Managing Stormwater at Home

Mason Conservation District

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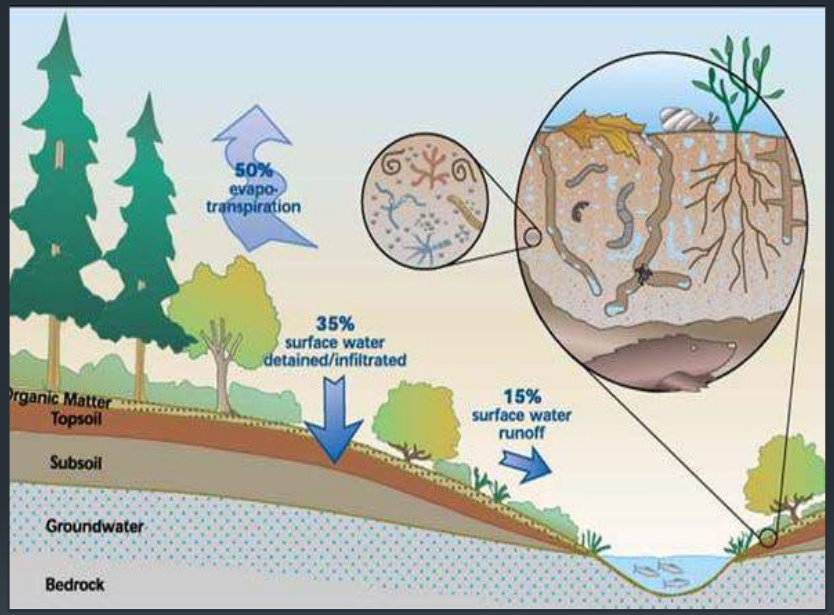
The approach you choose can serve multiple roles:

Is this a garden or is it stormwater “infrastructure?”
Or is it both?

3 easy ways to think about managing stormwater at home...

CAPTURE - COLLECT - DISPERSE

Quick review:
what's happening with stormwater?

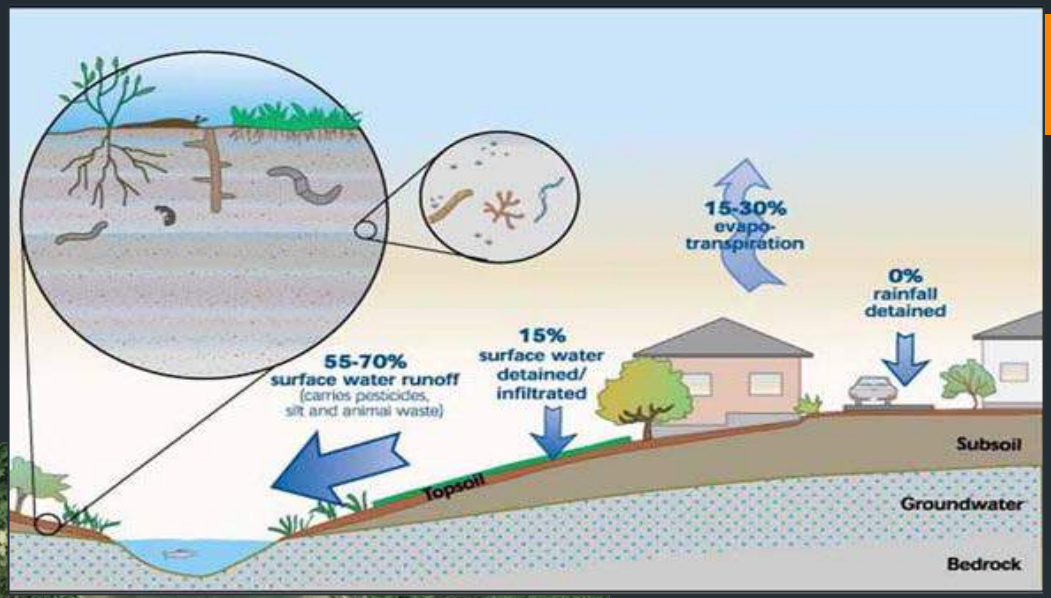


www.compostwashington.org

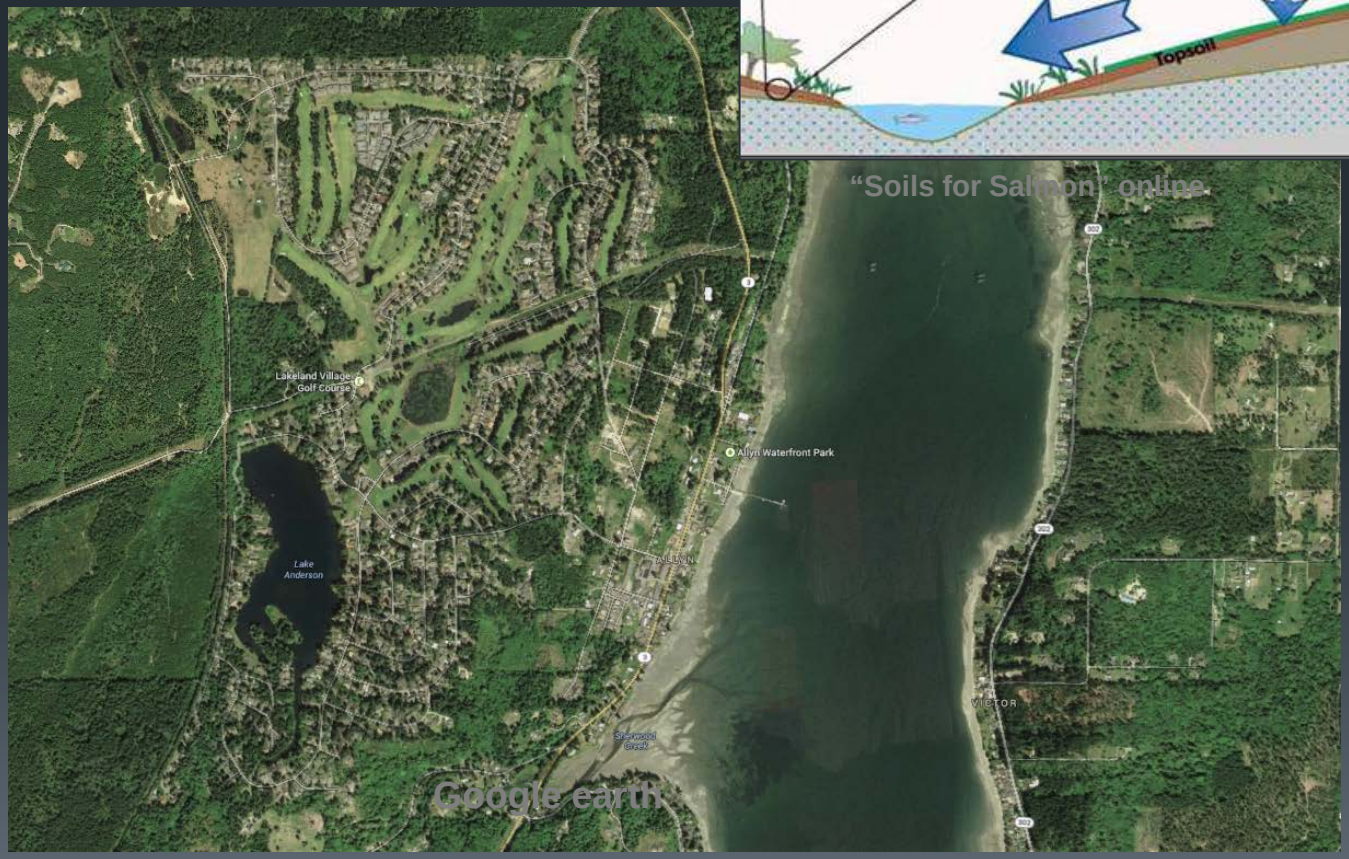
"Soils for Salmon"

