

Urban Waters & Wildlife Program

Rain Garden Maintenance Manual



Summer 2023

General Rain Garden Maintenance Tips



About the Urban Waters & Wildlife Program



Program Summary

The Urban Waters and Wildlife program is engaged in many activities in the Urban communities of the Upper Willamette Watershed:

- **Landowner partnership**
- **Water quality monitoring**
- **Public education**
- **Building broad coalitions with local and state government & non-governmental entities, utilities, and non-profits**

... all to reduce pollutants entering our local rivers and streams, and to introduce wildlife habitat deep into the heart of the city

Trout Friendly Landscapes



Trout Friendly Landscapes is made available through the growing and evolving Urban Waters and Wildlife Partnership (UWWP). This partnership program includes: Cities of Eugene & Springfield, Lane County, Upper Willamette Soil & Water Conservation District, Willamalane Parks & Recreation District, Metropolitan Wastewater Management Commission, Cascade Pacific Resource Conservation + Development, Eugene Water & Electric Board, Springfield Utility Board, and the McKenzie, Middle Fork Willamette, Coast Fork Willamette & Long Tom Watershed Councils, facilitated by the Upper Willamette Stewardship Network.

Through voluntary engagement, local businesses are assisted with the design and installation of nature based stormwater solutions such as green stormwater infrastructure. Trout Friendly Landscapes help to; reduce pesticide and water use, improve soil health, increase native and pollinator friendly species, and incorporate stormwater management.

Thank you for your support and participation in the Urban Waters and Wildlife program.

*photo credits:
all photos were taken by LTWC, unless otherwise noted*

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Acknowledgements

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Thanks also to Rebecca Sheppard for her work spearheading this project and to Nancy Silvers for her generous time given.



Rain Garden Operations & Maintenance (O&M) Manual



Purpose of this Manual

In order to keep rain gardens fully functioning, regular maintenance is needed. This manual is laid out from highest priority maintenance needs and continues to include valuable information pertinent to each individual rain garden's design. In addition to concise maintenance guidance for rain garden facilities, this manual also provides specific plant information for the identification and maintenance of individual species within each design.

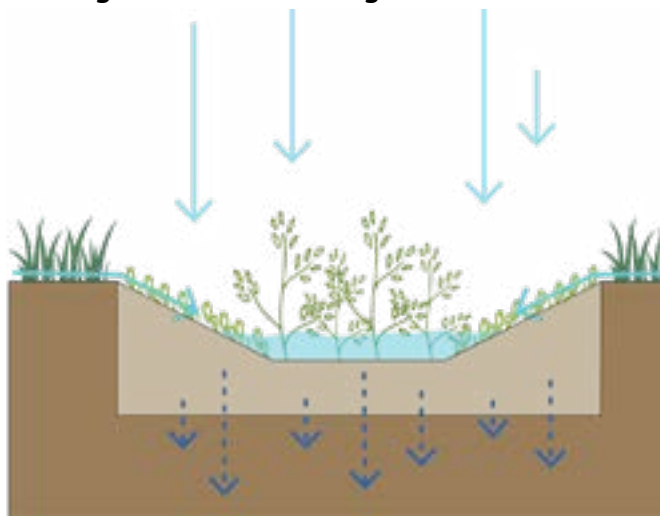
Note: *If there are ever maintenance questions or concerns, please contact the Council.*

Rain Gardens

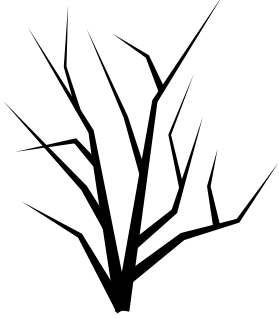
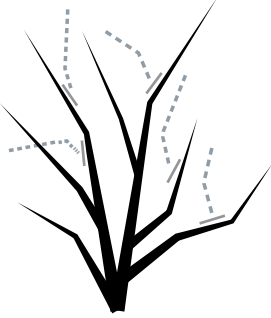
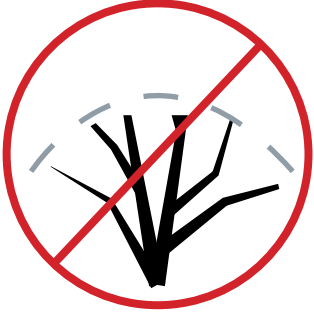
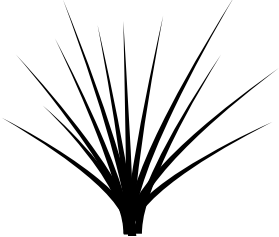
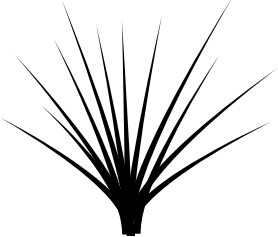



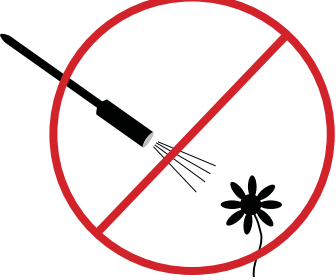

For the purpose of this manual, the term 'rain garden' is used for all vegetated stormwater management areas.

