

Rain Garden / Bioretention Facility Social Science Results and Recommendations

Final Report (Deliverable 1.3)

November 27, 2018

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Background:

This social science research study was originally intended to 1) develop methods for gathering landowner input on issues related to rain gardens and bioretention facilities and 2) determine perceived rain garden and bioretention facility functional success by landowners relative to success measured using trained observers and a research-based assessment protocol. It was to include a survey or interview methodology. After a literature review and input from the project's Technical Advisory Committee and Working Group, many topical study areas were identified. They were:

- How do landowners value and/or perceive rain garden / bioretention success relative to measured success?
- What are the best ways to incentivize / facilitate *landowner* implementation of rain garden maintenance?
- What actions would increase *landowner* installation of new rain gardens?
- How well do landowners (or their neighbors) understand rain garden / bioretention facilities' ability to manage stormwater and remove pollutants?
- How do *communities* value rain gardens and bioretention facilities?

These questions involved multiple audiences and exceeded the scope of what could be achieved with existing resources in one audience research study. The ensuing study narrowed the research questions to those that seemed most important to address in tandem with the Rain Garden Field-based Assessment Project site assessments.

Research Goals:

1. Test the identified literature review themes of private landowner positive views of rain garden / value. Use those views as indicators of landowner perceived success, compared to field-measured functional success;
2. Assess private landowner views on how well their own or neighbors' rain gardens are succeeding and the reasons for those views;
3. Assess current levels of maintenance implementation, as well as explore how to best incentivize / foster implementation of maintenance by private residential, commercial and industrial landowners;
4. Assess current level of landowner understanding on how rain gardens / bioretention facilities manage stormwater and reduce pollution; and,
5. Determine landowner type and relationship to rain garden / facility (owner built, owner purchased, renter, manager, commercial, residential, industrial) and identify any relative differences in perception for those different audiences.

Target Participants:

Private landowners were the focus for this study. They are residential, commercial or industrial landowners who own and / or maintain rain gardens or bioretention facilities as well as private landowners who do not currently own a rain garden but live in view of a study site. All private landowners involved in any version of the Assessment Protocol pilot project were invited to participate in the survey, although this turned out to be a small sample size (under 20) once public facilities were removed.

Stewardship Partners staff (Clark, 2017) estimated there are approximately 8,000 privately owned rain gardens around Puget Sound. The 12000RainGardens.org website had data on 3,820 (August 2017), many on public property. Some entries may include multiple cells in one bioretention system. At least 85% of those entries were uploaded by staff or installers involved in the rain garden program, therefore email contacts for private landowners were limited.

Table 1 shows county-based distribution of rain gardens in the website. For this survey, the percent distribution in the 12000RainGarden.org was used as an estimation of the rough distribution of rain gardens around Puget Sound, although it also may reflect willingness in recording information. Those county distributions will be assumed to roughly reflect actual distribution of 8,000 rain gardens and bioretention sites throughout Puget Sound by both public and private interests. The target return rate was 2% of the 8000 estimated rain garden owners (160 responses), given the pilot nature of the survey, the lack of easily accessible contact information, limited resources and uncertainty of actual number of private landowners with rain gardens / bioretention facilities.

Table 1: County Distribution of Rain Gardens in 12000RainGardens.org

County	Number of Unique Rain Gardens Listed	Percent	Target for Individual Responses
Clallam	51	1.3%	13
Island	69	1.8%	18
Jefferson	24	<1%	5**
King*	2140	56%	560
Kitsap	158	4.1%	41
Mason	46	1.2%	12
Pierce	548	14.3%	143
San Juan	15	<1%	4
Skagit	71	1.9%	19
Snohomish*	402	11%	110
Thurston	50	1.3%	13
Whatcom	242	6.3%	63
Unknown	36	<1%	8

*City of Bothell rain gardens were divided between King and Snohomish County without checking addresses.

Survey Methodology:

The social science research team developed a survey with the input of the project Technical Advisory Committee (Appendix A) that explored landowner perspectives and experiences in the following categories:

- Benefits and challenges owning rain gardens or bioretention facilities.
- Perceived facility success and the reasons underlying those views.
- Perceived barriers for installations Current maintenance activities (including who conducts maintenance and factors influencing maintenance decisions).
- Understanding of facility stormwater management purpose.
- Personal demographics related to relationship to facility (owner - builder, owner - purchaser, renter, business representative, etc.).

The 15-question survey used the Qualtrics web-based software as the platform. Research staff distributed the electronic survey with an explanatory email (Appendix B) in several ways. Direct emails were sent to all the

individuals who listed private rain gardens in the 12000RainGardens.org website asking them to share electronic surveys with the private landowners with whom they have worked or complete it themselves. The survey was also shared with municipal staff who are part of the “STORM” network with a request to distribute it electronically to the landowners they know that have rain garden or bioretention sites and other staff who could do the same. Lastly, groups such as Conservation Districts, WSU Extension programs and locally-based non-profit organizations were sent the survey and asked to share it with landowners they have assisted.