Image: Washington State Department of Ecology

PART of the story: development patterns create more “hard” surfaces



“Soils for Salmon” online

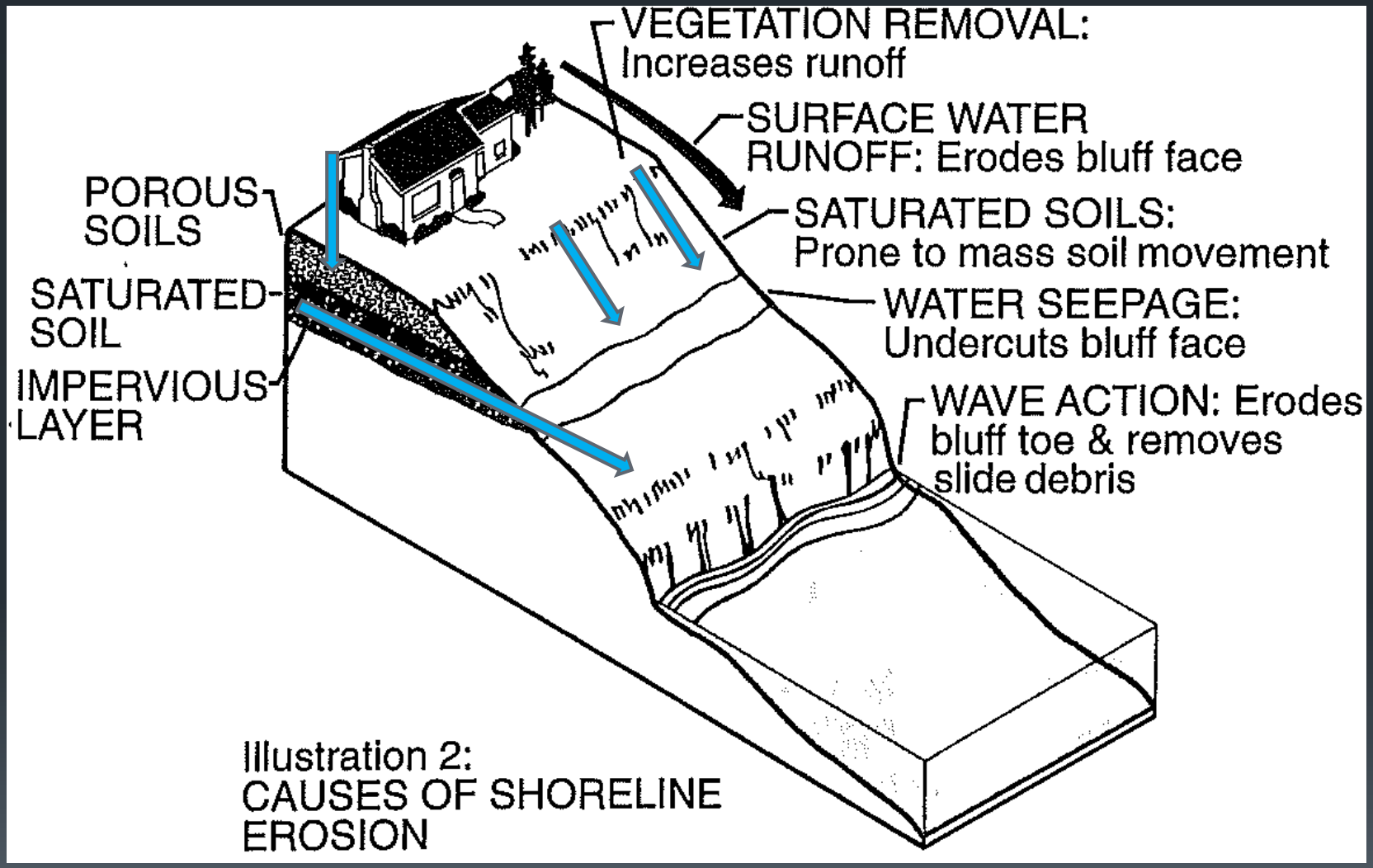


= more runoff

PART of the story: natural topographic and geologic conditions shape water drainage patterns, the presence of springs/seeps, and infiltration opportunities + challenges.

