



Washington Native Plant Society – Green Seattle Partnership

Private Property Owners, Stewards and Seattle Parks: Fostering Sustainability in the Buffer Zone PROJECT FINDINGS

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Executive Summary

This project includes several goals encouraging public and private management of invasive-free vegetative buffers where private property adjoins Seattle Parks and natural areas. During the course of the project we identified main issues occurring along Seattle Park property lines, as follows: dumping and littering, invasive vegetation, erosion and runoff, encroachment, social trails and safety, plant and animal corridors, neighbor outreach, and lack of incentives or penalties.

Using information gathered from stewards, property owners, Seattle park sites, homeowners, the Seattle Parks ecologist team, Washington Native Plant Society and other stakeholders we composed several online and offline materials. These materials were disseminated at a steward-only workshop in April 2014, will be posted online on the Green Seattle website, and are available in printed form as part of the steward outreach tool-kit:

- An Environmental Education Doorhanger available in the GSP tool-kit for stewards to use in their neighborhood outreach plans.
- A Buffer Installation Action Plan available for homeowners on the GSP homeowner resource page. The plan includes help with identifying site-specific goals, recommended plant lists, design themes and available incentives.
- A spreadsheet available on the GSP steward resource page and in physical form listing offline and online resources available to stewards.
- A workshop designed to provide information and acquire feedback from stewards.
- This report document is available to any interested steward or city agency.

Based on our project, we recommend Three Actionable Items that could be addressed by Seattle Parks and Recreation in 2014^a:

- Stewards need better support and communication from those responsible for surveying, demarcating, and enforcing property lines.
- Stewards need materials for a targeted outreach campaign in the form of the doorhanger and associated online GSP resource materials. The doorhanger will include the GSP URL, thus the materials must be live on the GSP page before the doorhanger is distributed.
- Stewards need better access to water sources during the summer. Stewards suggested solutions such as installation of bicycle pump stations moving water between low and high storage, rain barrels on site or allowed in cooperative neighbors' yards. We recommend soliciting feedback or polling all GSP stewards (with a deadline for reporting) asking if they have summer water needs and to pay special attention this year to their restoration cycle outcomes and root establishment.

^a A complete list of recommendations is included at the end of this document.

Project Overview

This project includes several goals aimed at creating an educational framework to encourage public and private management of an invasive free vegetative buffer where private property adjoins Seattle Parks and Recreation property. The goal of the environmental education framework is to provide private property owners and Green Seattle Partnership Forest Stewards information, methods and incentives that will promote the removal of invasive plants and the installation of native plants within an agreed upon buffer zone. The primary purposes of these buffer zones are to:

- Reduce the long-term public maintenance costs of restored areas resulting from the continuing recruitment of invasive plants from neighboring private property into Seattle Parks and natural areas;
- Engage neighboring property owners and stewards in a cooperative stewardship program that supports native plant restoration on public park land and private land;
- Increase public awareness about the benefits and utilization of native plants; and
- Provide further ecosystem services for wildlife and people by preserving, restoring, and maintaining healthy natural areas in urban communities

Using information gathered from Stewards, Property Owners, Seattle Park sites, homeowners, the Seattle Parks Ecologists team and other stakeholders we composed several online and offline materials. These materials are resources for Forest Stewards and for Property Owners. These materials were disseminated at a steward-only workshop in April 2014, will be posted online on the Green Seattle website, and are made available in printed form as part of the steward outreach toolkit.

This report is a collection of information gathered for the purpose of being a go-to reference for Public-Private Buffer Zone BMPs. It should be considered a working document; collecting our efforts partnership-wide. The document presents a description of how and why we collected or disseminated information. It will then present a historical perspective of buffers, Seattle- specific issues and how buffers address these, three buffer templates to be used by stewards and private landowners, suggested uses for the buffer templates, and proposal of next steps for stewards and the City of Seattle.

Project Goals

- Stewards will know how to address buffer edge issues in their park site.
- Stewards will know what a buffer is, why it is needed and how to implement one.
- Stewards will know how to engage with homeowners about removing invasives and be able to provide interested homeowners with information and resources.
- Homeowners will have access on the GSP website to consolidated information on invasive vegetation removal, native plant information, recommended buffer templates and incentives and resources to accomplish a buffer installation with low maintenance and at low-cost.

Project Deliverables

Our project consists of several goals aimed at creating an educational framework for private property owners and stewards. The environmental education framework will promote the removal of invasive plants and the installation of native or non-invasive plants within the “buffer zones” where private property and Seattle park property join.

Environmental Education Doorhanger

An Environmental Education Doorhanger is available for stewards to use in their neighborhood outreach plans. The doorhanger will be available to stewards in the GSP outreach tool-kit. The doorhanger includes the GSP logo, GSP approved images, message, and colors, and a blank box at the bottom of the doorhanger for stewards to write situation specific information. This box will be a place for a steward to write their contact info and their work party dates, or whatever they want to write in. The doorhanger also includes a simple statement such as: "Some plants in your neighborhood and backyard can be harmful to our park lands. Learn more about how to remove invasive vegetation, plant natives, and get help with labor and costs: <http://greenseattle.org/homeowners>". We presented the door hanger design at the forest steward buffer workshop and revised the design after receiving feedback from the forest stewards that attended the workshop. As of May 2014, we are in the process of finalizing the design and printing.

Resources for the Green Seattle Partnership Webpage

We created three suggested buffer designs, discussed below in the section below titled “Urban Forest Edge Buffer Zone Themes for Consideration”. These will be available on the Green Seattle Partnership homeowner and steward resources page in a downloadable form and packaged as a Buffer Installation Action Plan.