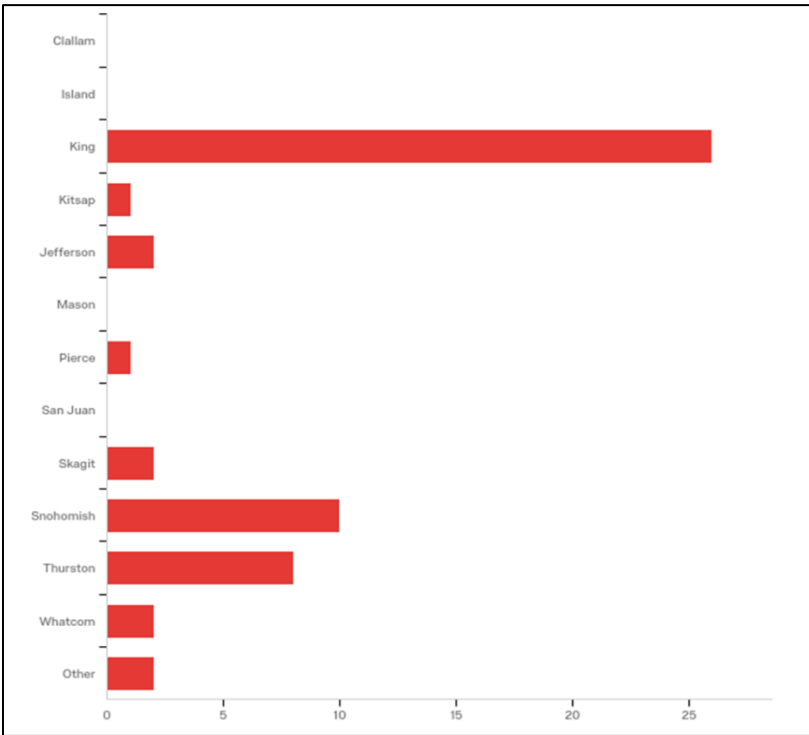
Study Results

Participant Demographics:

A rough estimate of 2000 private landowners received the survey, based on emails sent directly to landowners and distribution by partner organizations. Fifty-eight (58) respondents participated in the study. Based on the low response rate, this survey should be considered a pilot effort to inform a more robust assessment. Recommendations for ways to increase the response rate are on page 7.

Table 2 shows the county-based distribution of respondents, with the most respondents from King County (48.15%) and Snohomish County (18.5%). Varied response rates may be attributed to limited distribution in areas which seemed to under report given expected number of rain gardens (Pierce County at 1.85%, for example). The survey did not ask for specific identification as a residential, commercial or industrial private landowner.

Table 2: County Distribution of Respondents



Most landowners had or maintained one rain garden or bioretention site (58.6%, 34 respondents). 32.8% owned two to four facilities (19 respondents). Surprisingly another 5.2% (3 respondents) indicated they neither owned nor maintained a rain garden. The final 2 respondents (3.45%) indicated they had over 10 facilities. 50% of the respondents stated their rain gardens were 2 to 4 years old. Another 22.4% were 5 to 6 years old. The groups representing rain gardens at less than 1 year old and more than 6 years old both were 13.8% of the respondents.

Question #3 related to landowner relationship to the rain garden may have been too complicated, as participants didn’t select three options as instructed. Most responses indicated, however that they owned a rain garden (32.3% of 36% that replied); the rain gardens were on or near a residential property (versus commercial or industrial, 24.1% of 27.9% that replied), and they were the original landowners who installed or had someone install their rain garden (32.3% of 35.35%). This paints a picture of our survey respondents as primarily residential landowners who own a rain garden that they built or had someone build for them, but because less than half of respondents answered these questions we cannot state that definitively.

Installation Considerations:

The next part of the survey explored motivations and barriers to installation. Table 3 indicates those attributes that most influenced landowners’ choice to install a rain garden. Reducing water pollution received the most

“extremely important” selections (46.3%), with creating wildlife habitat (25%) and beautifying a landscape distant second and third choices (19.5%). On the “not at all important” side, slowing car traffic (87.2%) and permit requirements (83.8%) were extremely weak motivators. Creating green spaces and preventing flooding on property fell in the middle of the continuum.

Table 3: Rating how important each item was in choosing to install a rain garden.