Rain gardens are areas that allow stormwater to pool in contact with soils and plants. They are a key strategy to mitigate the effects of impervious surfaces by helping the landscape function more similarly to pre-urbanized conditions through the following:

- **Capture rainfall and surface runoff including roof water**
- **Provide flood resiliency by delaying stormwater**
- **Use porous soils and select plants to mitigate pollutants**
- **Provide pollinator and wildlife habitat**
- **Allow groundwater recharge**



Top 4: DON'T DO THIS!

EXISTING CONDITIONS	→	APPROPRIATE MAINTENANCE	DON'T DO THIS!
 SHRUB PRUNING:	→	 Maintain Natural Form	 No Shearing
 RUSHES AND SEDGES:	→	 Maintain Natural Form Rake out dead foliage	 No Shearing or Mowing
 WEEDS/INVASIVES:	→	 Hand Pull	 No Spraying
MULCHED AREAS:	→	Dense Non-floating Mulch	 No Bark Mulch

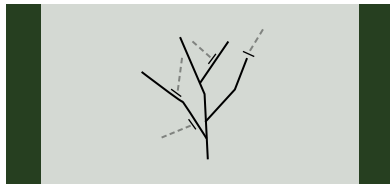
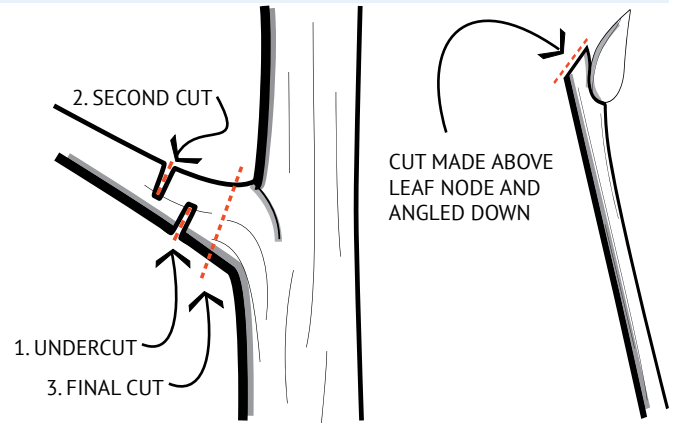
Maintenance Priorities

Vegetation

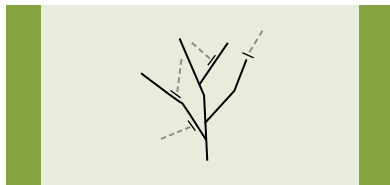
Pruning

- Should be minimal to promote natural form.
- Pruning and thinning should prioritize;
 - *Safety (sight lines, access)*
 - *Plant health (removal of dead, diseased and crossing)*
 - *Visual aesthetics.*
- **DO NOT CUT BACK OR MOW RUSHES AND SEDGES**

Pruning Tips



Trees - Prune for dead, disease and crossed branching. Prune as needed to maintain facility access and tree canopy height.



Shrubs - Prune for dead, disease and crossed branching. Prune as needed to maintain facility and safe pedestrian access.

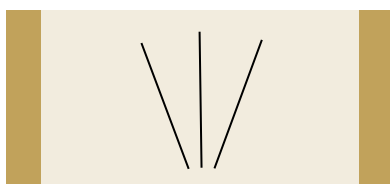


Perennials and bulbs - If desired in the fall, cut back plant to basal leaves or about 6" from the ground.

Bulbs may be cut back as foliage dies.












Deciduous Grasses- In early spring, cut back plant to about 6" from the ground.



Rushes, sedges and ferns- Do not cut plant back. To maintain aesthetic appearance of plant, tidying can be done through raking through the plants themselves and discarding dead plant debris.

Ferns and deciduous sedges can be cut back if needed in early spring.

General Seasonal Pruning Schedule

	FALL 	WINTER 	SPRING 	SUMMER 
	September	December	March	June
Trees				
Shrubs				
Deciduous grasses				
Perennials				

Vegetation continued...

Vegetation Replacement -

- Vegetation shall provide 90% soil coverage.
- Vegetation shall be healthy and dense enough to provide stormwater filtering while protecting underlying soils from erosion.
- Cut back plants when they have died and remove from the facility, replacing as soon as possible.

