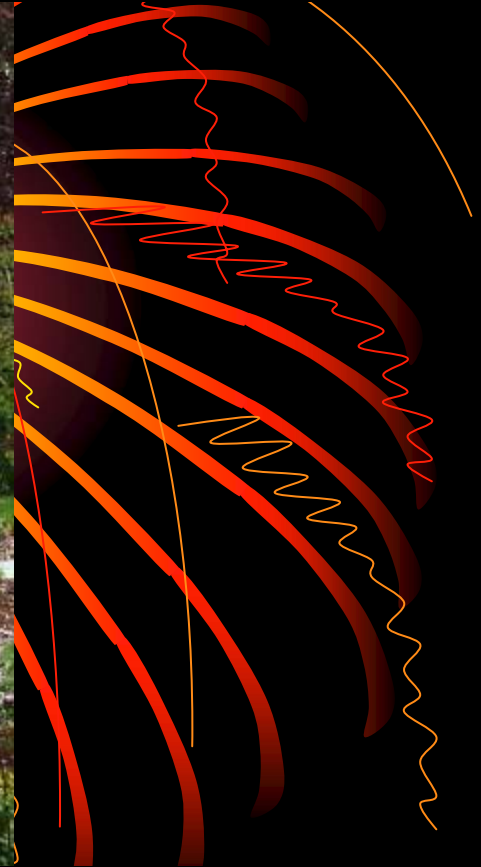


Landscape Architecture for Natural Systems



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Seattle Department of Transportation



Natural Systems



- Site Design Factors...
 - Property lines (know where you are!)
 - Existing grades & drainage conditions
 - Existing (healthy) trees
 - Aspect (sun exposure)

...and, of course...

Your customer !!!!

As you already heard, **SOIL MATTERS.**

---beyond the consideration for appropriate soil protection, amendment and management, there is additionally,

the matter of
holding soil
in place...



A single row of rocks...
&/or single stones are often used to
“make the grade”



Site Design options

...walls, stairs, ramped walkways, etc.



“Step Down” stones for safety, maintainability,...





...placed with care
to
protect or
“set the stage”
for trees ...





...and
prevent erosion ...



rocks,
mulch & jute
...each has a part to play.



Well BEFORE
Planting
BUT...



...with
a planting plan
Clearly
in mind

...i.e.
no rocks,
mulch,
or jute where
the customer
wants

Grass!!





BUT wait
a minute...why would
anyone choose

GRASS???

some do,
some don't
...so be sure you
know!!



Either way,
you can
expect plants to be the
“star of the show” ...
... and trees to be
the **headliner!**



TREES...

...The Backbone of every
Natural Systems Project,
& every
Planting Plan



Why
plant just one...



...When there is
plenty of room for

Three!!



With a solid
Backbone of
Trees,
the
task to select
& locate
Shrubs,
Perennials
& groundcover
comes **naturally**,
Right??

WELL, **NO.**

there's a **little** more to it.

Colored
irrigation

Flags come
in handy...

to help
keep

the customer

Happy!!!



think outside the box
...like a
string line



Doesn't **always**
have
to be

Straight!



...an
entry
walk can
step aside
....with
grace.





and SO
a parade of
colorful
flags

...



Becomes
a parade of
plants!