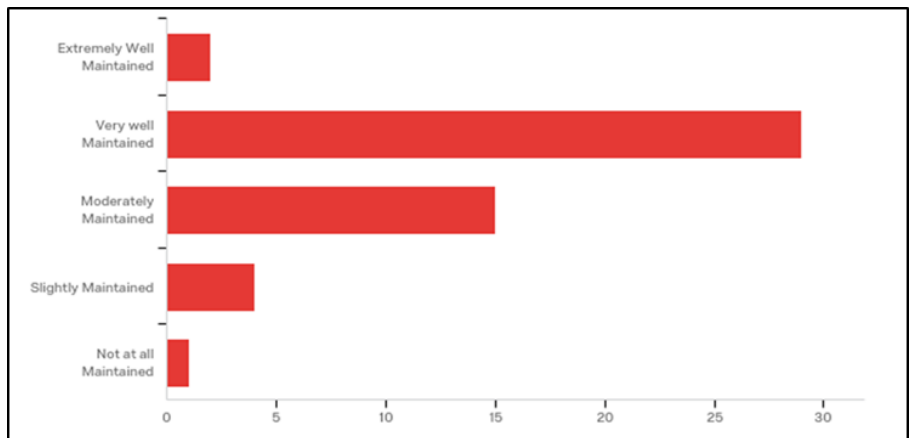
Extremely or Very Important	Moderately / Slightly Important	Not at All Important
Reduce Water Pollution	Create Green Space / Friendly Space in Neighborhood	Required by Permit
Create Wildlife Habitat	Prevent flooding on Property	Slow Car Traffic
Beautify Yard / Landscape		

Many of the drawbacks associated with rain gardens that respondents were asked about met with “strongly disagree” or “moderately disagree” rankings. Five of the seven respondent comments added to this question were assertions of the value of rain gardens (‘rain gardens create community’, ‘lots of compliments!’). The two negative comments cited length of time it took to install causing spousal displeasure and how summer droughts damage plants. The only queried statement that drew a more distributed response was that “rain garden plants are messy” with 51% strongly disagreeing and 3.9% strongly agreeing or 19.6% moderately agreeing. The full text of the question can be found in Appendix A.

Maintenance Considerations:

The third part of the survey was intended to assess attitudes about maintenance requirements and possible barriers for implementation of suggested maintenance practices. This was an area where the prior literature review yielded the fewest insights. The questions were framed to draw responses about the landowner experiences and preferences, often using the word “you” in the questions. For example, Question 7 asked “Overall, how well do you feel the rain garden is maintained?” The approach seemed to work to draw out personal opinions and experiences.

Table 4: Respondent Views on Quality of Maintenance



Most respondents felt their rain gardens were very well maintained (56.9%) or moderately maintained (29.4%). Table 4 shows the full distribution of responses. Eighty one percent of the respondents identified themselves as the parties responsible for maintenance. The next highest selection was that a contractor or staff was hired (6.9%).

How much maintenance is required for different tasks was also queried. One important survey oversight was that “weeding” was not listed as a maintenance activity and several respondents mentioned it in the “other” comments. Overall, most tasks take less than 5 hours per year. ‘More than 10 hours’ and ‘5-9 hours’ were also an option to select and were rarely selected for any one task. The biggest perceived time sinks were watering (10% cited more than 10 hours and 14% cited 5 to 9 hours per year) and pruning (8.2% cited more than 10 hours and 16.3% cited 5 to 9 hours). The inclusion of weeding into this list may have changed these results somewhat. Table 5 shows the selections for ‘less than five hours’.

Table 5: Length of time each year for rain garden maintenance tasks

Activity	Less than 5 hours	Not needed
Mulching	47.9%	41.7%
Removing Trash / Clearing Inflow or Outflow	54%	34%
Watering	28%	48%
Pruning	59.1%	16.3%
Removing Dirt	22.45%	75.5%
Replacing Plants	42%	48%
Treating for Pests / Preventing Animal Browsing	4%	94%
Fertilizing	18%	82%
Monitoring	52%	34%
Sign Maintenance	16%	84%