= more water

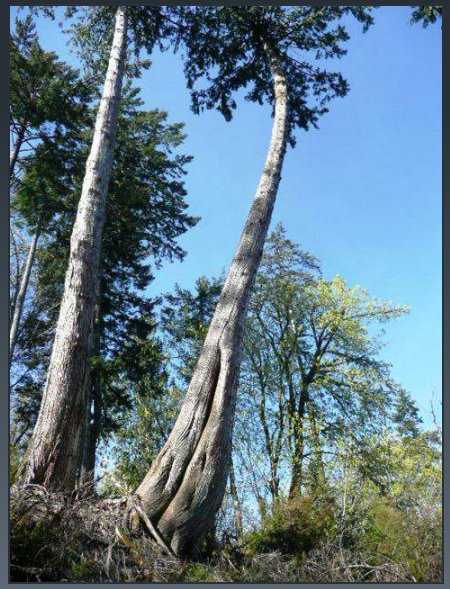
SLOPES + WATER

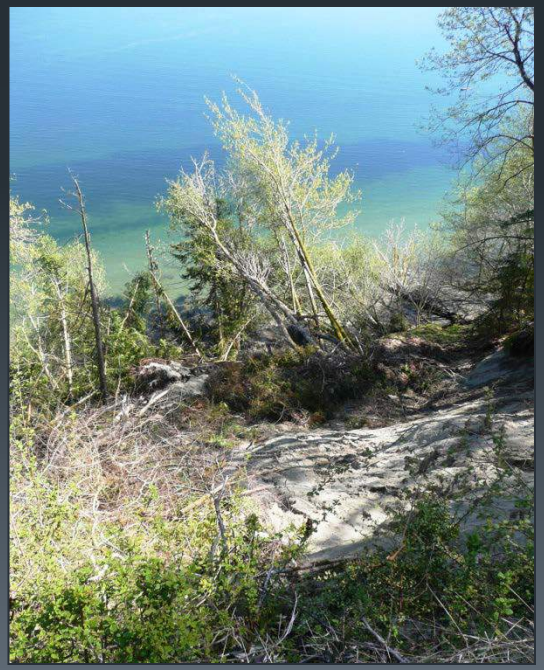


Limited vegetation + excess water = soil erosion + instability

TIPS: SLOPE MANAGEMENT

- Keep slopes well planted
- Manage stormwater above slopes
- Understand and monitor your site.
- Prune trees for views – only remove hazard trees.
- Hire a professional to assess hazard trees before removal.
- International Society of Arboriculture





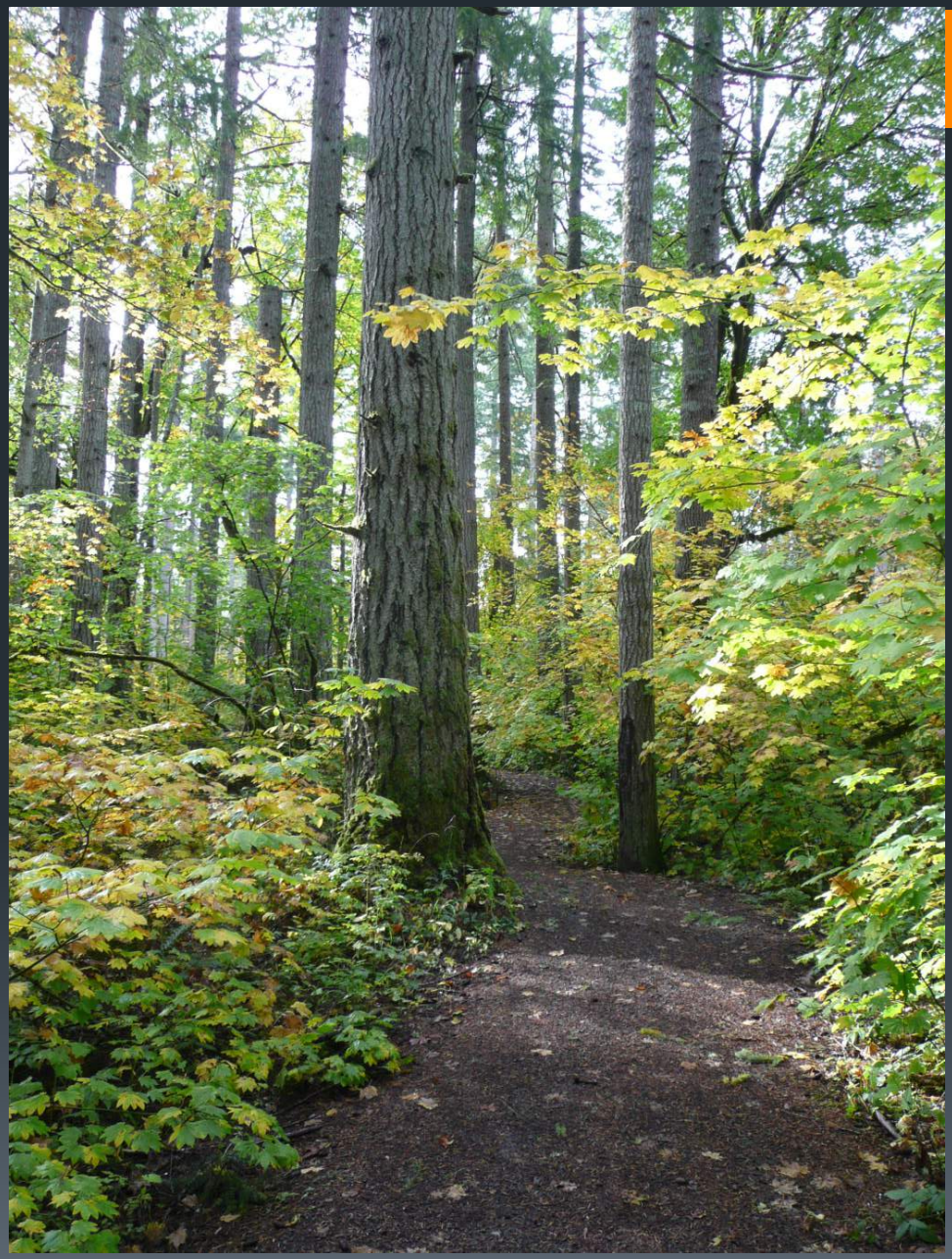
Let’s explore 3 basic strategies for stormwater:

CAPTURE - COLLECT - DISPERSE

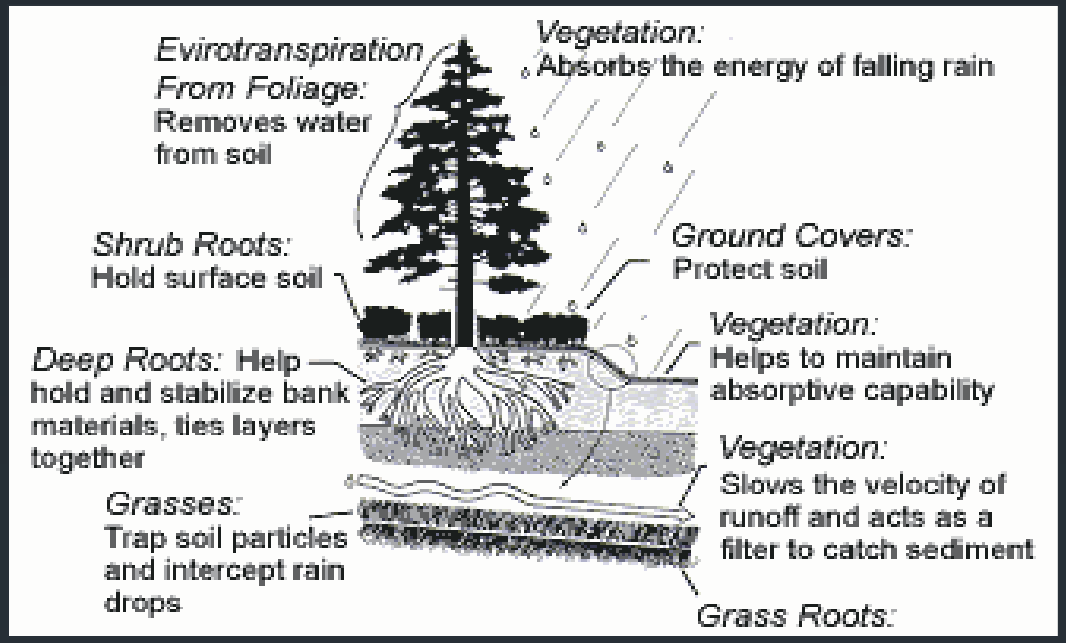
Tool #1: “CAPTURE” THE RAIN

Where possible, stop rain from reaching the ground and becoming an issue.


Image: gmlinc.ca



“CAPTURE” THE RAIN



- Rain is captured on leaf surfaces at different heights.
- Leaves transpire and water evaporates away.
- Rain slows as it drips through vegetation to the ground, allowing the soil time to absorb it.
- Plant roots suck up gallons of water from the soil and make room for more water.

EASY OPTION: TREES

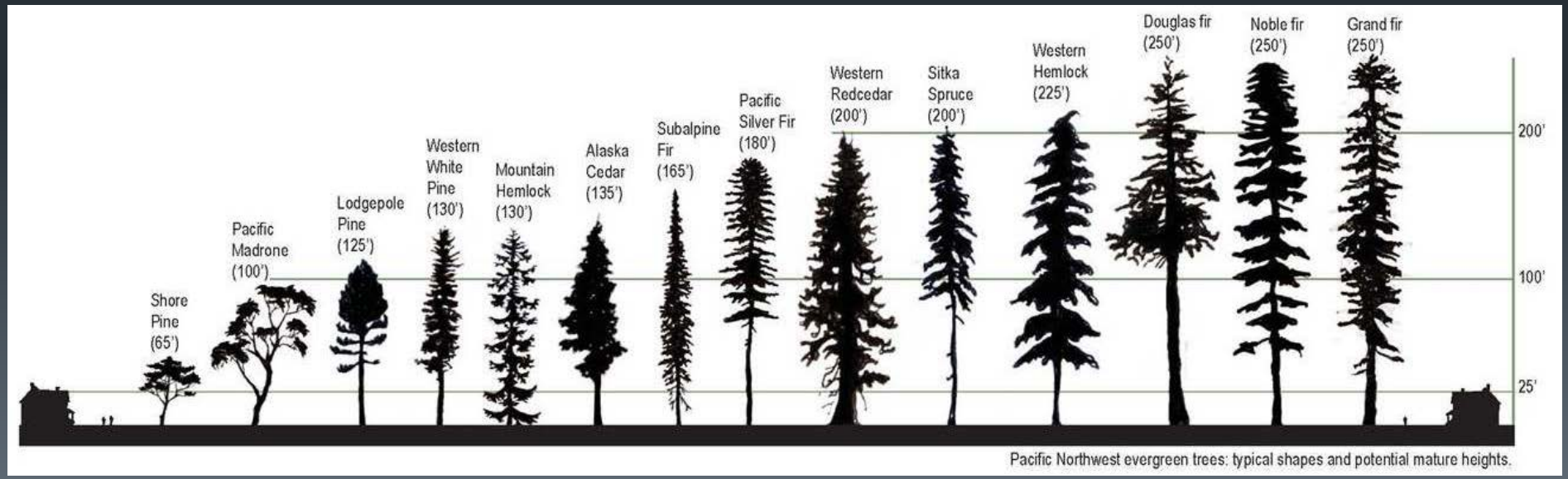
Trees are one of the best (but also the least appreciated) of stormwater tools.

TREES CAPTURE RAIN

TIP: Keep lots of trees and shrubs on your property.

A PNW conifer intercepts and transpires as much as 30% of the rain that falls on it each year.

(Herrera Environmental Consultants, 2008)



Pacific Northwest evergreen trees: typical shapes and potential mature heights.

Evergreen species work best for stormwater management.

TIP: Hire a professional arborist to prune for views rather than removing a tree. Don’t “TOP” your trees.