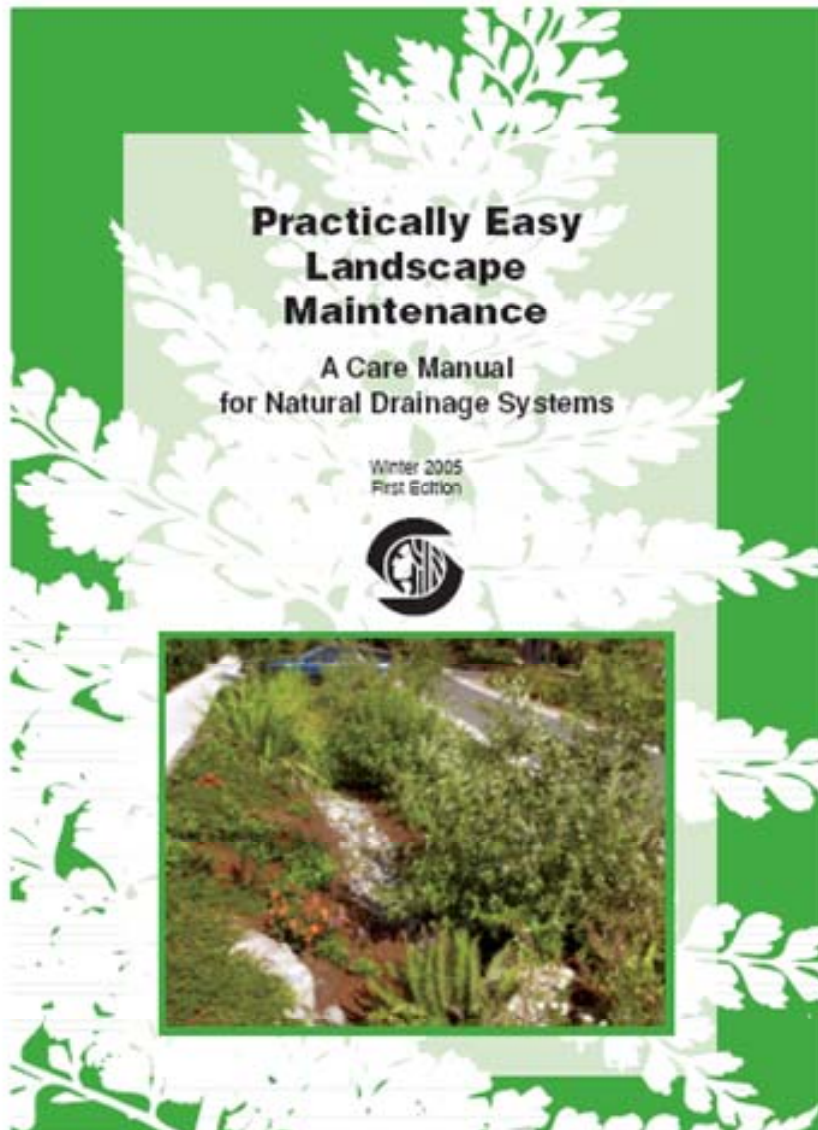




Natural Systems

Building Partnerships
with
Neighborhoods

Homeowners Manual



Website resources

- Soil and composting (King County) www.metrokc.gov/soils
- Yard and garden topics (King County) <http://dnr.metrokc.gov/topics/yard-and-garden>
- Water conservation, indoors and outdoors (Saving Water Partnership) www.savingwater.org (206) 684-SAVE (684-7283)
- Less toxic gardening and pest control Look under "Natural Yard Care" www.govlink.org/hazwaste/house
- Washington State University King County Extension www.metrokc.gov/WSU%20CE
- Washington State University Master Gardener Information <http://mastergardener.wsu.edu> (206) 296-3440
- Gardening in Western Washington WSU Master Gardener Program <http://gardening.wsu.edu>
- Native plant information <http://gardening.wsu.edu/nwnative>
- Salmon information <http://cityofseattle.net/salmon>
- Choosing the right plant for the right place www.GreatPlantPicks.org
- Washington State Noxious Weed Control Board www.nwcb.wa.gov

Other publications available through websites

- How to be a salmon friendly gardener www.seattle.gov/util/Directory/Conservation_Index
- Composting at Home www.seattle.gov/util/Directory/Conservation_Index
- Stop Before You Spray: A photo guide to beneficial insects Look under "Natural Yard Care - Avoid pesticides - Beneficial Insects" www.govlink.org/hazwaste/house
- Four Reasons to Kick the Weed and Feed Habit Look under "Natural Lawn Care - Avoid weed and feed" www.govlink.org/hazwaste/house
- The Right Tree Book (Seattle City Light, 1988) Look under "Brochures You Can Print" www.seattle.gov/light/publications

Plant Identification and Information websites

- Landscape Plants - Images, Identification and Information Oregon State University Department of Horticulture <http://oregonstate.edu/dept/ldplants>
- Plants Database, United States Department of Agriculture <http://plants.usda.gov>
- Web Resources - Directory of Horticulture Websites University of Washington, Center for Urban Horticulture, Elisabeth C. Miller Library http://depts.washington.edu/hortlib/resources/hort_web_sites/plant_id.shtml

Homeowners Manual - Watering



Practically Easy Watering

How much water?



Watering's fun and easy, right? But how often should plants be watered? And how much water do plants really need?

Deep, infrequent watering that moistens the top 12 to 18 inch root zone is recommended to keep plants alive and healthy and to promote deep roots. Deep roots help plants be drought tolerant.

For the first three years, deeply water plants once every 7 to 14 days in hot, dry weather. Small plants and flowers may need more frequent watering in hot weather – up to twice a week.

Tip: Watch for stressed plants. When leaves wilt and don't perk up overnight, or evergreen needles start to fade, it's time to water!

