monitoring of our important green spaces, such as Shoreview Park, these efforts will ensure that the native seed bank will flourish and reclaim its rightful place in the forest.

Goals and Objectives

Goal 1: Remove invasive species and monoculture ground cover (e.g. ivy).
Identified as a priority in the KCD Forest Stewardship Strategy. Ivy will be hand-pulled from the ground, and survival rings will be created using a pruning saw where it grows up trees.

Goal 2: Plant native species according to their ecological boundaries (e.g. cardinal directions, elevation, soil types, etc.). Benefits include:

- Creating space for wildlife such as native nesting birds, pollinators, etc.
- Creating space for learning and appreciation of the natural habitats – both flora and fauna – such as human impact, care, and nurturing.
- Creating space to reflect on time in the natural world: *It takes a thousand years for a thousand-year old tree to grow.*

Goal 3: Creating and maintaining canopy layers:
Planting tall shrubs is identified as a KCD Forest Stewardship Strategy Priority.

- Levels of canopy structure provide essential places for wildlife and their niche for food, shelter, and water.
- Multiple canopy layers increases the potential for suitable conditions for epiphytes, creating more biomass and diversity. In addition, canopy layers provide niches for wildlife to live, feed, hide, and nest.
- To achieve this goal, we will be planting a diverse group of native trees and shrubs to ultimately create high-functioning layers of canopy habitat.

Goal 4: Connecting mountains, forests, and Sound:

- What happens upstream makes a difference with what happens downstream. The multiple canopy layers and ground vegetation provides more biomass that filters and purifies runoff for adjacent streams, creeks, and tributaries into the Puget Sound, having an impact on aquatic, forest, and human health.
- To achieve this goal, we will emphasize planting evergreen species (both conifers and broadleaf shrubs) that maintain soil coverage over the rainy season and reduce the amount of runoff that flows into local waterways.

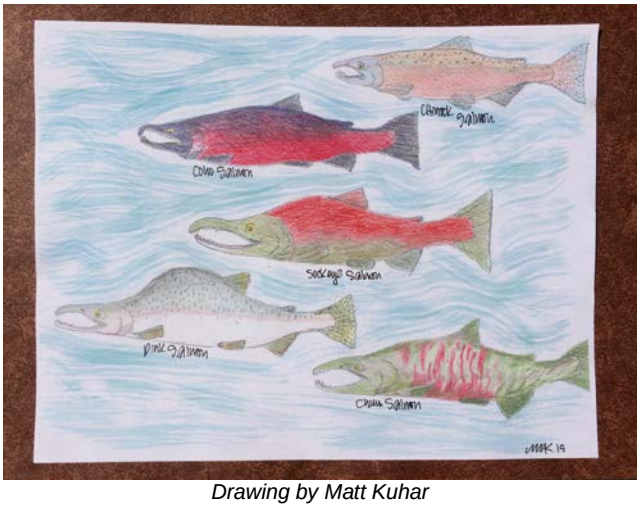
Goal 5: Preserving coarse or downed woody debris and snags:
Preserving large snags when possible is identified as a KCD Forest Stewardship Strategy Priority.

- Saving coarse or downed woody debris and snags provides habitats for birds, bats, carnivorous mammals, etc.
- Dead tops of snags provide homes for eagles and ospreys.
- Cavities in snags can provide 30-50% of habitat for native wildlife and pollinators
- Downed woody debris and wood chips create highways for small mammals and reptiles; also creates habitat for mycorrhizal fungi and places for tree birth
- To achieve this goal, we will utilize on-site woody debris in our planting designs by digging in logs next to planting holes, giving plant roots access to a host site for mycorrhizae. We will also be mulching our plantings with woodchips obtained from the City of Shoreline Parks crews, which will further introduce organic matter to the site and increase plant survival.

Challenges in Restoration

Normal ecosystems require a great length of time to rebound and develop to their mature

complex characteristics. Thus, it takes monitoring and revisiting with restoration efforts to remove invasives. Our restoration efforts need to be monitored, with continual invasive removal and monitoring. These efforts will ensure that the native seed bank will flourish and reclaim its rightful place in the forest.