Although in progress as of May 2014, we also have an ongoing list of landscape contractors who are also stewards or are sensitive to the goals of Seattle Parks. This could be made available for stewards to pass on to interested homeowners.

We also created two resource lists for private property owners and stewards. These will be available on the Green Seattle Partnership resources page in a downloadable form. The original documents were sent to Michael Yadrick. The private property resource list includes the title and link to resources on identifying and removing invasives, installing natives, help with costs and materials, and a general overview of buffers. The steward resource document lists the offline and online resources available to stewards for their outreach and restoration ecology needs. It includes the resource title, original source, and where to request copies or download online. It also includes the same info from the homeowner resource list so that stewards will know what is available to homeowners.

Forest Steward Workshop

We hosted a steward-centered workshop on Forest Buffers and Relationships with Private Landowners. The workshop took place at the Jefferson Horticultural Facility on Saturday, April 12th 2014.¹ The workshop objective was to “Discuss and identify the issues and potential solutions in the ecological edge zones where private property meets Park property; through interactive discussions and information sharing on what works and what does not”. The workshop learning objectives are as follows:

- how to address dumping and littering in a steward-run park site.
- what a forest edge buffer is, why it is needed and how to implement one.
- how to engage with homeowners about removing invasives and be able to provide interested homeowners with information and resources.
- In addition, stewards will exchange information with each other and the buffer team about their experience with buffers or homeowner engagement, in an effort to identify and ultimately address on-the-ground issues.

Feedback and documents generated from the workshop are discussed below and attached in the Appendix.

Foundation for Next Steps

As a result of the collected resources and discussion during the workshop, there may be sufficient interest and incentive to install a cooperative buffer project in 2015. The pilot project could be initiated by incoming or veteran Forest Stewards, a private landowner, and a matching funder. Ideally, a pilot project would test the viability of applying existing incentives and grants to a buffer project.

We also concluded homeowner education is only solving one part of the issues surrounding buffer zones. We need incentives or penalties to encourage action. We would like to narrow down and promote one plan of action, perhaps a City-backed homeowner incentive in the form of property tax breaks, rebates or other monetary benefits. There are some such monetary benefits in place already that could be reimagined or reframed towards buffer zones. These benefits are listed in the Homeowners Resource List (see Appendix). We would also like to investigate how to start a discussion at the county, city or state level regarding fewer restrictions on the use of appropriate herbicide to manage invasive removal on private property slopes.

What is an Urban Forest Edge Buffer?

In September 2013, the City of Seattle adopted the Urban Forest Stewardship Plan, an update to a 2007 Management Plan. The Urban Forest Stewardship Plan establishes four goals for Seattle's urban forest:

- Create an ethic of stewardship about the urban forest among City staff, community organizations, businesses, and residents
- Strive to replace and enhance specific urban forest functions and benefits when trees are lost, and achieve a net increase in the urban forest functions and related environmental, economic, and social benefits
- Expand canopy cover to 30 percent by 2037
- Increase health and longevity of the urban forest by removing invasive species and improving species and age diversity

The City holds 3,200 acres in park and forestlands, and 2,500 of those acres are in restoration. Single and multi-family properties occupy much of Seattle's land base, often surround city-owned forested natural areas, and hold great potential for contributing to the improvement of the city's overall tree canopy cover and minimizing invasive plants. Encouraging private citizen involvement in forest restoration and stewardship would add to the momentum and scope of the City's current park and forest restoration efforts, as well as provide benefit to the residents and land-owner.

Throughout the City of Seattle, public parks and forests, and privately owned landscapes and forests have been a breeding ground for invasive plants which threaten the health of the city's diminishing conifer cover. The City of Seattle in cooperation with non-profits and citizens are working to remove invasive plants and increase native conifer populations within the City.

This report addresses needs specific to the edges where Seattle Park land and private land (most often single family homeowners) adjoin. We call these edges "urban forest edge buffers", or simply buffers. An urban forest edge buffer can be defined as a linear patch running on both sides along property lines and typically has certain enhanced ecosystem functions due to its shape and design. For example, a buffer running at the top of a slope may use specific plants and techniques to address erosion.

Many Names of Buffers

The boundaries between defined landscapes have many names and purposes. Buffer zones can be political boundaries between nations, a space where agricultural land meets a livestock fence or other landscape type, riparian buffers to prevent wide scale landslides or polluted water sources, meticulously landscaped hedgerows, wildlife corridors, or urban

forest edges. Buffers can be called conservation buffers, hedgerows, corridors, greenways, forest edges and linear patches. The terms are often associated with the specific resource issue (e.g. water quality, wildlife, invasive plants). When searching for the issues related to buffers, one can search for “influence of edge effects”, “forest fragmentation”, and “establishing forest edge buffers”.

An urban forest edge buffer is the focus of this report. An urban forest edge buffer can be defined as a linear patch running on both sides along property lines and typically has certain enhanced ecosystem functions due to its shape and design. Some of the more obvious functions that an urban forest Seattle buffer can serve are delineation of boundaries, vegetation management, and erosion control. On a more subtle level, buffers act to improve the health of an urban forest by acting as a filter for non-point pollution. As a corridor for wildlife habitat, they also improve the number of beneficial insects and animals in the region of their existence, as well as restore dwindling native plant communities in areas of rapid growth. An alternative to fencing, they create an attractive visual boundary in the landscape, and unlike traditional fencing, they rarely need replacing.