Note: Contact the designer if there is any question about plant replacement.

Weed Control -

- Hand pull or dig herbaceous and woody weeds.
- Care should be taken not to damage irrigation, other plants, or their root systems.
- **NO SPRAYING OF PESTICIDES AT ANY TIME.**

Pest and Disease Management -

For information on plant disease and insect management these [PNW handbooks](#) are valuable resources. For addition information on integrated pest management contact the project landscape architect or OSU extension.

Maintenance Priorities

Soil

Compost Mulch or Arborist Wood Chips - NO BARK MULCH

- Replenish annually to a depth of 3"
- Keep mulch away from plant trunks

Erosion Damage

- Identify when soil is exposed or erosion channels are forming. Root cause should be identified and rectified. Contact project landscape architect if assistance is needed.

Sedimentation & Facility Structure

Sedimentation

- Remove sediment by hand or mechanical method depending on sediment structure **(See Facility Plan to locate structure)**
- Sediment should not go in yard waste.

Debris and Litter

- Remove to prevent channelization, clogging, and interference with plant growth.
- Fallen leaves and debris from deciduous plant foliage shall be removed.

Inlets (water flowing into facility)

- Check regularly and clear any obstructing debris.

Outlets and Overflows

- Check regularly and clear any obstructing debris.

Irrigation

- Spring - Backflow preventer check by certified specialist. Re-start and perform a full check of the irrigation system. Assure that all plants are getting full and uniform coverage.
- Winterization - Drain irrigation system.
- Irrigation systems need to be regularly checked throughout the growing season to ensure plants are getting full, uniform coverage.







Pre-treatment Sediment Drop with sediment build-up.



Facility inlet clogged with leaf debris.

General Maintenance Schedule

Regular maintenance should happen at least 2 times per year
(Fall and Spring)

		Fall	Winter	Spring	Summer
					
Vegetation	Pruning (See General Seasonal Pruning Schedule pg. 7)	Varies			
	Vegetation Replacement				
	Weed Control				
Soil	Add Mulch				
	Fix Erosion Damage				
	Sedimentation Removal				
Sedimentation & Facility Structure	Debris and Litter				
	Clear Inlets, Outlets and Overflows				
	Irrigation				

Useful & Contributing Resources

Plant Pages *(Information and Images)*

- California Native Plant Society - [Calscape](https://calscape.org/)
URL: <https://calscape.org/>
- City of Springfield - [Common Invasive Plants](https://www.springfield-or.gov/wp-content/uploads/2019/01/InvasivesBooklet2016_small.pdf)
URL: https://www.springfield-or.gov/wp-content/uploads/2019/01/InvasivesBooklet2016_small.pdf
- Lady Bird Johnson Wildflower Center - [Plant Database](https://www.wildflower.org/plants/)
URL: <https://www.wildflower.org/plants/>
- [Native Plants NW](https://nativeplantspnw.com/)
URL: <https://nativeplantspnw.com/>
- [Native Plant Society of Oregon, Emerald Chapter](https://emerald.npsoregon.org/)
URL: <https://emerald.npsoregon.org/>
- [Oregon Flora Image Project](http://www.botany.hawaii.edu/faculty/carr/ofp/ofp_index.htm)
URL: http://www.botany.hawaii.edu/faculty/carr/ofp/ofp_index.htm
- Oregon State University - [Landscape Plants](https://landscapeplants.oregonstate.edu/node/2163)
URL: <https://landscapeplants.oregonstate.edu/node/2163>
- Salix and Associates - [Resources](https://www.salixassociates.com/resources.html)
URL: <https://www.salixassociates.com/resources.html>
- [Seven Oaks Nursery](https://www.sevenoaksnativenursery.com/)
URL: <https://www.sevenoaksnativenursery.com/>

Plant Disease

- Oregon State University - [Integrated Pest Management](https://extension.oregonstate.edu/pests-weeds-diseases/ipm)
URL: <https://extension.oregonstate.edu/pests-weeds-diseases/ipm>
- [Pacific Northwest Pest Management Handbooks](https://pnwhandbooks.org/)
URL: <https://pnwhandbooks.org/>

Pruning

- [Oregon State University - OSU Extension Service](https://extension.oregonstate.edu/)
URL: <https://extension.oregonstate.edu/>

Stormwater Resources

- [2014 Eugene Stormwater Management Manual](https://www.eugene-or.gov/DocumentCenter/View/15783/2014-Stormwater-Management-Manual)
URL: <https://www.eugene-or.gov/DocumentCenter/View/15783/2014-Stormwater-Management-Manual>



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