EASY OPTION: “LAYERED GARDENS”

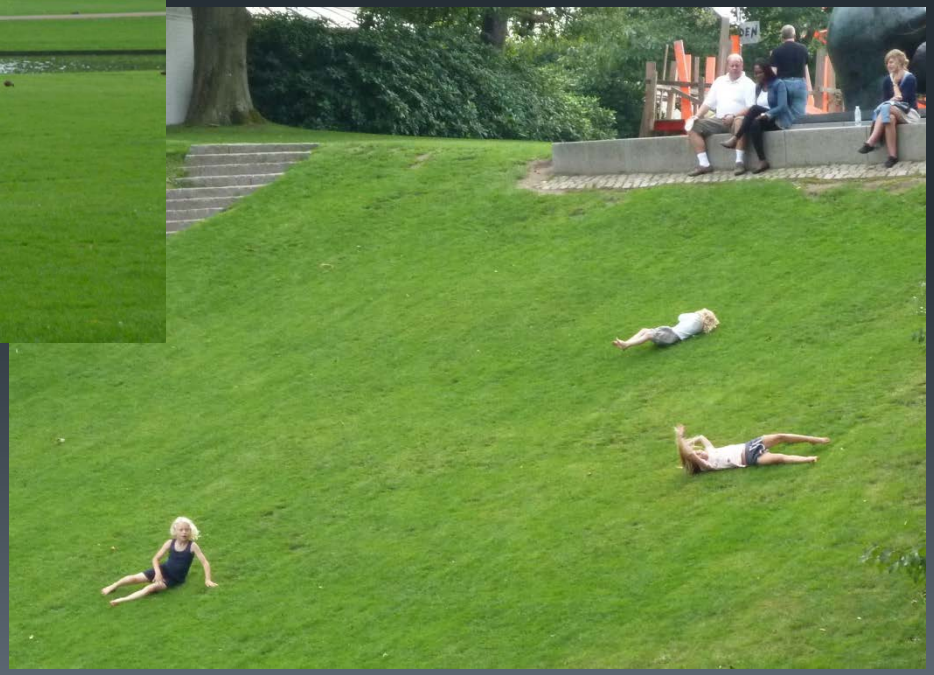
(http://wdfw.wa.gov/wlm/backyard/landscape-design_landscape.htm)

TIP: Plant in “layers” of groundcovers, shrubs & trees.

TIP: don’t forget wood chip mulch for any bare soil.

EASY OPTION: “RECONSIDER LAWN”

… grass is better than concrete at handling stormwater, but shrubs and trees are far better than lawn …



How much do you love to mow?

Limit lawn to areas you need!

Find your middle ground:
small lawns and layered garden areas are an attractive, simple method to reduce stormwater runoff at home.

EASY OPTION: PLANTERS ON HARD SURFACES

RAISED GARDEN BEDS
for food or flowers

“CAPTURE” THE RAIN . . .

AMBITIOUS OPTION: GREEN ROOF

Remember to start small + fun - or hire a professional!

CAPTURE- COLLECT - DISPERSE

Tool #2: "COLLECT" THE RAIN

Where possible, direct downspouts into collection points & reuse rainwater later for irrigation.

¼" of rain falling on a 1,400 SF roof will generate over 200 gallons of runoff in a brief storm!

EASY OPTION: RAIN BARREL

- Temporarily store *some* rainwater during the peak of a storm.
- Need an “overflow” destination.
- Need to empty the barrel between storms.
- Link together multi-barrel systems to capture more rainwater.
- Not for drinking.
- Don’t irrigate veggies (if you have a composite roof).