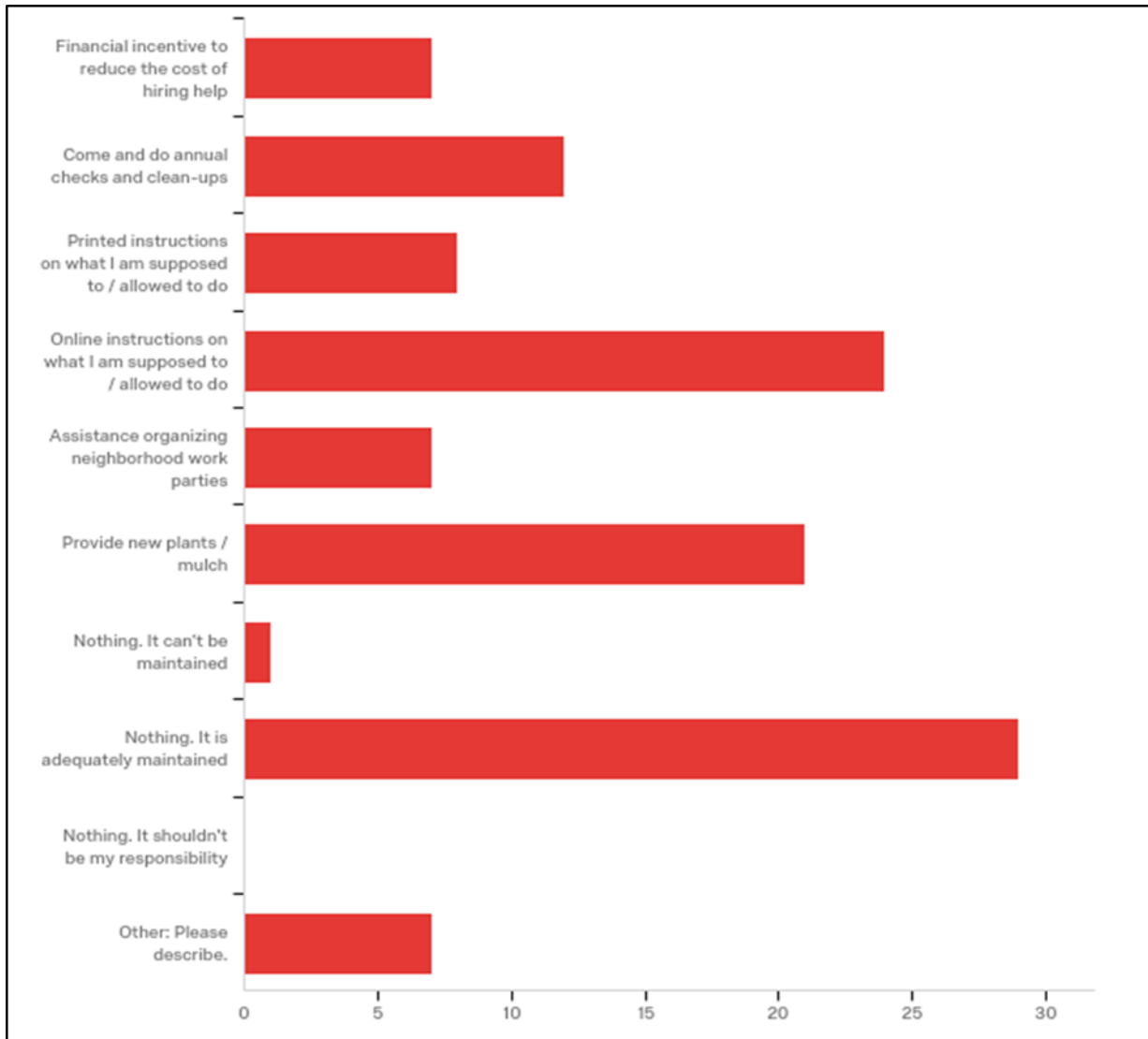
To determine what may prevent respondents from engaging in certain maintenance practices, the survey asked them to select statements that they believed to be true. Only 63.8% of the respondents selected a single response (i.e. 36.2% did not select any of our listed potential barriers as true to their experience). The response that generated the most “true: selections was “I don’t know what to do”. Comments added by respondents reinforced the list, below.

- I am not sure what to do (21.2%)
- It takes too much time (16%)
- It requires a level of physical activity I can’t provide (8.1%)
- It is too wet / muddy to work in throughout the year (8.1%)

- I don't think I'm allowed to do anything in it (5.4%)
- The site is too difficult / brushy to access (2.7%)
- Someone else is supposed to maintain it (0%)
- Other comments reinforced these answers

When asked "If maintenance were solely your responsibility, what could an outside group offer that would help? Check all that apply.", the most frequently selected option was "Nothing. It is adequately maintained" (25%). Secondly, respondents requested "Online instructions on what I am supposed to / allowed to do" (20.7%) versus 6.9% that requested printed instructions. The preference for online resources over printed may have been skewed by the online nature of the survey (i.e. an online survey biases the respondent pool in favor of individuals who actively use the internet vs. those who don't). "Provide new plants and mulch" were next in line (18.1%). Table 6 shows all response selections.

Table 6: Types of Maintenance Support Selected



Landowner Value Perception:

The final portion of the survey explored landowner’s perceptions of the value of the rain garden or bioretention facilities and level of satisfaction with the reality of owning or maintaining a facility on or near their property. Overall, landowners seemed to place high value in rain gardens for all attributes the survey listed, with the highest rated *negative* values coming for “catching litter” (3 respondent selections / 6.4% for “Negative Value” and 1 respondent / 2.1% for “Very Negative Value”. That was the only selection for “Very Negative Value”. In addition, respondents provided additional values not included in the survey (pollinator habitat, recharging aquifers, growing local foods, community bonding and reduce potential for combined sewer overflows). The responses in Table 7 reinforce previously stated perceived value of rain gardens.