Drawing by Matt Kuhar

One day after the forest has reached mature succession and complexity, a truffle may grow. And upon that truffle, a flying squirrel may soar from the upper canopy and dine in the dim canopy-filtered moonlight. Alas, only to be swooped upon from the hopeful dash of the spotted owl, thus achieving the complex biodiversity in the web of life.

Species to be planted

The Shoreview site presents a unique opportunity for restoration efforts in that it represents a distinct habitat type in the Puget Sound region - coastal bluffs with western exposure. The plant community that historically occupied this niche is drought tolerant, grows in nutrient poor soils, and can handle the added stress of high winds and afternoon sun. Using the Green Seattle Partnership's Target Forest Types as a resource, we determined the closest match for our site is a Douglas fir - Pacific Madrone - Salal ecosystem, with various species complementing the three dominant trees and shrubs.

Given that much of our site has a well-developed understory and canopy, we will be focusing much of our planting efforts (~50% of total species planted) on reclaiming the groundcover layer that is currently dominated by English ivy. In addition to our groundcover plantings, we will be adding trees and shrubs throughout the site to increase species diversity and forest resilience.

Habit	Species	Quantity	Zone(s)
Trees	*Abies grandis*	15	1,2,3,
	Arbuts menziesii	5	1,2,3,4,5
	Pinus contorta	10	1,2,3,4,5
	Pseudotsuga menziesii	5	1,2
	Thuja plicata	10	2,3,4,5
Understory (1 gal pots)	*Amelanchier alnifolia*	15	1,2
	Berberis aquifolium	10	1,2,3
	Corylus cornuta	10	2,3,4,5
	Gautheria shallon	30	4,5
	Polystichum munitum	50	1,2,3,4,5
	Rosa gymnocarpa	15	1,2,3
4" Pots	*Lonicera ciliosa*	10	3,4,5
	Tellima grandiflora	40	3,4,5

While our plantings will occur in late fall/winter to give our new plants the best chance to set roots and thrive, we recognize that summer water will be critical for survival for at least the first year of each new planting. We will water our new plantings once a week from July 1st to October 1st of 2018, monitoring their drought stress and responding accordingly.

Through adding these target species, we will over time create a habitat that more closely mirrors the structure, function, and composition of an intact coastal bluff forest.

Timeline

To adhere to the Washington Native Plant Society guidelines, our team of five will contribute 400 hours of effort to Shoreview Park over the 2017-2018 year. We predict our efforts to exceed this number including work in future years. Below outlines a timeline and along with tasks we plan to accomplish.

Tasks 2017	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Site Assessment												
Write Restoration Plan												
Trash removal												
Invasive removal/mulch												
Volunteer outreach												
Native installation												
Tasks 2018	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Native installation												
Site Assessment												
Monitor/control invasives												
Replace dead												
Tasks 2019	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Site Assessment												
Monitor/control invasives												

Tasks Defined:

Site assessment - Return to and monitor canopy and understory species present in our hectare determined in April 2017. Photo documentation will occur in this task.

Restoration plan - Consists of meeting as a team and collaborating on our goals and realistic timelines to achieve these.

Trash removal - Patrolling and removing trash from the areas stewards and volunteers will work in.
Invasive removal - Mechanically removing Himalayan blackberry, Holly, English Ivy, and Laurel from our site. Monitoring their return in future years.

Volunteer outreach - Reaching out to groups and individuals using the volunteer resources listed in this plan. Develop a plan to encourage returning volunteers in future years.

Native installation/replacement - Sourcing native plants and installing these in planting areas to prevent encroachment of invasives and to further expand the present native population. Replacing any dead plants in future years.

Community Engagement

Shoreview Park would greatly benefit from the involvement of a committed group of Shoreline residents. Volunteer participation would not only help with site maintenance, but would also serve to build awareness of the importance of restoration practices with the local community, promote long term stewardship of the site and offer an opportunity for community members to become invested in Shoreview Park.

Due to the topography of the Shoreview landscape, however, engaging additional community volunteers for invasive removal, planting, and maintenance presents a challenge. Much of the site is steeply graded, creating unsafe working conditions for most volunteers. We have identified the southwest corner as the safest area for volunteers to work. English ivy is the primary invasive in this area and volunteers will be recruited to assist in the removal. Skilled volunteers with experience working on difficult terrain may be invited to additional work parties outside of this region.