To know you're giving plants enough water, dig down an hour or so after watering to see if the top 12 to 18 inches of soil is moist. If not, add watering time until at least the top 12 inches is moistened.

After three to five years, plants should be well-established, deep rooted and drought tolerant. Watering established plants then becomes an infrequent task – only needed when plants show signs of stress during hot, dry weather.

Tip: Keep mulch layer thick on planting beds to save watering and weeding time and money! See "Mulching" on page 6 to learn why and how.

Too much or too little?

Be careful to avoid watering too little or too much.

- 1) **Too Little:** Hand spraying water wets leaves and soil surface but doesn't apply enough water to soak soil down to thirsty roots.
- 2) **Too Much:** Overwatering literally rots roots, invites disease, drowns and starves plants (they can't absorb nutrients from soggy soil).





Two good ways to water: Soaker Hoses and Spot Watering



Soaker Hose Watering: Soaker or Leaky Hoses slowly release water drops all along their length. Snake soaker hoses through planting areas and close to plant trunks or stems, or space soaker hose loops 18 inches apart (sandy soils) to 24 inches apart (clay soils) to water a whole area. Moisture is applied directly and efficiently to the soil and plant root zones. Evaporation is minimized, particularly if the hose is covered with 3 to 4 inches of mulch. Start with 40 to 60 minutes and check that water is penetrating 12 to 18 inches deep!

Spot Watering: Spot watering is simply running a hose at the base of a plant – uphill side is best, or into a 2 to 5 gallon bucket with holes in the bottom! You can use a garden soaker or shower-type wand (not a spray nozzle!) on the hose end to spread out the flow and reduce erosion. Turn the hose on softly (enough to fill a bucket to the 2 gallon/8 liter mark in 1 minute or so) and let it run for 30 seconds to 5 minutes (½ to 10 gallons), depending on the plant type and size. Spot watering takes more time, but really helps establish trees and large shrubs, which need more water to reach larger, deeper root systems, or to rescue drought-stressed plants at any time.



 <p>Salmonberry (<i>Rubus spectabilis</i>) Deciduous flowering shrub Mature size: 5'-8' height by 5'-8' spread Shape: Upright, spreading; Pacific NW native Environment: Prefers shade & moist conditions Invasive: Purple-red spring flowers; Edible pinkish fruit Special Needs: Water in hot, dry weather</p>	 <p>Blueberry (<i>Vaccinium corymbosum</i> hybrid varieties) Deciduous flowering shrub Mature size: 5'-6' height by 4'-5' spread Shape: Upright to spreading; Twigg Environment: Sun to light shade; Good, moist soil Invasive: Edible blueberries; Yellow-red fall color Special Needs: Water for larger berries; Mulch well</p>
 <p>Strawberry Tree (<i>Arbutus unedo</i>) Broadleaf Evergreen shrub Mature size: 8'-15' height by 8'-15' spread Shape: Round, irregular branching; slow growing; semi Environment: Adaptable to range of soils & conditions Invasive: White spring flowers; Edible red fruit; shedding bark; Glossy evergreen leaves Special Needs: Option - Prune to train as small tree; shake if top-heavy; Prune suckers</p>	 <p>Compact Strawberry Tree (Intl. Dwarf) shrub (<i>Arbutus unedo</i> 'Compact') Mature size: 5'-8' height by 5'-8' spread Shape: Upright to round; slow growing; flowering shrub Environment: Adaptable to range of soils & conditions Invasive: White spring flowers; Edible red fruit; shedding bark; Glossy evergreen leaves Special Needs: None</p>

Go to www.seattle.gov/util/naturalsystems
look under Overview / Technical resources /
“Practically Easy Landscape Manual” or “Plant ID”