Table 7: Perceived Value of Rain Gardens Functions.

Significant Value	Some Value	Neutral and Negative Values	Very Negative Value
Clean Water Runoff (88.2%)	Teach communities about water issues (45.1%)	Catch Litter (40.4%)	(no selections great than 2.1%)
Provide Wildlife Habitat (49%)	Grow plants that offset greenhouse gas emissions (42%)		
Conserve Water (46%)			
Beautify neighborhoods (45.1%)			

Most respondents (86.3%) indicated they had expectations upon installing their rain gardens. All but one respondent felt the rain gardens at least “Meets Expectations” (39.5%), with 48.8% responding that the rain garden “Exceeded their Expectations” with 9.3% indicating that the rain garden “Far Surpasses Expectations”.

Study Recommendations:

Study Methodology and Content Changes

Target Audience Identification:

- Develop a more comprehensive list of rain garden owners to survey. The – 12,000 rain gardens database is a good start, however more direct contact information for rain garden landowners is needed. One approach would be to conduct GIS analysis to get physical addresses and mail out hard copies. The new Soundimpacts.org website may provide added mapping resources. The inability to easily identify landowner addresses (and lack of resources for mailing) made this problematic. The response rate goal with the survey pilot was not attained at least partly for this reason.
- Secure early permission of landowners with rain gardens to allow both rain garden field assessments and interviews (before or after field assessment) to compare actual conditions and values with perceived conditions and values.
- Specifically ask landowner type (residential, commercial or industrial) in the survey. Suggested changes to the survey are provided in Appendix C.

Installation and Maintenance Refinements:

- Query types of incentives that would or did serve as motivations for installations. A specific question would be to ask the dollar amounts that did or could make rain garden installation feasible and desirable.
- Who are these owners of private residential rain gardens and bioretention facilities? Inquire into their affiliations and interests (do it yourself enthusiasts, gardeners, etc.). Specifically explore if a landowner's interest and / or aptitude in landscaping or home improvements may increase the likelihood of being receptive to installation. This knowledge would allow rain garden proponents to determine if they are only working with a small slice of landowners with gardening aptitude, or if the movement has infiltrated into a larger demographic.
- Develop and implement a representative survey of residential homeowners without rain gardens or bioretention facilities across the region to identify how many people are aware of rain gardens and their basic function, their potential interest in having one on their property and their level of gardening interest/activity. This would help determine if the lack of familiarity with the rain garden concept is a true barrier to installation.
- Determine if maintenance guidance is more, less or evenly useful in print or online format. Explore what areas landowners feel ill-informed.
- Test how receptive and / or inspired non-rain garden owners would be by rain garden testimonials from rain garden owners, or from neighbors that become rain garden champions or ambassadors.

Recommendations for Incentives / Strategies:

Installation:

- Publicize landowner stories through testimonials shared in promotional initiatives. Showcase what has the rain garden added to their life and how the rain garden has enhanced the perceived values and enjoyment of their property. Messages and messengers could be assessed and tested with focus groups that had members who had known about rain gardens and had appropriate sites, and yet haven't installed them.
- Consider convening listening sessions or events in target neighborhoods with a high volume of rain gardens that also serve to build a sense of community – make them fun, social and expose everyone to rain gardens at their best. This might also have a secondary benefit of connecting enthusiastic, veteran rain garden landowners with those considering having one on their property.
- Accept that the installation benefits are clear given close correlation between literature review findings and this study. They are providing clean rain water runoff, beautified neighborhoods, attracting wildlife and conserving water. Keep emphasizing the water quality benefits of rain gardens, along with their habitat and beautification benefits.

Maintenance:

- Provide clear, easily accessed maintenance instructions to all rain garden landowners. Focusing on landscape maintenance contractors is not a priority since a large majority of rain garden owners stated they do their own maintenance. Provide both print and online versions, with a large effort to have installers / conservation groups share these 'welcome to your rain garden' instructions with all landowners they work with.
- During the above mentioned listening sessions, / community outreach events, engage residents in sharing how each community can best be supported in their maintenance needs. Determine if support needed is financial, physical, gardening interest, gardening knowledge, access to plants or other needs.

Appendix A: Original Survey

Private Landowner Perspectives on Rain Gardens

Start of Block: Default Question Block

Q1 How many rain gardens / bioretention facilities do you have on your property or maintain?

- None (1)
- One (2)
- Two - Four (3)
- Five - Ten (4)
- More than Ten (5)

Skip To: End of Survey If How many rain gardens / bioretention facilities do you have on your property or maintain? = None

Q2 What is the age of your rain garden? Check all that apply if you have more than one.