Volunteers will be recruited for monthly work parties in the summer and fall until the English Ivy is eradicated, then additional volunteer help will be sought in the fall for native species planting and mulching in the gently sloped areas where the ivy is removed.

Volunteer work parties at Shoreview will be educationally focused, with a basic introduction to the importance of restoration, identification of the species the volunteers will be working with, as well as tool safety. Work parties may also include optional “mini-workshops”, brief discussions on topics such as:

- Native Species of Shoreview park
- Invasive Species and Noxious Weeds
- Planting for pollinators
- Fauna of Shoreview
- Watersmart planting: seasonality and techniques
- Ethnobotanical uses of plants

- Soil health
- Forests and watersheds

Volunteer Recruitment

The target demographic for Shoreview Park volunteer recruitment is adults or older youth (high school age) who are physically capable of navigating the hills and narrow trails. We will connect with teachers and administrators to seek service learning students at the Shoreline Community College Center for Service Learning, as well as environmental, science, and outdoor clubs at St Luke School, Shorewood High School, Kings High School, and Shorecrest High School. These schools may not be active in the summer, however. We intend to reach out to teachers at the start of the 2017-2018 school year to discuss the possibility for volunteer engagement. In addition to schools, we will contact youth organizations such as Shoreline Youth Ambassadors, Shoreline Rec-N-Crew, and local boy scouts and girl scouts groups.

In an effort to recruit adult volunteers, we will schedule meetings with leaders of local faith-based organizations active in the community such as Shoreline Community Church, Shoreline Unitarian Universalist Church, Shoreline Full Gospel Fellowship, Aurora Church of the Nazarene, New Hope Seattle, and Evergreen Baptist Church. Because Shoreview park has about 50 residences adjacent to the greenspace, we will distribute leaflets to those homes to recruit neighbors that are likely to use and enjoy the park. We will also recruit with corporate businesses such as Google, Microsoft, Amazon, Boeing and Starbucks, who often participate in team building and community volunteer days. Special effort will be placed on reaching out to a diverse group of individuals to reflect the diverse community of Shoreline.

One of the key constituencies we will be reaching out to is dog owners. Many people and their dogs walk the trails and visit the off-leash park, and these individuals have the highest potential for impacting the site, both in their positive stewardship activities and potentially negative impacts of dispersed dog droppings and trampled plants. By engaging with this constituent base early on in the process in a friendly and inviting manner, we can build a stronger volunteer base and help reduce some of the negative impacts of dogs in our work site.

Other methods of recruitment will be posting work parties on VolunteerMatch.com, City of Shoreline Volunteer Page, United Way website, CreateTheGood.org and Idealist.org. We will also flyer at local community spaces such as libraries, coffee Shops, local nurseries and plant stores, outdoor and sports equipment stores, grocery stores and locally owned businesses. We will also recruit for specific event work parties such as United Way Day of Caring, Martin Luther King Jr Day and Earth Day.

Strategies for Volunteer Retention

Due to the challenges of the site, Shoreview Park would benefit from a small group of repeat volunteers who can familiarize themselves with the landscape, build their restoration knowledge, and grow comfortable with the physical demands of restoration practices. Therefore, some effort should be placed on volunteer retention.

Strategies to improve the experience of the volunteers include providing name tags and learning volunteer names; starting each event with an icebreaker to encourage volunteers to get to know each other and to enjoy themselves; as well as executing well prepared and organized events

with all tools and materials needed. Other strategies include seeking food & beverage donations from local businesses (i.e. Starbucks) and provide snacks for volunteers; incorporate learning opportunities in each work party; and sending follow up emails to thank participants.

Other organizational efforts to aide in volunteer retention include tracking volunteer participation, sending regular emails to volunteers to promote work parties, and offering regularly scheduled work parties at convenient times.