How Buffers Address Local Needs

During our review of existing Seattle area park sites, we identified several issues that must be considered in a buffer plan. These local issues address both human behaviors and ecological processes; issues in need of thoughtful ecosystem management. The local issues we address below include dumping, littering, invasive plants, erosion, run-off, encroachment, social-trails, safety, species corridor loss, combating fragmentation, and general outreach and engagement needs.

Dumping and Littering

Illegal dumping and littering continues to be a problem in Seattle Parks. There are no figures on the scale of the problem, but Seattle Parks and Recreation does provide resources for addressing dumping.

Littering includes the act of tossing human-made materials into park property but the act of dumping can include human-made debris as well as organic material. Many residents may think they are doing a good deed by throwing their organic refuse into the park, but piles of organic waste can actually kill tree roots, smother plantings, attract pests, present a fire hazard or contribute to slope instability. Yard waste can be composted, used as mulch, or disposed of through the City's "clean green" yard waste collection program or at City transfer sites.

According to Property and Acquisition Services of Seattle Parks and Recreation, their education and outreach plan includes sending out neighborhood wide letters within a radius of a dump site. It has been effective in halting dumping and littering. And, this effort is thought to encourage neighborhood investment in parks. Stewards who notice dumping problems can report using the numbers in the “pocket guide” and contact their assigned Ecologist. Their ecologist can follow up with a site visit and messages to Acquisition

Services. Acquisition services can follow up and can send a letter to property owners surrounding the park with clear guidelines against dumping and warnings about a significant fine (\$100 to \$500 penalty). These letters encourage good behavior among neighbors, contribute to a neighborhood discussion, and directly address those responsible for dumping without singling any one out (unless necessary at a later date). Buffers in areas known for dumping may also benefit from strategic shrub plantings to improve sight lines. Some Seattle park designs advocate for fewer vehicle access areas to curb dumping.

Invasive Vegetation

Perhaps the most common problem in addressing the edges of active restoration sites in Seattle parks is the presence of invasive species on the private property side of park edges. These invasive species spread into park property through their root systems or through wind dispersal and rain-water run-off. The private property side of buffer edges may have pre-existing invasive vegetation that are not removed by homeowners due to costs, desire, ignorance, or differing values. Or some private landowners actively plant English ivy and laurel for privacy at the edges of their property. In some cases private landowners prefer Himalayan blackberry for privacy or security. For property owners concerned with privacy, buffer plantings should reflect their concern.

A meeting with a local steward revealed how her neighborhood outreach addressed a neighbor whose persistent use of laurel made restoration difficult in Ravenna Park. From our meeting notes:

Ann decided to simply write her [the neighbor] a letter explaining why it was invasive. She inserted the noxious weed pamphlet. The neighbor immediately emailed her saying she just didn't know about the problems with laurel. The neighbor removed it within the next week. In another situation, one neighbor loved knotweed and kept planting it on purpose. Stewards removed a big chunk of it and the neighbor was angry. Ann continued to be friendly and explain the reasoning, eventually the neighbor came around but it was not easy.

King County's Noxious Weed Program provides helpful handouts for such neighbor communication. And efforts exist to eliminate the sale of invasive vegetation in local nurseries. Stewards have also suggested we need more opportunities or a depository for stewards to communicate their neighbor success stories. This seems like a crucial recommendation in order to foster communication among stewards and encourage new stewards to learn from successful experienced stewards.

Buffers work to limit the spread of invasives, increase restoration continuity and cultivate biodiversity in urban areas. It is estimated that invasive plants and

A steward suggested the following policies and practices to manage invasive vegetation:

- Geotag high risk invasives (knotweed, archangel, garlic mustard, hogweed)
- Publicize "Top 3" invasive threats (ivy, holly, hawthorn)
- Subsidize invasive treatment on private property in "seed shed"
- Suggest native "seed rain" to plant in private yards.

their resultant “seed-rain” could cause Seattle to lose 70% of its current tree canopy².

Erosion and Run-Off

Rainwater, wind, run-off from man-made sources, and other events can put significant stress on soils along slopes. Ecologists, water quality specialists, and land planners and landscape architects agree that a continuous vegetative strip planted with various native plants in an undisturbed setting is ideal. A native plant buffer with an extensive root system and ability to adapt to changing weather conditions is preferable to English Ivy or other common slope invasives. But removing invasives while considering erosion concerns can be tricky.

Discussion with a Seattle steward who is also a private landscaper gave us insight into the current situation facing invasive removal on private property slopes:

“Very few [private property owners] (< 5%) are willing to do the paperwork required to safely remove invasives on steep slopes (herbicide is easier on soils, leaving roots in the ground to slowly decompose, rather than causing erosion with hand removal, yet using herbicide requires City ECA review, state SEPA review, and I don't know what the County requires, but I've heard horror stories). So voluntary restoration criminalizes both the homeowner and restoration contractor, either making me an unpaid bureaucrat or putting me out of business.”³

Encroachment

Encroachment is the unlawful, unauthorized, or unpermitted use of the property of another. An encroachment is often thought of as a structure, such as a fence or part of a building, but an unauthorized use, such as parking, a storage area or garden, may also be considered an encroachment.

Encroachments on public land often include:

- buildings or structures, such as garages, sheds, fences, playhouses or tree houses, swing sets or other play equipment;
- private-use areas, such as parking spaces, patios, gardens, play or sport areas;

A steward at Frink Park asked Parks and Recreation to physically mark the park boundary in a few areas where encroachment was an issue. Simple white stakes and low fences can be used. This could help stewards in the process of working on the park edges to clarify the boundary line. Boundary clarification is also available to private landowners through the Seattle Parks Real Estate Section.