- Less than 1 year old (1)
 - 2 - 4 years old (2)
 - 5 - 6 years old (3)
 - More than 6 years old (4)
 - Don't recall (5)
-

Q3 Please check at least one box in each column to best describe your relationship to the rain garden.

- Own a Rain Garden (1)
 - Rent a Property with a Rain Garden (2)
 - Work for a Property Owner with a Rain Garden (3)
 - Adopted a Rain Garden near Me / On Street Right of Way (4)
 - The rain garden is on / near a residential property (5)
 - The Rain garden is on / near a commercial property (6)
 - The Rain garden is on / near an industrial property (7)
 - I built or had the rain garden installed myself (8)
 - The rain garden was on the property before I arrived (9)
 - I maintain a rain garden near my property that someone else built (10)
-

Q4 Please check the county / counties in which your rain garden is located.

- Clallam (1)
- Island (2)
- King (3)
- Kitsap (4)
- Jefferson (5)
- Mason (6)
- Pierce (7)
- San Juan (8)
- Skagit (9)
- Snohomish (10)
- Thurston (11)
- Whatcom (12)
- Other (13)

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Display This Question:

*If Please check at least one box in each column to best describe your relationship to the rain garden.
= I built or had the rain garden installed myself*

Q5 Please rate how important each item was in choosing to install a rain garden.

	Extremely important (1)	Very important (2)	Moderately important (3)	Slightly important (4)	Not at all important (5)
Beautify yard / landscape (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Create green spaces / friendly places in the neighborhood (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Required by permit (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prevent flooding on property (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Create wildlife habitat (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce water pollution (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Slow car traffic (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: Please describe. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6 Please select how closely the following statements agree with your view of rain garden drawbacks.

	Strongly Agree (1)	Moderately Agree (2)	Neutral (3)	Moderately Disagree (4)	Strongly Disagree (5)
Maintaining the rain garden is too much work (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The rain garden reduces parking (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is not very attractive (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It blocks desirable views (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It blocks views of children playing outside (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rain garden plants are messy (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rain gardens reduce neighborhood safety (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rain gardens attract litter (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: Please Describe. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Q7 Overall, how well do you feel the rain garden is maintained?

	Extremely Well Maintained (1)	Very well Maintained (2)	Moderately Maintained (3)	Slightly Maintained (4)	Not at all Maintained (5)
How well maintained is the rain garden? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8 Who is responsible for maintaining the rain gardens on or near your property? Check all that apply.

- Self (1)
 - Government Agency (2)
 - Contractor / Staff you Hire (3)
 - Other: Please Describe (4)
-
- Neighborhood as a whole (5)
 - Individual Neighbor (6)
 - Community Group (7)
 - I don't know (8)

Q9 Please estimate how much time it takes to complete the following tasks, if needed, for the rain garden each year.

	More than 10 hours (1)	5 - 9 Hours (2)	Less than 5 Hours (3)	This is not needed. (4)
Mulching (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Removing Trash / Clearing Inflow or Outflow (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Watering (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pruning (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Removing Dirt (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Replacing Plants (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fertilizing (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Treating for Pests / Preventing Animal Browsing (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sign Maintenance (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: Please describe. (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 To help us understand what may prevent maintenance of rain gardens, please select all the statements that you believe are true.

- It takes too much time (1)
 - It requires a level of physical activity I can't provide (2)
 - Someone else is supposed to maintain it and they don't (3)
 - I am not sure what to do (4)
 - I don't think I am allowed to do anything in it (5)
 - It is too wet / muddy to work in throughout the year (6)
 - The site is too brushy / difficult to access (7)
 - I don't like to do it. (8)
 - Others: Please describe. (9)
-

Q11 If maintenance were solely your responsibility, what could an outside group offer that would help you? Check all that apply.

- Financial incentive to reduce the cost of hiring help (1)
 - Come and do annual checks and clean-ups (2)
 - Printed instructions on what I am supposed to / allowed to do (3)
 - Online instructions on what I am supposed to / allowed to do (4)
 - Assistance organizing neighborhood work parties (5)
 - Provide new plants / mulch (6)
 - Nothing. It can't be maintained (7)
 - Nothing. It is adequately maintained (8)
 - Nothing. It shouldn't be my responsibility (9)
 - Other: Please describe. (10)
-

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Q12 Please rank how valuable you believe rain gardens are for each of the following statements.

	Significant Value (1)	Some Value (2)	Neutral Value (3)	Negative Value (4)	Very Negative Value (5)	Does not Apply to My Rain Garden (6)
Conserve water (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide wildlife habitat (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beautify neighborhoods (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grow plants that offset greenhouse gas emissions (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clean rain water runoff (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teach communities about water issues (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Catch litter (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: Please describe. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q17 Did you have expectations about your rain garden when you installed it?