Resources

2017 WNPS - CPS Master Stewardship Program Contacts		
•	Joy Wood	
	Washington Native Plant Society	
	CPS Master Stewardship Coordinator	
	206-963-5704	
	CPSStewardshipProgram@gmail.com	
•	Chrys Bertolotto	
	Washington Native Plant Society	
	CPS Stewardship Chair	
	206-588-1247	
	sitkaperiwinkle@gmail.com	
•	Elizabeth Walker	
	King Conservation District	
	Urban Forestry Program Coordinator	
	360-399-1779	
	UrbanForestry@kingcd.org	
•	Tony Hamilton	
	City of Shoreline	
	Parks Senior Maintenance Worker	
	206-801-2615	
	thamilton@shorelinewa.gov	
•	Constance Perenyi	
	City of Shoreline	
	Neighborhoods Coordinator	
	206-801-2253	
	cperenyi@shorelinewa.gov	

Appendix – Site Assessment Raw Data

Plot Characteristics					
Date: 4/1/17	Site: Shoreview				
Stewards: Caroline, Carter, Dylan, John, Laura, Matt					
Plot #	1	2	3	4	5
Aspect	SSW	S	slightly S	NW	NNW
Slope (% or °)	10%	5%	0-5%	15%	10%
Soil Texture	sandy loam	loam	sandy loam	loam	sandy clay
Soil Moisture	damp	damp	damp	damp	damp
Soil Compaction (Y/N)	trail - Y	trail - Y	social trail - Y	N	trail - Y
Litter Depth (inches)	1	1	1	1	1
Bare Ground (%)	10	20	20	5	10
CWD (%)	30	30	50	30	15
Canopy Cover (%)	80	50	50	80	15

% Vegetative Cover - Subplot/ Quadrat						
Site: Shoreview		Date: 4/1				
Stewards: Caroline, Carter, Dylan, John, Laura, Matt						
Species		Plot #				
Code	Name	Q1	Q2	Q3	Q4	Q5
	Oceanspray	20	50	10		15
POMU	Sword Fern		0.1	0.1	<5	3
	Himalayan Bb			0.1	45	75
THPL	Western Red Cedar		0.1			5
PSME	Doug Flr					5
	Madrona	10				10
	Trailing BB	0.1	0.1	3		
OECE	Indian Plum	35	25	15	20	20
	Big Leaf Maple	10			10	10
	English Ivy	50	60	10	10	
	Stinky Bob				<5	
	Holly			3	5	
	Black Cherry (snag)				<5	
	Grass sp.	<5	0.1	0.1		
	Dandelion		0.1		0.1	
	Orange honeysuckle			30		
GASH	Salal	0.1	5	0.1		
MAAQ	Tall Oregon grape			0.1		
	Fringe cup		0.1	0.1		
	Laurel	0.1	10			
	Hawthorne	<5	3			
	Blue bell	0.1	3			
MANE	low oregon grape	5				

Trees (≥4.5ft tall) - Plot					
Site: Shoreview			Date: 4/1		
Stewards:					
Plot	Species / Snag		Tree Size		
Plot #	Code	Name	DBH (in)	Height	live %
5	THPL	Western red cedar	33	50	90
4	ARME	Madrona (snag)	32.5	75	0
4	ARME	Madrona	34.5	75	5
4	PSME	Doug Fir	63	125	30
4		Big Leaf Maple	6.75	30	50
4		Cherry - snag	10.5	10	0
4		Big Leaf Maple 1 - two stems	36	75	80
4		Big Leaf Maple 2- two stems	18.5	60	90
3		Big Leaf Maple	59	60	45
3		Big Leaf Maple - snag	12	25	0
3		Big leaf maple 1 - two stems	26	60	30
3		Big Leaf Maple 2- two stems	5	65	30
3		Big leaf maple 1 - two stems	29	65	30
3		Big Leaf Maple 2- two stems	17	30	25
2		Big leaf maple	40	70	40
2		Bitter cherry - snag	17	12	0
2		Bitter cherry - snag	16	40	0
1		Big leaf maple	33	75	30
1		P Madrona	32	60	20
1		Bitter cherry - snag	18	12	0
1		Big leaf maple 1 - two stems	17	25	20
1		Big leaf maple 2- two stems	23	60	40
1		Horse Chestnut	10	8	30