Steven Richmond, a steward and landscaper, has designs for buffers which include evergreen plants at every level – from shrubs to trees. This could also work to hinder future encroachment through seasonal permanence.

- storage areas for belongings, such as boats, RV's, firewood, gardening equipment;
- "stuff you usually keep out of sight", such as trash cans, compost bins, yard waste piles, junk cars, dumping of other debris or litter;
- privately installed landscaping, such as hedges or borders that "claim" public property or limit the public's use or enjoyment of it.
- Removing plants, which is also illegal destruction of Park property.

There is no adverse possession of public property in the city of Seattle, which means private owners cannot establish rights to City land by using it for a number of years. The Seattle Parks and Recreation Real Estate Department may issue permits which allow very limited, temporary non-park use of park lands. To obtain an application form, one must contact the Seattle Parks Real Estate Section.

Social Trails and Safety

Entering a park outside of an established trail, whether by neighbors or homeless can be one issue on park property lines. Strategic planting of shrubs or thorny plants in park areas where users tend to walk off-trail can decrease the percentage of developing social trails. Social Trail Best Management Practice information is available from the Seattle Parks Ecologists team.

Crime Prevention through Environmental Design (CPTED)⁴ is a crime prevention concept used to evaluate and improve the physical security of a landscape or structure. Seattle Park staff are required to use CTPED practices. CPTED aims to deter crime and other undesirable behaviors by reducing or eliminating opportunities found in built or landscaped environments by controlling access, providing opportunities to “see and be seen,” demonstrating ownership of the property, and encouraging maintenance of the area. The very act of stewarding the park or property and the presence of invested volunteers and work crews is the best first step in demonstrating ownership and investment in the park. This can be a deterrent to unwanted activities such as homeless encampments, trash dumping, and other illegal activity.

The four key concepts of CPTED are:

1. Natural Surveillance
2. Natural Access Control
3. Territorial Reinforcement
4. Maintenance

CPTED, as applied to forested parks and trails, is aimed at maximizing visibility along pedestrian pathways and trails. CPTED principles should be applied when doing plant selection and maintaining existing vegetation along trails. Park users should have good visibility of immediate and approaching surroundings along pedestrian pathways. This can sometimes be as simple as pruning the lower branches of large trees and planting low growing understory plants along trails such as sword fern and dull Oregon grape. Maintaining visibility off-trail throughout a forested park is not always feasible but forest

stewards should keep these principles in mind when doing restoration activities along trails or near public gathering or picnic areas.^{5 6 7}

Extending Species Corridors and Combating Fragmentation⁸

Species loss, whether native plants or wildlife, often occurs in urban forests where there is little or no connecting corridors between parks and natural areas. Fragmentation intensifies negative edge effects — impacts of one habitat on an adjacent habitat — by increasing the amount of edge habitat and reducing the distances among edges. For instance, invasive weeds are more abundant along forest edges, so small forest fragments (which have more edge habitat) are more likely to be invaded. And, birds and insects may have little or no access to move between green spaces in the ways they could in the “wild”. Restoration activities often seek to improve connectivity among habitat patches in fragmented landscapes by creating or restoring linkages. Examples of linkages commonly used to improve connectivity are corridors and stepping stones. Corridors are relatively narrow, linear strips of habitat between otherwise isolated habitat patches. Stepping stones are small unconnected patches of habitat that are close enough together to allow movement across the landscape. Seattle Audubon Society is engaged in birdmapping in local parks through their Neighborhood Bird Project.⁹ There could be possible coordination between Audubon and stewards on species corridors.

“I’ve tried personal contact and education, using the attached handbill, front and back. You’re welcome to use that as a template to tailor local efforts. That handbill directs people to seedrain.org if they want to do it themselves. I’m also trying grant writing to help homeowners with the hard invasive removal and plant material, providing expertise in the process in exchange for plant care/weeding/watering as needed.” – Steward

Neighborhood Outreach

A need and a solution across all buffer issues is neighborhood outreach. This can be in the form of talking to interested passers-by when working in a park site, handing out or posting flyers in a relevant neighborhood to one’s park site, emailing past volunteers about upcoming work parties, blogging, tabling, or many other offline and online methods.

It is important to identify the specific needs of a surrounding neighborhood and try multiple avenues of engagement over time. Some methods may not work as well for one steward or neighborhood compared to others, but don’t discount the value in knowing what does and doesn’t work. Consider local schools or community groups who already have volunteer agendas and can include a park site in their own plans. Consider online groups who rally around local needs- block associations, neighborhood mailing-lists, online social platforms, and other volunteer-specific online environments. Overall, similarly to how restoration projects have several phases over several years, outreach takes time to grow and includes trial and error.

Be prepared for on-the-spot engagement. Many stewards volunteer because they want to be

Key Message: What is one important or wonderful thing about your park site that you want to share with others?

outside and not at their computer. Spending more time up front preparing for long-term engagement can give a steward more time to focus on restoration in the long term. Some stewards carry a small packet of outreach materials or hand out a business card with work party information when approached. Some stewards have reported that their projects are most successful when at least one person is comfortable and successful at social engagement. Some stewards report good outcomes from developing a key message they want to deliver when put on the spot. Consider developing a one-liner, or “elevator speech” when approached by a neighbor while working in a park site. If a steward is lucky to have a good set of core volunteers or other stewards, consider delegating tasks to those who thrive around people as well as plants. Remember that many people simply do not know that dumping organic materials, making social paths, or other actions are harmful to our parks and may change their actions once given tools and information.