- Yes (1)
- No (2)
- I'm not sure / I don't recall (3)

Skip To: Q16 If Did you have expectations about your rain garden when you installed it? = No

Q13 Please rate how well your expectations are being met for each of the statements below now that you have or maintain a rain gardens.

	Far Surpasses Expectations (1)	Exceeds Expectations (2)	Meets Expectations (3)	Doesn't Meet Expectations (4)	Far below expectations (5)
Beautify yard / landscape (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Create green spaces / friendly places in the neighborhood (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Required by permit (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prevent flooding on property (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Create wildlife habitat (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce water pollution (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Slow car traffic (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q14 Overall, please rate how successful you feel your rain garden is meeting your expectations.

- Far Surpasses Expectations (1)
- Exceeds Expectations (2)
- Meets Expectations (3)
- Doesn't Meet Expectations (4)
- Far Below Expectations (5)
- Other: Please Describe. (6)

Q15 Please share why you rated your rain garden the way you did.

Q16 We will be conducting a small number of 20 - 30 minute telephone interviews to ask follow-up questions from this survey between April 1 - April 15. If you are interested in participating in an anonymous telephone interview, please provide your name, telephone number and email address to be contacted. We will not use your contact information for any other purpose. A thank you gift, donated by Stewardship Partners, will be made available to everyone who participates in a telephone interview. Please provide your name, email and telephone number if you would like to be involved in the telephone interviews.

End of Block: Default Question Block

From:
To:
Subject: Got a Rain Garden / Bioretention Site? Maintain one Nearby? We Want Your Opinion! PLEASE SHARE WIDELY!
Date: Monday, March 5, 2018 2:12:00 PM

PLEASE SHARE WIDELY!

If you are a private landowner and have or maintain a rain garden or bioretention site, we want to hear your opinions! Washington State University is working with several agencies and Stewardship Partners to learn about why you installed a rain garden, what your experience has been like, how satisfied you are and better understand what maintenance needs are and how we may be able to help.

All answers are anonymous. The survey takes approximately 15 minutes and will close on March 22nd.

Survey Link: https://wsu.co1.qualtrics.com/jfe/form/SV_9GHd0cFPx5MKaIB

If you REALLY want to share your thoughts, we also will have a limited number of telephone interviews in early April. All who are interviewed will receive a set of the glass plates, shown below, as a thank you.

If you have any questions, please do not hesitate to contact me.

Chrys

Chrys Sacco Bertolotto
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Extension programs are open to all without discrimination.

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You received this message because you are subscribed to the Google Groups "King County ECO-Net" group.

To unsubscribe from this group and stop receiving emails from it, send an email to king-county-eco-

net+unsubscribe@googlegroups.com.

To post to this group, send email to king-county-eco-net@googlegroups.com.

To view this discussion on the web visit <https://groups.google.com/d/msgid/king-county-eco-net/MWHPR01MB2256EB39B9A4D6DCFE165C00A2DA0%40MWHPR01MB2256.prod.exchangelabs.com>.

For more options, visit <https://groups.google.com/d/optout>.

Appendix C: Survey with Suggested Changes

Private Landowner Perspectives on Rain Gardens

Start of Block: Default Question Block

Q1 How many rain gardens / bioretention facilities do you have on your property or maintain?

- None (1)
- One (2)
- Two - Four (3)
- Five - Ten (4)
- More than Ten (5)

Skip To: End of Survey If How many rain gardens / bioretention facilities do you have on your property or maintain? = None

Q2 What is the age of your rain garden? Check all that apply if you have more than one.

- Less than 1 year old (1)
 - 2 - 4 years old (2)
 - 5 - 6 years old (3)
 - More than 6 years old (4)
 - Don't recall (5)
-

Q3 Please check at least one box in each of the three sections to best describe your relationship to the rain garden.

Who Owns the Rain Garden:

Own a Rain Garden (1)

Rent a Property with a Rain Garden (2)

Work for a Property Owner with a Rain Garden (3)

Adopted a Rain Garden near Me / On Street Right of Way (4)

Where is Rain Garden Located?

The rain garden is on / near a residential property (5)

The Rain garden is on / near a commercial property (6)

The Rain garden is on / near an industrial property (7)

Who Build the Rain Garden?

I built or had the rain garden installed myself (8)

The rain garden was on the property before I arrived (9)

I maintain a rain garden near my property that someone else built (10)

Q4 Please check the county / counties in which your rain garden is located.

- Clallam (1)
- Island (2)
- King (3)
- Kitsap (4)
- Jefferson (5)
- Mason (6)
- Pierce (7)
- San Juan (8)
- Skagit (9)
- Snohomish (10)
- Thurston (11)
- Whatcom (12)
- Other (13)

Page Break

Display This Question:

*If Please check at least one box in each column to best describe your relationship to the rain garden.
= I built or had the rain garden installed myself*

Q5 Please rate how important each item was in choosing to install a rain garden.