Natural Systems

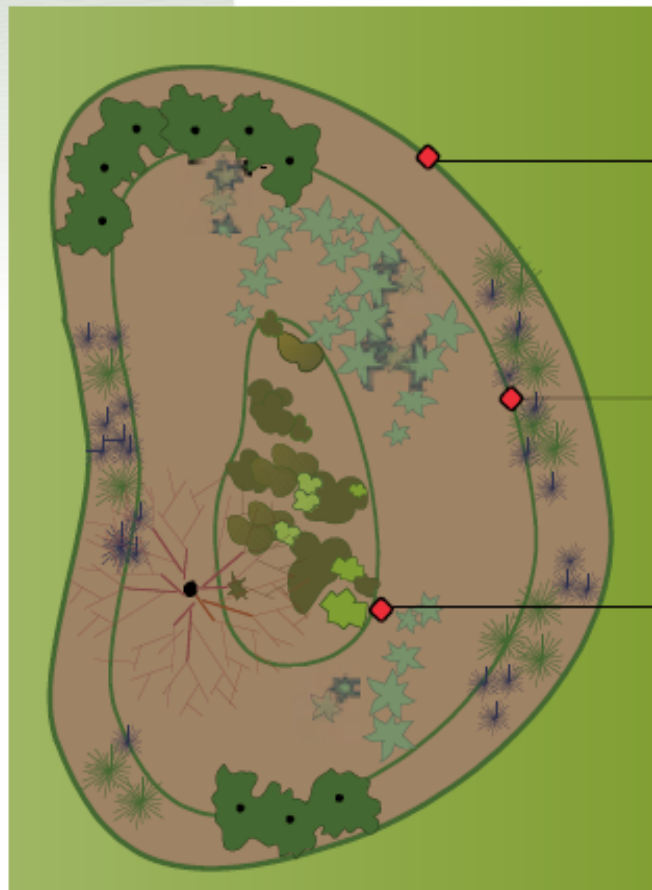
A palette of
nature's
colors...

...an ever-changing

canvas

Plant Selection

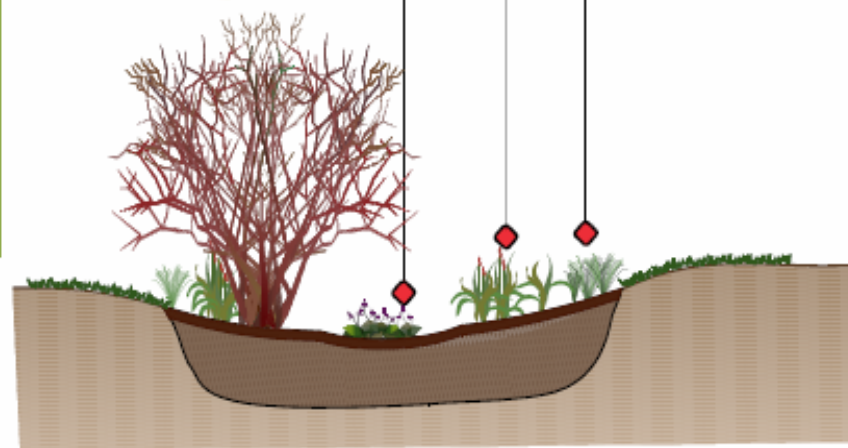
Rain gardens generally have three planting zones characterized by wetness. Select plants according to their water needs and sun exposure for these planting zones.



Zone 3 for plants that prefer drier conditions

Zone 2 for plants that can tolerate occasional standing water.

Zone 1 for plants that can tolerate wetter conditions.



DIVERSITY

It's a VERY “good thing”!

TREES

Evergreen

- Height (Tall, Medium, Low)
- Spread (Wide, Medium, Narrow)
- Color (seasonal!)
- Texture
- Habitat Value
- Neighborhood context
- Personal favorite!

Deciduous

- Height (Tall, Medium, Low)
- Spread (Wide, Medium, Narrow)
- Color (seasonal!)
- Texture
- Habitat Value
- Neighborhood context
- Personal favorite!