“COLLECT” THE RAIN: STORMWATER PLANTER

Inlet Pipe

Overflow Pipe

STORMWATER PLANTERS

Image: janeswrite.com

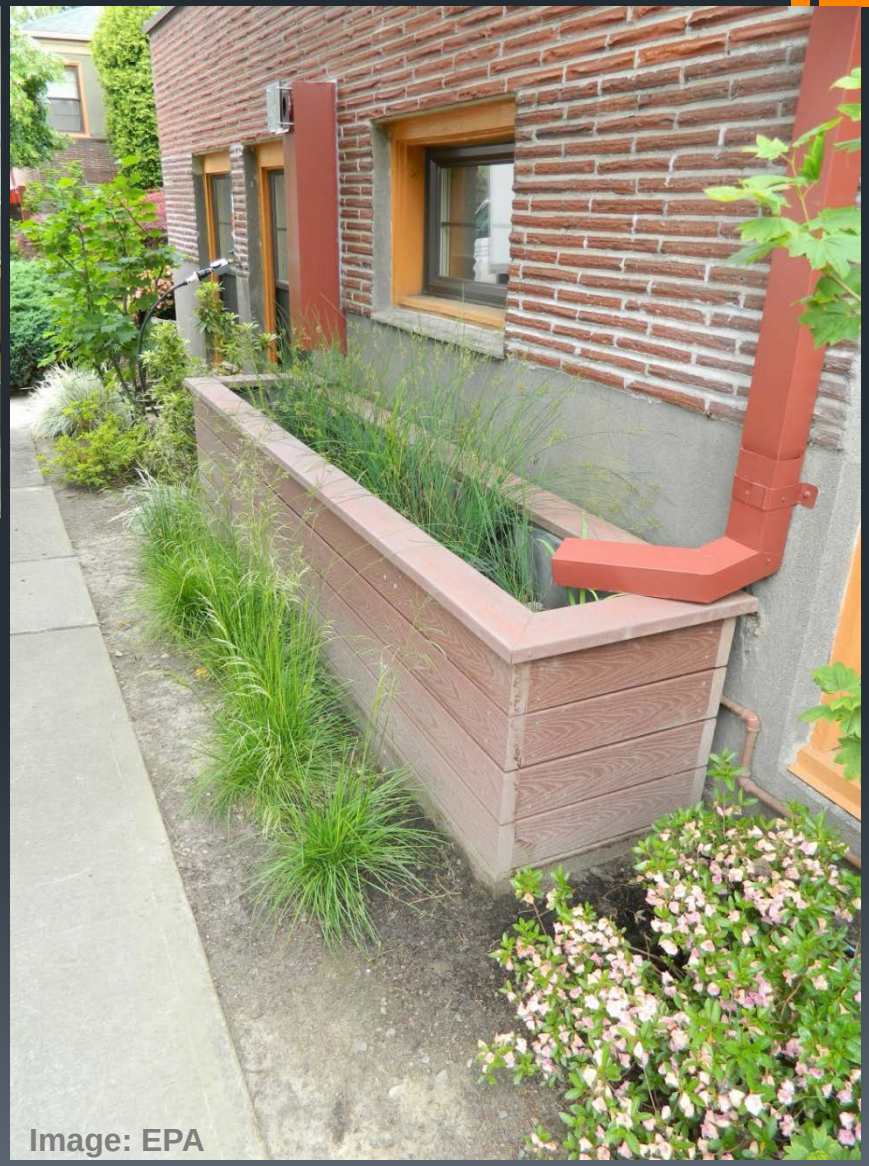


Image: EPA

AMBITIOUS OPTION: CISTERNS


Image: US EPA


Image: wncgreenblogcollective.wordpress.com

- Hire a professional designer.
- You can store a lot of roof runoff in very large systems (often buried).
- Can integrate water treatment for potable water.

CAPTURE- COLLECT - DISPERSE

Tool #3: “DISPERSE” THE RAIN

Where possible, direct stormwater to sites where water can safely flow over or soak into the ground. Use rocks or vegetation to slow the flow and help to filter the water.

DISPERSE RAINWATER THROUGH "BUFFERS"

One muddy, compacted paddock without a planted buffer quickly becomes a water quality problem for everyone.

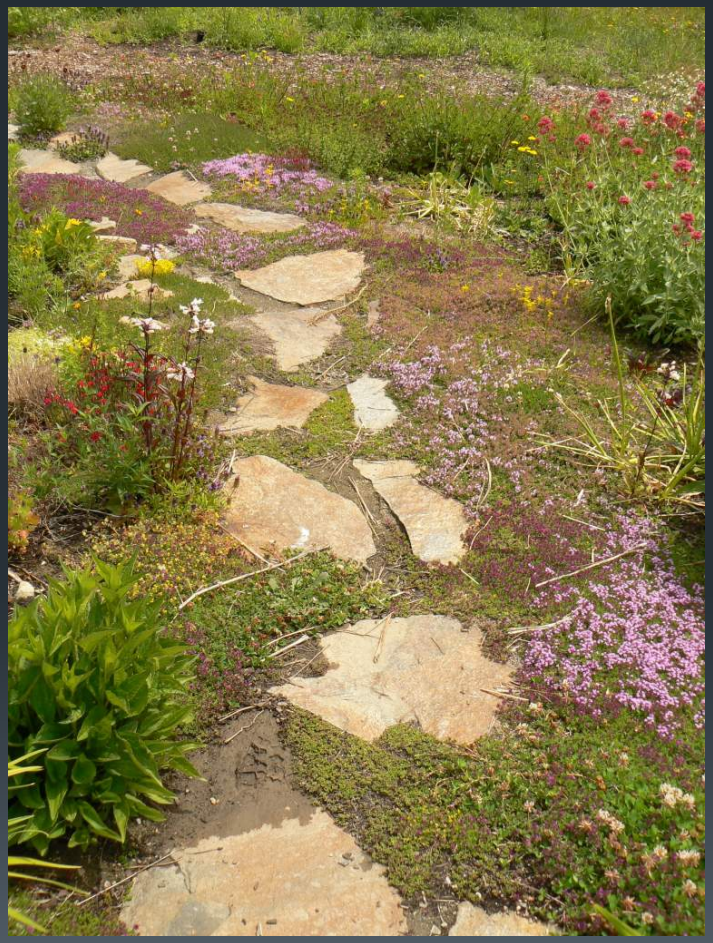
DISPERSE: BUFFERS + CRITTERS

Fence animals away from ditches, creeks…any water!
Use planted buffers to filter and take up nutrients.
ALWAYS: Collect - Cover - Compost manure

DISPERSE + SOAK IT IN

TIP: Remove or replace HARD (Impervious) surfaces that create stormwater runoff.

OPTION: MINIMIZE IMPERVIOUS AREAS



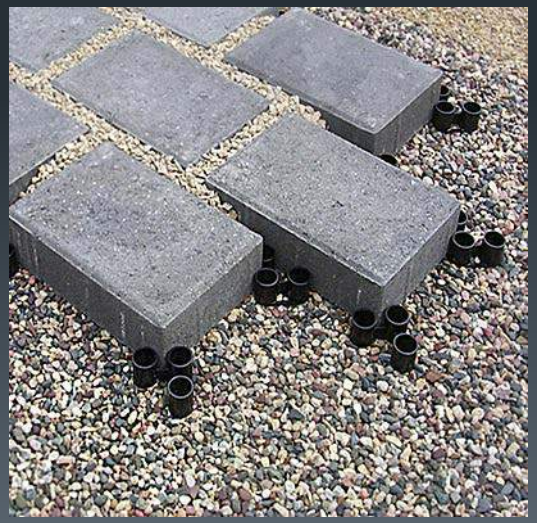
SOAK IT IN

Rain Gardens, pervious paving systems, and bog gardens all focus on the idea of infiltration to manage rain.

TIP: Avoid infiltration on or near slopes, bluffs, structures or septic systems, areas with shallow groundwater, or where you might adversely impact your neighbor.