Resources are available to stewards for outreach. This includes a spreadsheet listing offline and online materials available to stewards and interested homeowners. The list includes information about where to find or request the materials. Green Seattle Partnership also offers physical packets of materials in a tool-kit, including a table and awning available for events. In this project, our deliverables includes a door-hanger style handout stewards can use for targeted or blanketed outreach and several documents available to homeowners and stewards on how to install a buffer.

Stewards report that their best outcomes come from simple friendly but confident interactions when they are working in the field. This happens best when wearing a safety vest or other identifying clothing and explaining why protecting a site is relevant to that person. This might be appealing to their personal property values, reminding them about protecting uncommon birds, or reminding them that picking up their dog poop may mean they themselves won’t step in it later. It’s best to keep in mind, however, that interaction with the public may not always be positive. Most stewards who have had success in creating a volunteer base or who have successfully stopped dumping or invasive vegetation also report unavoidable negative or less-than-ideal situations. A desired outcome is one where a potential volunteer walks away wanting to do and know more about a restoration project.

Incentives and Penalties

Incentives

Some incentives exist in Seattle that are tangentially related to buffers. These are stormwater or rain garden rebates, free trees, rain garden installation help, permit guides for homeowners to remove invasive vegetation in critical areas, labor and technical advice, low-cost native or non-invasive plants. For example, the City of Seattle is helping residents reduce stormwater runoff from their property in target CSO basins. The City will pay up to 100% of the cost of installing rain gardens and cisterns in qualifying areas as part of their RainWise Residential Rebates. But, these rebates can take a while to return to the resident and require the funds upfront. But it *is* a significant resource. See Table 1 below listing available incentives.

Stewards and Seattle Parks seem to agree on the lack of incentives to remove invasive vegetation because of the large amount of time, money and knowledge required on the private property side. Private property owners in Seattle may be more likely to remove invasives and install native or non-invasive plants if there was free or low-cost invasive management work crews, monetary or in-kind help with labor and materials, and generally more information and communication regarding legal and logistical steps.

Table 1.	
Financial and Materials Incentives	
Stormwater Facilities Credit	http://www.seattle.gov/util/ForBusinesses/DrainageSewerBusinesses/StormwaterFacilityCredit/index.htm
Trees for Neighborhoods	http://www.seattle.gov/trees/treesforneighborhoods.htm
Rain Garden Installation Help	http://www.12000raingardens.org/about-rain-gardens/incentives/
Rain Garden Rebates	https://rainwise.seattle.gov/city/seattle/overview
Permit Guide for Removing Invasives in Critical Areas	http://www.seattle.gov/dpd/permits/permittypes/landuseeca/default.htm
Native Plant Nurseries and Plant Sales	http://www.kingcd.org/pdf/publication_native_nurseries.pdf
King Conservation District Grants and Technical Assistance	http://kingcd.org/pro_gra.htm
Plant Amnesty Pruning Tips	http://www.plantamnesty.org
Help with Organic Material Removal	http://www.seattle.gov/util/EnvironmentConservation/OurCity/AdoptaStreet/index.htm

Penalties

The only identified penalty related to buffers (by the project team) is dumping. There are other possibly related penalties such as fines for graffiti, removing of plants and destruction of Seattle Parks property but we did not talk to anyone who was involved in such incidents.

Dumping, even disposing of yard waste or “clean green,” is not allowed on park property or on any public property. Yard waste can be picked up through the City’s collection program or brought to a collection site for a fee, or it may be composted, but not on park property. In addition to being unsightly, dumped material damages park land in a

number of ways and is potentially dangerous. Yard waste debris can kill native shrubs and trees by suffocating the roots with a thick layer of debris. Tree roots and healthy vegetation are needed to help hold the soil and absorb moisture. In dry weather, dumped yard waste may pose a fire hazard. Dumping may also encourage rodents or other pests by creating a friendly habitat for them. By not dumping, homeowners can protect their own property from slides. Seattle Municipal Code provides for significant fines and penalties for dumping (\$100 to \$500 per day) [SMC 18.30].

One can report dumping by following these steps:

- Try to identify where it's located and where it originated
- Call 311 or the number available in the Steward Pocket Guide.
- Call and report it to your assigned Ecologist.
- If it continues to happen, have your Ecologist contact Seattle Parks and Recreation Property and Acquisition Services. They can send "No Dumping" letters to all the neighbors in the suspected dumping area. See the Appendix for an example of a letter.

Planning an Urban Forest Edge Buffer

Seattle Parks and Natural Areas come in various shades of ecological types. We present here three buffer "templates" with specific consideration to Seattle's needs and resources: a *PNW Native Plant and Pollinator Buffer*, *Erosion Control in the Buffer Zone*, and *Privacy in the Urban Forest Edge Buffer Zone*. These buffer zones promote the removal of invasive plants and the installation of native or non-invasive plants within an agreed upon buffer zone. These three design themes, or templates, are a starting point for homeowners and stewards. The suggested plant list and themes should be altered according to homeowner and site needs but should not deviate from native or non-invasive plants. The choice of plants will be influenced by the velocity at which wind and water travels, the amount of water level change during a rain event, the current degree of slope, current vegetative condition and, of course, the owner's preference. Emphasis should lie on requirements to protect ecological features and functions, plus considerations listed below:

The purpose of the forest edge buffer zone depends on the needs of the owner, Parks, or any other entity involved in planning and maintaining the zone. However, the primary purposes of these buffer zones are to:

- Reduce the long-term public maintenance costs of restored areas resulting from the continuing recruitment of invasive plants from neighboring private property into Seattle Parks and natural areas;
- Engage neighboring property owners in a cooperative program that supports native plant restoration on public park land and private land;
- Increase public awareness about the benefits and utilization of native plants; and
- Provide further ecosystem services for wildlife and people by preserving, restoring, and maintaining healthy natural areas in urban communities

The process of establishing a buffer requires the private property owner to investigate their needs, create a plan, implement and maintain their buffer zone. The basic steps in installing a buffer are as follows:

- 1) Identification of the features and functions that need to be protected
- 2) Consideration of the natural and development land uses involved;
- 3) Identifying potential impacts;
- 4) Creating a buffer management plan.
- 5) Installing a sustainable buffer
- 6) Ongoing maintenance and commitment to an invasive-free buffer zone

Because of great differences in site-specific requirements for buffers, a standardized approach for determining buffer zone size cannot be recommended. Although length and width of the buffer is dependent on private property size, as large as possible of a buffer zone correlates with the likelihood for any desired restoration outcomes. Any strip of native vegetation will be beneficial but the full benefits of a native plant buffer are proportional to its size. The width of the buffer is also dependent on various site conditions, and usually discussed in vegetative management plans. The size of the buffer required will depend on:

- 1) the function and features of the plantings at the edge of park land and their sensitivity to disturbance;
- 2) site-specific topography, hydrology and soils on both sides of park and private land;
- 3) existing and future land uses of park and private land

A comprehensive guide for buffers, although intended to be used in agricultural areas, is available online and provides fantastic starting points when thinking about a buffer design. This document, Conservation Buffers: Design Guidelines for Buffers, Corridors and Greenways¹⁰, presents seven design guidelines (See Table 3) and a numbering system to guide the user to a buffer plan. It is available online at www.bufferguidelines.net . Table 2 below highlights the guidelines from the overall Conservation Buffers guide which we have curated specific to Seattle.

Table 2	
Design Guidelines When Considering...	Guidelines Specific To Seattle Urban Forest Buffers
Water Quality	1.1, 1.6-1.9, 1.11-1.16, 1.19-1.22, 1.24, 1.26-1.28
Biodiversity	2.1-2.10
Productive Soils	3.2
Economic Opportunities	4.1 (out of date) 4.2-4.4, 4.6, 4.8, 4.9-4.11
Protection and Safety	5.2 (not all applicable to PNW), 5.9
Aesthetics and Visual Quality	6.3-6.5, 6.7

Table 3- Buffer functions related to issues and objectives

Issue and Objectives	Buffer Functions
Water Quality	
Reduce erosion and runoff of sediment, nutrients, and other potential pollutants	Slow water runoff and enhance infiltration Trap pollutants in surface runoff Trap pollutants in subsurface flow
Remove pollutants from water runoff and wind	Stabilize soil Reduce bank erosion
Biodiversity	
Enhance terrestrial habitat	Increase habitat area Protect sensitive habitats
Enhance aquatic habitat	Restore connectivity Increase access to resources Shade stream to maintain temperature
Productive Soils	
Reduce soil erosion	Reduce water runoff energy Reduce wind energy
Increase soil productivity	Stabilize soil Improve soil quality Remove soil pollutants
Economic Opportunities	
Provide income sources	Produce marketable products Reduce energy consumption
Increase economic diversity	Increase property values
Increase economic value	Provide alternative energy sources Provide ecosystem services
Protection and Safety	
Protect from wind or snow	Reduce wind energy
Increase biological control of pests	Modify microclimate
Protect from flood waters	Enhance habitat for predators of pests Reduce flood water levels and erosion
Create a safe environment	Reduce hazards
Aesthetics and Visual Quality	
Enhance visual quality	Enhance visual interest Screen undesirable views
Control noise levels	Screen undesirable noise
Control air pollutants and odor	Filter air pollutants and odors Separate human activities
Outdoor Recreation	
Promote nature-based recreation	Increase natural area Protect natural areas Protect soil and plant resources
Use buffers as recreational trails	Provide a corridor for movement Enhance recreational experience

Urban Forest Edge Buffer Zone Themes

Using the above guidelines and the supporting documents (See Appendix) a homeowner could narrow down their buffer plan to one of these three themes: a *PNW Native Plant and Pollinator Buffer*, *Erosion Control in the Buffer Zone*, and *Privacy in the Urban Forest Edge Buffer Zone*. Each colored section could be pulled apart and made into a one-page template for use as an outreach document, coupling it with the supporting documents listed.

PNW Native Plant and Pollinator Buffer for Forest or Meadows

Role: Urban landscapes are a sea of plant and wildlife habitat islands. The only way to bring the islands together is through connectivity brought by corridors. Your neighboring park and next-door neighbors may already provide bird, bee or butterfly habitat. Imagine a garden with adequate space, shelter, and food sources for amazing creatures! You can create or extend a desirable habitat corridor buffer in your backyard, and create opportunities for you and your family to observe these beautiful creatures and flowers.

Advantages of providing corridors for birds and winged insects:

1. Increase movement between isolated populations
2. Increase genetic variability
3. Increase food availability for a variety of wildlife species
4. Provide escape cover from predators and shelter during bad weather
5. Provide habitat variety for species requiring various cover types
6. Establishes “greenbelts” in urban areas for aesthetics, improved land value, and other benefits.

Supporting Documents: See the Private Property owner resource list and Action Plan in the Appendix.