Tall/
Narrow

Tall/ Wide

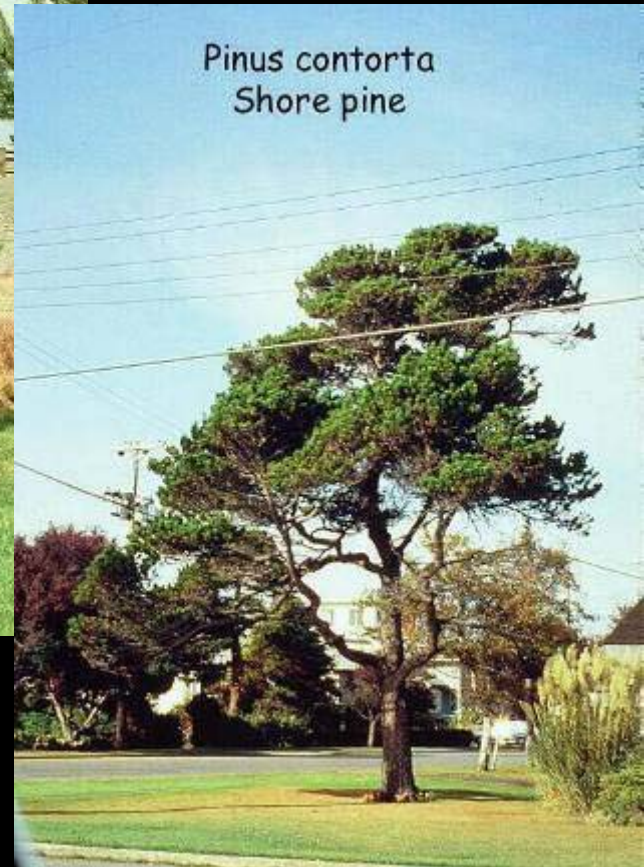


Thuja plicata
Western red cedar



Calocedrus decurrens
Incense cedar

Tall/ Wide



Pinus contorta
Shore pine



Japanese Black Pine

Medium/Medium
(slow growth rate)

Hinoki Cypress



Tall/ Wide



Cercidiphyllum japonicum
Katsura tree



Liriodendron tulipifera
Tulip tree or Yellow poplar



Cercidiphyllum japonicum
Katsura tree

Tall/ Wide



Liriodendron tulipifera
Tulip tree or Yellow poplar



Tall/ Narrow



Populus tremuloides
Quaking aspen



Populus tremuloides
Quaking aspen





Nyssa sylvatica
Black gum or Tupelo



Eddie's White Wonder Dogwood
Medium/ Narrow



Tupelo
Medium/ Wide



Styrax japonicus
Japanese snowbell



Styrax japonicus
Japanese snowbell

Styrax
Low / Wide

Autumn Brilliance Serviceberry

Low / Narrow



Galaxy Magnolia
Low/ Narrow



Purple-
Leafed
Hazelnut

Low / Wide



Diane Witchhazel
Low / Wide

Pacific Sunset Maple



Medium / Medium



DIVERSITY

It's a VERY “good thing”!

SHRUBS

Evergreen

- Height (Tall, Medium, Low)
- Spread (Wide, Medium, Narrow)
- Color (seasonal!)
- Texture
- Habitat Value
- Neighborhood context
- Personal favorite!

Deciduous

- Height (Tall, Medium, Low)
- Spread (Wide, Medium, Narrow)
- Color (seasonal!)
- Texture
- Habitat Value
- Neighborhood context
- Personal favorite!



Vine Maple





Hazelnut





Smoke Tree



Strawberry Tree



Native Rhododendron





Myrica





Flower &
leaf

Willow-leaf
Cotoneaster





Oceanspray



Mahonia



Photinea



Photinea - Photinea fraseri

Evergreen Huckleberry





Red-Twig
Dogwood

Yellow Twig Dogwood





Red Currant



Escallonia



Mockorange



Stranvaesia





Oakleaf Hydrangea



Hybrid Rhododendrons



Purple Rockrose



White Rockrose

Native & Hybrid Rose





Potentilla



Lavender



Kelsey
Dogwood



DIVERSITY

It's a VERY “good thing”!

Groundcovers and Perennials

Evergreen

- Height (Tall, Medium, Low)
- Spread (Wide, Medium, Narrow)
- Color (seasonal!)
- Texture
- Habitat Value
- Neighborhood context
- Personal favorite!

Perennial

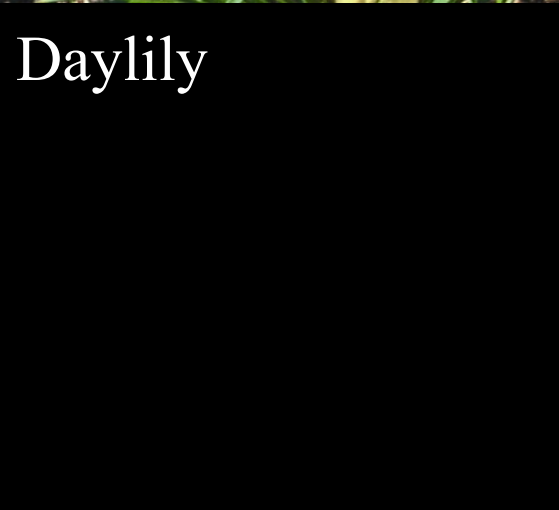
- Height (Tall, Medium, Low)
- Spread (Wide, Medium, Narrow)
- Color (seasonal!)
- Texture
- Habitat Value
- Neighborhood context
- Personal favorite!