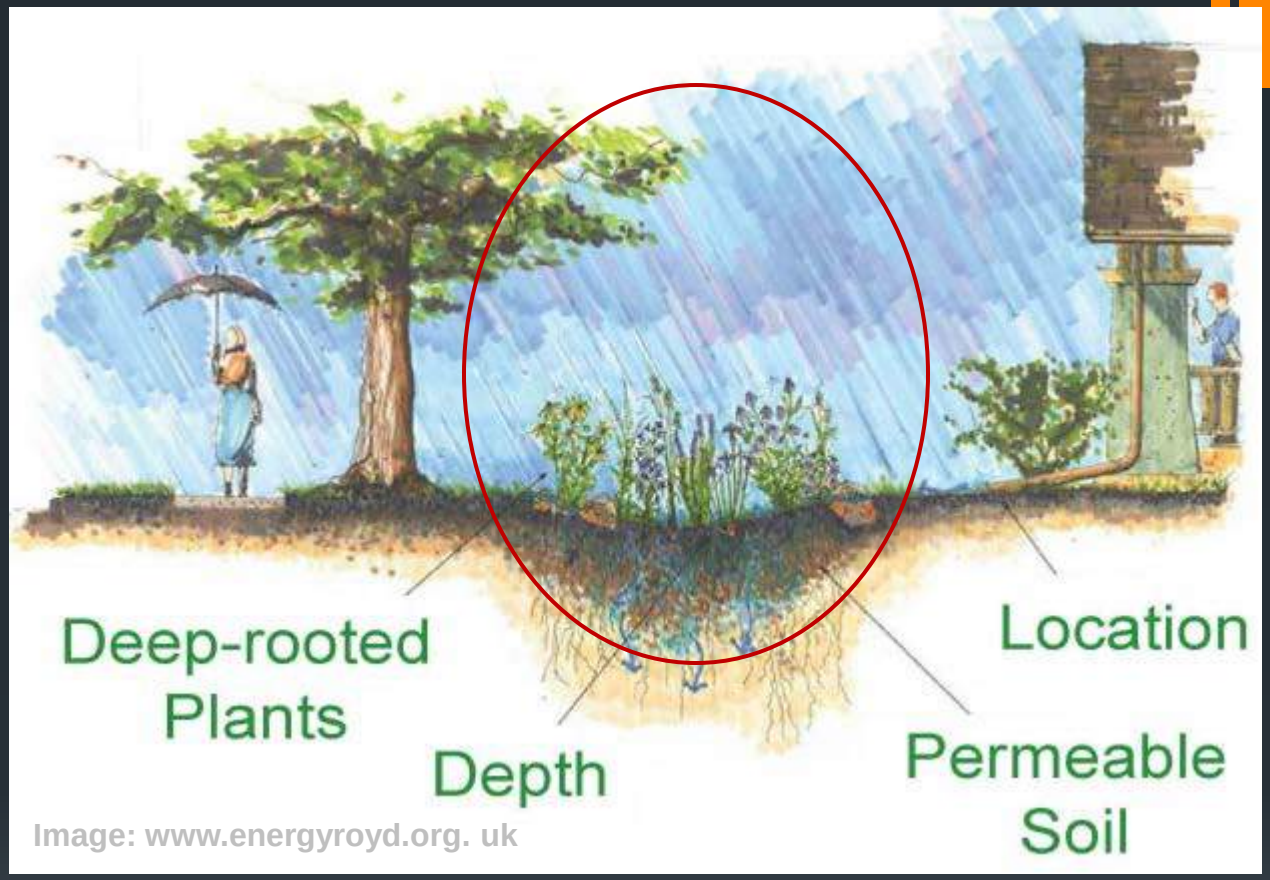
“PERVIOUS” PAVING OPTIONS

. . . for parking areas, driveways, walkways, patios . . .