Buffer Design Idea from a Steward

“Plant an evergreen backdrop to your colorful landscape design - exactly what florists do when they use salal or evergreen huckleberry in their floral displays. The buffer should be evergreens at every canopy layer - tree, shrub, and groundcover - to maximize stormwater interception (important for Puget Sound health and landslide prevention/reducing water weight on slopes), and to minimize invasive re-introductions. The buffer acts as a backdrop for more ornamental landscaping displays, and fills the weed vacuum after any invasive removal.”

Erosion Control in the Buffer Zone

Role: Many of our Seattle parks lie in ravines. As a homeowner, if your property line extends into a ravine, erosion control is a serious matter. Before any plans or attempts to control current or potential erosion on private and park property lines must be done in consultation and agreement with Seattle Parks.

Believe it or not, ivy is not doing the job you assume but removing invasives and planting natives in a controlled plan can contribute to long-term stability and safety for your property. If you want to prevent erosion on your property please keep several thoughts in mind:

1. Plant natives, which are adapted to our climate and rainfall patters and are pest and disease tolerant. If you choose the right native for your site, it can survive without irrigation.
2. Plan for a variety of root structures. Lacing your soil with a supporting web of root structures creates a solid latticework or erosion control.
3. Plan for a variety of plant types. Give consideration to various sun, shade, soil, ground covers, trees and understory shrubs.

Supporting Documents: See Slope Stability document, Action Plan, Sample VMPs, and Homeowner Resources in the Appendix

Buffer Design Idea from a Steward

“Plant an evergreen backdrop to your colorful landscape design - exactly what florists do when they use salal or evergreen huckleberry in their floral displays. The buffer should be evergreens at every canopy layer - tree, shrub, and groundcover - to maximize stormwater interception (important for Puget Sound health and landslide prevention/reducing water weight on slopes), and to minimize invasive re-introductions. The buffer acts as a backdrop for more ornamental landscaping displays, and fills the weed vacuum after any invasive removal.”

Privacy in the Urban Forest Edge Buffer

Role: Many Seattle residents do not remove overgrown blackberries at the edge of their yard because the prickly, bushy plant keeps unwanted people wandering into their property. If privacy and security is a top concern for you, consider installing a natural fence. In the city of Seattle, fences are limited by code: 6 feet of solid fence plus 2 feet of lattice. Plant height is not restricted by this code, and a natural hedge is more attractive than most man-made materials. Consider tall evergreen or “spiky, unfriendly” native plants because these will require less maintenance than a formal, manicured hedge and evergreen plants will provide year-round privacy. If you are concerned about privacy before the plants grow tall, consider a low-cost fence or lattice for vines.

Supporting Documents: See Homeowner Resources, Action Plan and Sample VMPs in the Appendix

Buffer Design Idea from a Steward

“Plant an evergreen backdrop to your colorful landscape design - exactly what florists do when they use salal or evergreen huckleberry in their floral displays. The buffer should be evergreens at every canopy layer - tree, shrub, and groundcover - to maximize stormwater interception (important for Puget Sound health and landslide prevention/reducing water weight on slopes), and to minimize invasive re-introductions. The buffer acts as a backdrop for more ornamental landscaping displays, and fills the weed vacuum after any invasive removal.”

Recommended Next Steps for Stewards and City Agencies

Recommendations from the Buffer Workshop

During the workshop, we generated issues and solutions concerning property edges using a group “mind-mapping” activity. Workshop attendees split into small groups and discussed and identified issues and solutions using sticky-notes and white boards. The overarching themes for both issues and solutions are as follows:

- Water access
- Communication needs between stewards and Seattle Parks
- Communication and education needs between stewards and private property owners
- Lack of incentives for invasive vegetation removal
- A need for more partnerships with like-minded nurseries and organizations
- Identifying and communicating park boundaries
- Lack of stewardship grants, tax breaks or rebates applicable to urban, small parcel, private properties
- Herbicide policy roadblocks

“Seattle Public Utilities (SPU) has a Stormwater Facilities Credit (to reduce utility fees) which I believe includes tree cover, but we need to combine wastewater, stormwater, and conservation district utility fees into one, so stewardship has a strong-enough incentive to overcome the reticence to apply. King Conservation District (KCD) has a Landowner Incentive Program to cost-share restoration expenses. And RainWise (SPU and KC partnership) has a rebate program that reimburses raingarden installation, but it's heavy in paperwork and late in payment. King County ... has a Public Benefit Rating System (PBRS) to reduce property taxes for larger landowner in exchange for stewardship. Smaller adjacent homeowners may combine efforts to apply, but the chances of 4 adjacent property owners willingly submitting paperwork is small.” - Steward

A complete and detailed spreadsheet of the ideas generated during the workshop is attached.

Recommendations from the Buffer Project Team

The list below includes the identified needs and possible next steps regarding the issues along buffer edges. These recommendations arose out of interviews and meetings with stewards, city agencies, and other stakeholders. Some of these were also mentioned independently during the group workshop activity.