	Extremely important (1)	Very important (2)	Moderately important (3)	Slightly important (4)	Not at all important (5)
Beautify yard / landscape (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Create green spaces / friendly places in the neighborhood (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Required by permit (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prevent flooding on property (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Create wildlife habitat (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce water pollution (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Slow car traffic (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: Please describe. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6 Please select how closely the following statements agree with your view of rain garden drawbacks.

	Strongly Agree (1)	Moderately Agree (2)	Neutral (3)	Moderately Disagree (4)	Strongly Disagree (5)
Maintaining the rain garden is too much work (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The rain garden reduces parking (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is not very attractive (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It blocks desirable views (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It blocks views of children playing outside (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rain garden plants are messy (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rain gardens reduce neighborhood safety (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rain gardens attract litter (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: Please Describe. (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Page Break

Q7 Overall, how well do you feel the rain garden is maintained?

	Extremely Well Maintained (1)	Very well Maintained (2)	Moderately Well Maintained (3)	Slightly Well Maintained (4)	Not at all Well Maintained (5)
How well maintained is the rain garden? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8 Who is responsible for maintaining the rain gardens on or near your property? Check all that apply.

- Self (1)
 - Government Agency (2)
 - Contractor / Staff you Hire (3)
 - Other: Please Describe (4)
-
- Neighborhood as a whole (5)
 - Individual Neighbor (6)
 - Community Group (7)
 - I don't know (8)

Q9 Please estimate how much time it takes to complete the following tasks, if needed, for the rain garden each year.

	More than 10 hours (1)	5 - 9 Hours (2)	Less than 5 Hours (3)	This is not needed. (4)
Mulching (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Removing Trash / Clearing Inflow or Outflow (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Watering (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pruning (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Removing Dirt (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Replacing Plants (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fertilizing (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Treating for Pests / Preventing Animal Browsing (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sign Maintenance (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Weeding (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: Please describe. (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q10 To help us understand what may prevent maintenance of rain gardens, please select all the statements that you believe are true.

- It takes too much time (1)
 - It requires a level of physical activity I can't provide (2)
 - Someone else is supposed to maintain it and they don't (3)
 - I am not sure what to do (4)
 - I don't think I am allowed to do anything in it (5)
 - It is too wet / muddy to work in throughout the year (6)
 - The site is too brushy / difficult to access (7)
 - I don't like to do it. (8)
 - Others: Please describe. (9)
-

Q11 Would an outside group providing maintenance support be something you would utilize?

Yes

No

I don't know.

If no, skip to Q 13.

Q12 If maintenance were solely your responsibility, what could an outside group offer that would help you? Check all that apply.

- Financial incentive to reduce the cost of hiring help (1)
 - Come and do annual checks and clean-ups (2)
 - Printed instructions on what I am supposed to / allowed to do (3)
 - Online instructions on what I am supposed to / allowed to do (4)
 - Assistance organizing neighborhood work parties (5)
 - Provide new plants / mulch (6)
 - Nothing. It can't be maintained (7)
 - Nothing. It is adequately maintained (8)
 - Nothing. It shouldn't be my responsibility (9)
 - Other: Please describe. (10)
-

Page Break

Q13 Please rank how valuable you believe rain gardens are for each of the following statements.

	Significant Value (1)	Some Value (2)	Neutral Value (3)	Negative Value (4)	Very Negative Value (5)	Does not Apply to My Rain Garden (6)
Conserve water (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide wildlife habitat (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beautify neighborhoods (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grow plants that offset greenhouse gas emissions (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clean rain water runoff (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teach communities about water issues (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Catch litter (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: Please describe. (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q14 Did you have expectations about your rain garden when you installed it?

- Yes (1)
- No (2)
- I'm not sure / I don't recall (3)

Skip To: Q17 If Did you have expectations about your rain garden when you installed it? = No

Q15 Please rate how well your expectations are being met for each of the statements below now that you have or maintain a rain gardens.

	Far Surpasses Expectations (1)	Exceeds Expectations (2)	Meets Expectations (3)	Doesn't Meet Expectations (4)	Far below expectations (5)
Beautify yard / landscape (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Create green spaces / friendly places in the neighborhood (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Required by permit (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prevent flooding on property (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Create wildlife habitat (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce water pollution (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Slow car traffic (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q16 Overall, please rate how successful you feel your rain garden is meeting your expectations.

- Far Surpasses Expectations (1)
- Exceeds Expectations (2)
- Meets Expectations (3)
- Doesn't Meet Expectations (4)
- Far Below Expectations (5)
- Other: Please Describe. (6)

Q17 Please share why you rated your rain garden the way you did.

End of Block: Default Question Block