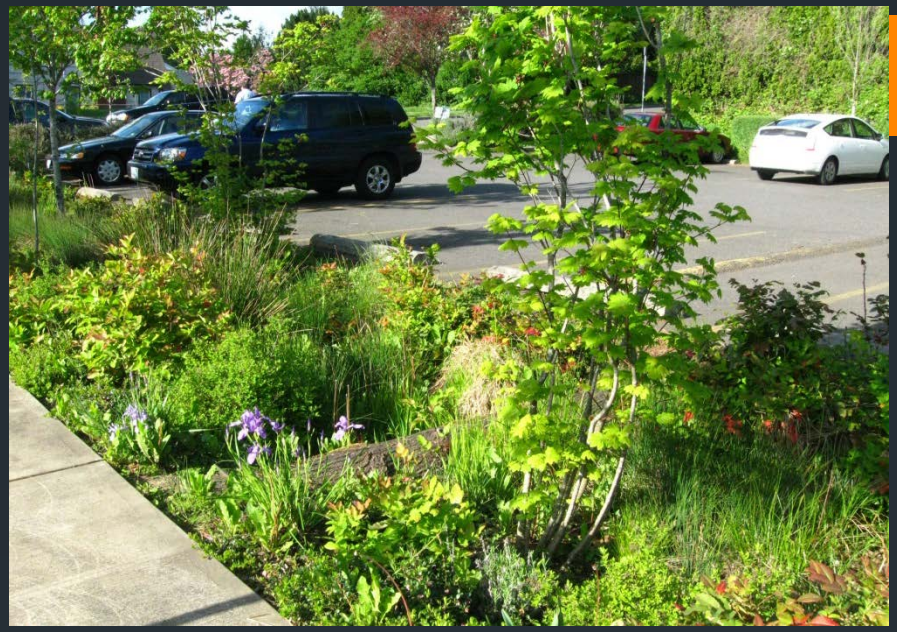


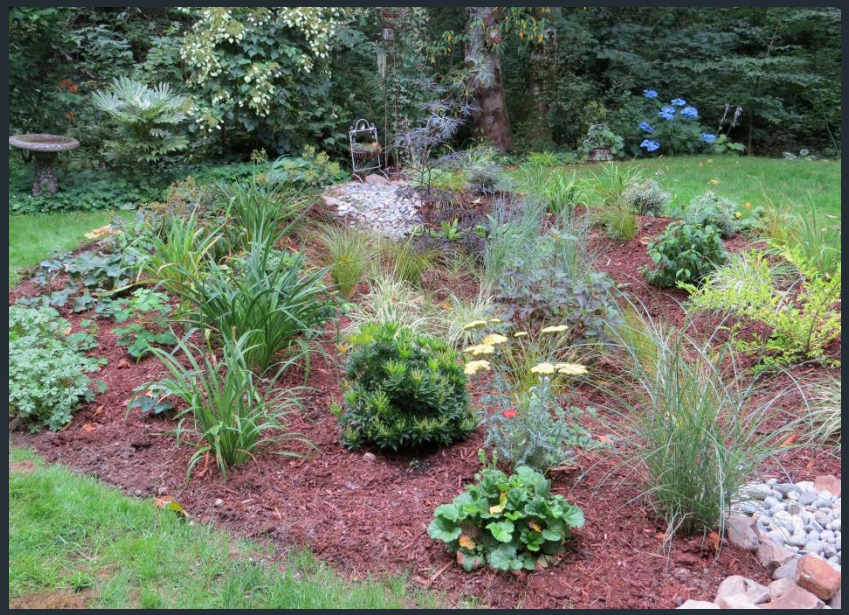
OPTION: RAIN GARDENS

RAIN GARDENS



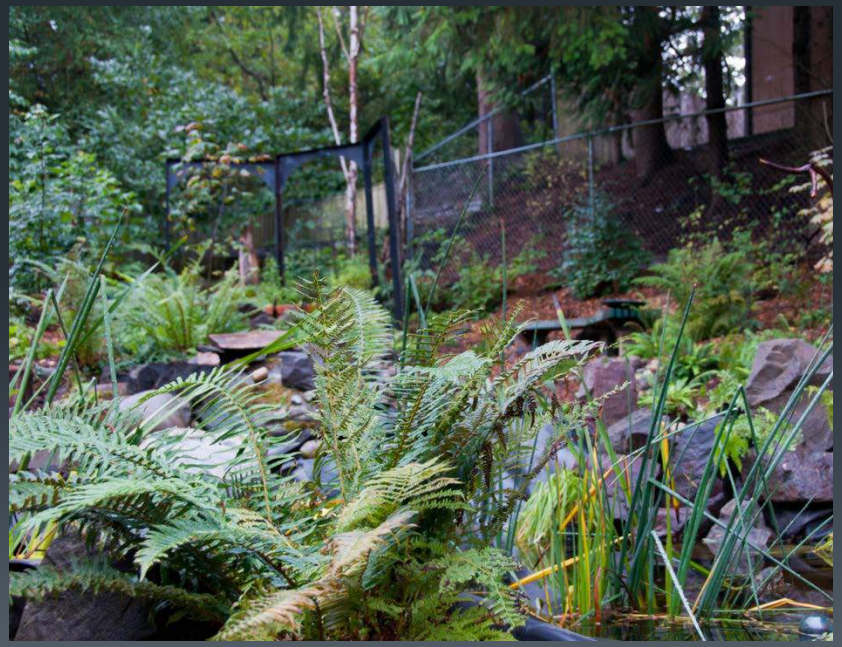
- Test soil infiltration (> ½” / hour is ideal, >1/4” is ok).
- Always have an overflow path.





OPTION: BOG GARDENS

Seasonal wet areas help to recharge groundwater and filter runoff. They can provide homes for amphibians and food for birds. Integrate them into your garden design where appropriate.



Remember your 3 options:

CAPTURE - COLLECT - DISPERSE

Next Steps?

Support is available from
Mason Conservation
District

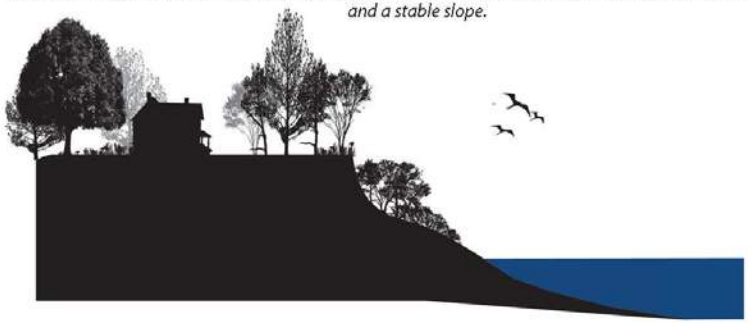
- Free, non-regulatory visits
- Design guidance
- Online info
- Planting plans
- Farm plans
- Stormwater guidance
- Small grants (at times!)

www.masoncd.org

& WSU Extension MC

LOW-IMPACT LIVING ON COASTAL BLUFFS

Understanding how to steward your property on a marine bluff can make the difference between bluff failures and a stable slope.



Marine bluffs are ever-changing landscapes that form part of the dynamic Puget Sound ecosystem. They may appear to be unchanging and stable, but in fact most bluffs naturally erode, losing soil and vegetation over time, feeding the marine environment below, and playing a vital role in the ecosystem of Puget Sound. If you are a landowner who lives near steep marine bluffs, it is critical to understand the processes at work and to become a knowledgeable steward of your land so that you reduce your risk of causing landslides on your property.

HOW CAN I PROTECT MY SHORELINE PROPERTY?

The following basic steps provide a basic starting point for thinking about marine shoreline stewardship. Living on the waterfront comes with amazing views and also with great responsibility. Landslides and bluff failures on Puget Sound are natural processes and occur for a number of reasons. A major cause of many slides is water moving through the soil. The geology of marine shorelines often includes layers of permeable sands and gravels above impermeable layers of clay/silt or rock. After water drains through the permeable layers, it hits clay or hardpan and is forced to travel out towards the face of the bluff. This can contribute to slides. Gravity can also cause slopes to slide, as can heavy rainstorms that saturate soils, wave activity, and most importantly – land management activities by homeowners on bluffs. As a property owner living on a coastal bluff, water management should be a priority so that you don't mistakenly contribute to or accelerate the erosion process along your shoreline.

Learn as much as possible about how to manage your marine shoreline in order to protect your investment and the landscape around you. Start by learning about the geology and history of your property. Has there been a history of slides? This often indicates a higher risk of future slides. The Washington State Department of Ecology has an excellent website about Puget Sound coastal bluffs. Visit their website to learn more at: http://www.ecy.wa.gov/programs/sea/landslides/about/about.html

Remember to have fun!

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