For Seattle Parks and Recreation or other City Agencies

- Subsidize invasive treatment on private property through a landowner stewardship property tax credit
 - Create an invasive removal unit similar to City Light crews who trim trees from power lines.
 - Repackage existing, related incentives for buffer edge programs. These include Stormwater Facilities Credit, Trees for Neighborhoods, Rainwise Rebates and raingarden installation help, low-cost Native plant nurseries, KCD grants, Plant Amnesty pruning help, and organic material pickup through Adopt-a-Street.
- Changes are needed if we are to address the communal problem that invasive seed drain poses to private and public property, particularly the ivy and holly that is leapfrogging into national forests. Holly, spreading at a near exponential rate, requires herbicide (otherwise you get 20 times the rootsuckers) and homeowners don't want to handle herbicide. Just like Seattle City Light crews send out tree trimmers to clear power lines, we need paid experts to address invasive seed sources.- Steward*
- Suggest and provide native “seed rain” to plant in private yards
 - Continue to support neighborhood outreach
 - Create a steward team focused on homeowner outreach and inter-group steward communication
 - Create a steward team who act as liaisons between steward and homeowners
 - Hire another person to support Forterra and the Ecologists, whose sole job is steward support
 - Create an online space for stewards to share successes, failures, techniques, best-practices
 - Provide incentives or mechanism to provide water to restoration sites during the summer. This could be a bicycle pump system, or subsidized rain barrels.
 - Inter-communication for stewards in the form of more social events, an online forum for knowledge exchange, and mandatory trainings
 - Better communication to stewards not to clear brush March through July because of nesting

For Stewards

- Continue outreach efforts
- Promote a neighborhood-based co-op of citizens taking turns removing invasive vegetation and installing plants in each other's yards
- Use the list of steward resources to organize your outreach efforts

"I wish every homeowner, regardless of parcel size, could apply for an environmental rating {measuring tree cover, soil health, invasive control, and stormwater management (cisterns and raingardens)} to annually reduce property taxes. Repeated incentives are key, and upfront assistance. Incentives give homeowners choices to balance views, concerns about hazard trees, slope concerns. A risk management approach that attaches slide risks/health risks/water quality concerns into the price of herbicides, to mitigate their misuse and pay for mishaps, would be better than a regulatory approach that causes the neglect of invasives - a far worse scenario for slope stability." - Steward

- Use the doorhanger for targeted outreach
- Direct homeowners to the GSP homeowner resources page, with special attention to incentives and buffer designs
- Push for refocused and repackaged incentives that contribute to discussions about buffers

Push for property tax breaks for property owners who remove invasives and plant natives along park property edges

"My top 10 worst of worst invasives: 1. Tree vines (Ivy or wild clematis) 2. English Holly 3. European Hawthorn 4. Butterfly bush 5. Knotweed 6. English/Portuguese laurels 7. Bird cherry 8. Himalayan blackberry 9. Scot's broom 10. Yellow archangel ... all of these need judicious/experienced herbicide assistance." - Steward

- Work together to form an unofficial online forum to create a knowledge exchange and database

Appendix I: Resources Generated from our Project

List of Print and Online Steward Resources- Attached

List of Online Resources for Private Property Owners- Attached

A list of Steward-Identified Buffer Issues and Solutions generated during a group workshop activity- Attached

Slope Stability Handbill from GardenCycles (a steward's private business)- Attached

Buffer Workshop Agenda- Attached

Outreach Door Hanger- In progress as of May 2014

Buffer Design Templates and Installation Action Plan- In progress as of May 2014

Suggested Contractor List- In progress as of April 2014

Buffer Designs and Plant Lists from other sources- Contact Elizabeth

Examples of No Dumping Letters sent by Parks Real Estate- Contact Elizabeth

Example Vegetative Management Plans- Contact Elizabeth

Buffer Workshop PowerPoint- Contact Elizabeth

A prior 2011 WNPS Steward Buffer Project at Kubota Gardens- Contact Elizabeth

Appendix II: Known Seattle Parks with Buffer Zones

Buffer zone	Steward	Notes
Puget Creek	Steve Richmond	
Interlaken	Kari Olson and Rick Thompson	
SE Queen Anne Greenbelt	Jean Davis	
Jackson Park Trail	Elly Hale	New area with lot of potential
Longfellow Creek	Adam Jackson	
Licton Creek	Liz Kearns	
Ravenna Park	George Macomber, Anne Stevens, Suzanne Anderson, Mark Miller	Good examples of positive outcomes of homeowner engagement
Madrona Woods	Peter Mason and Bill Brookreson	A private property buffer at 38th and E. Columbia
Kubota Gardens	Michael Oxman	Involved in previous Buffer pilot
St.Marks Greenbelt	Robert Hayden	
Mount Baker	Del Davis	A buffer zone at 31st Ave. S. and S. Holgate bordering Colman Park Also Mt Claire
Roxhill Bog	Rio Del Montana, David Perasso, Doug Gresham	Focus on their work with neighboring elderly assistance place's groundskeepers
Frink Park	Darrell Howe	Example of edge issues with SDOT and Homeowners
Burke Gilman Trail	Jim Corson	

References

¹ <http://seattle.cedar.greencitypartnerships.org/event/4852/>

² www.seedrain.org

³ Steve Richmond, personal communication with Anne.

⁴ For a more detailed overview of CPTED navigate to www.safecascadia.org

⁵ National Trails Training Partnership: Safe Trails Forum
<http://www.americantrails.org/resources/safety/designcrime.html>

⁶ Green Cities: Good Health – Crime and Safety
http://depts.washington.edu/hhwb/Thm_Crime.html

⁷ City of Redmond Public Safety Webpage: CPTED
<http://www.redmond.gov/PublicSafety/Police/tips/CPTED/>

⁸ <http://www.nature.com/scitable/knowledge/library/restoration-ecology-13339059>

⁹

<http://www.seattleaudubon.org/sas/WhatWeDo/Science/CitizenScience/NeighborhoodBirdProject.aspx>

¹⁰ Bentrup, G. 2008. Conservation Buffers: design guidelines for buffers, corridors, and greenways. Gen. Tech. Rep. SRS-109. Asheville, NC: Department of Agriculture, Forest Service, Southern Research Station. 110 p. Accessed via
<http://nac.unl.edu/buffers/index.html>

¹¹ www.bufferguidelines.net