Native Groundcovers



Potentilla, Iris and Kinnik-kinnik





Daylily

Douglasiana Iris

Lupine



Purple Place Heuchera

Coral Bells





Arrowhead

Youth-on-Age





Daggerleaf Rush

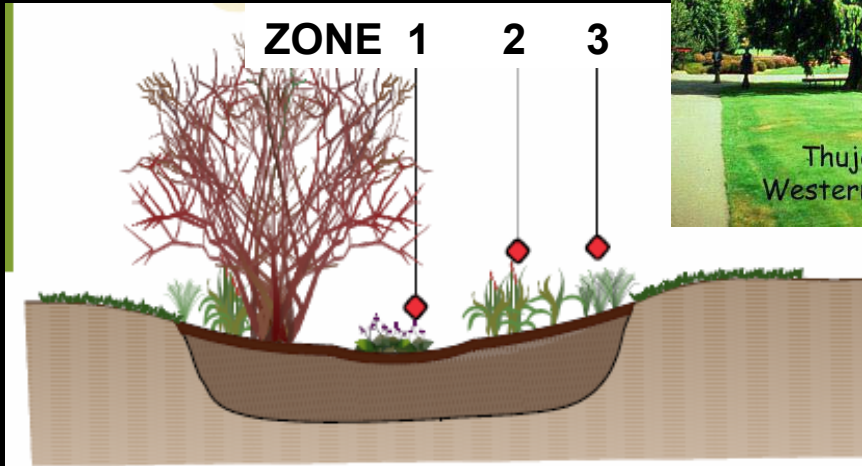


Sedge

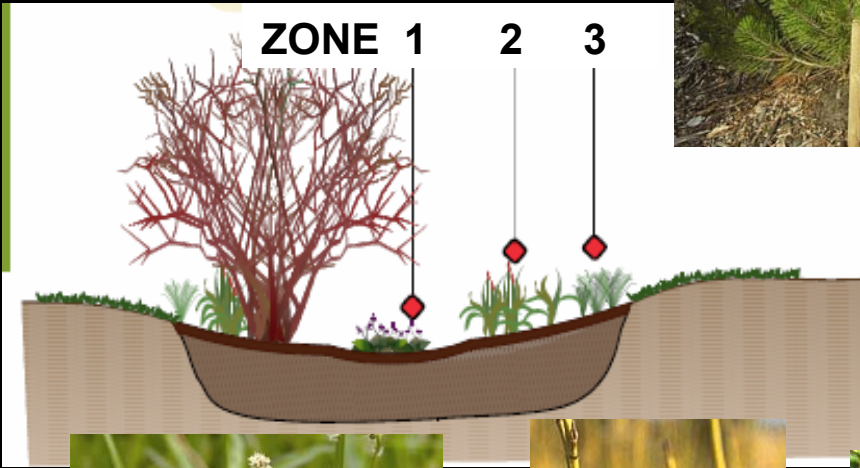


Small-fruited Bulrush

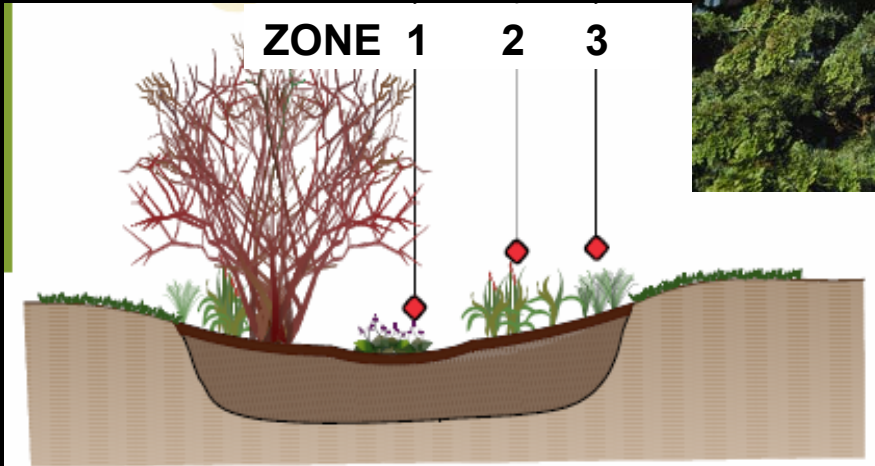
Shade



Sunny



Sun / Shade mix





On nature's canvas,
nothing, but change
... is constant.



7.15.2002

landscape
architecture

Great article in *Landscape Architecture*,
October 2007, "Seattle's Green Pipes"



more information and examples at
www.seattle.gov/util/naturalsystems