

The Role of Native Vegetation for Slope Stabilization

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Goal

Slope Stability & Integrity

Common Causes of Destabilization

Steepness

Human Modification

Water run-off and drainage including misdirected drain lines

Shoreline erosion undermining

Loose debris and vegetation piled up

Methods:

Retention Walls/ Soldier Piling/Lagging

Water Mitigation

Bulkhead Repair/Replacement & Shoreline Management

Erosion Control Blanketing

Vegetation

*Protection – Vegetative mass provides protection of bare soil exposed to heavy rain penetration reducing soil damage.

*Ground Water Mitigation – Absorbs and slows water movement in the soil.

*Stabilization – Varied root structures reinforce soil resisting erosion and increasing infiltration and water absorption.

- Deep Woody Roots – penetrate deep soil layers
- Lateral Roots – grid network and patterning between shallow and deep soil layers
- Feeder Roots – matting & density within shallow surface Layer

*Sustained Health – Roots break up compaction allowing for deeper water penetration and retention, decomposing plant material adds organic matter and nutrients and microbial vitality, habitat

NATIVE PLANTS FOR SLOPE STABILIZATION					
COMMON NAME	BOTANICAL NAME	SIZE	EXPOSURE	ROOT STRUCTURE	SOIL
Trees					
Cascara	Rhamnus purshiana	Ht. 25'+	Pt. Shade	Deep	Dry-Wet
Douglas Fir	Psuedotsuga menziesii	Ht. 200'+	Full Sun	Deep	Dry-Moist
Garry Oak	Quercus garryana	Ht. 50'+	Full Sun	Deep	Dry-Moist
Serviceberry	Amelanchier alnifolia	Ht. 15'+	Full Sun	Medium	Dry-Moist
Shore Pine	Pinus contorta	Ht. 15'+	Full Sun	Medium	Dry-Moist
Vine Maple	Acer circinatum	Ht. 15'+	Pt.Sun/Shade	Medium/Shallow	Dry-Moist
Western Red Cedar	Thuja plicata	Ht. 200'+	Full Sun	Deep	Dry-Wet
Willow	Salix (native species)	Ht. 20'+	Full Sun	Deep	Moist-Wet
Shrubs					
Black Twinberry	Lonicera involucrata	Ht. 10'+	Full Sun	Shallow	Moist
Evergreen Huckleberry	Vaccinium ovatum	Ht. 6'+	Pt.Shade/Shad	Medium/Shallow	Dry-Moist
Mock Orange	Philadelphus lewisii	Ht. 12'+	Full Sun	Medium	Dry-Moist
Nootka Rose	Rosa nootkana	Ht. 4'+	Full Sun	Medium	Dry-Wet
Ocean Spray	Holodiscus discolor	Ht. 12'+	Sun/Shade	Deep/Medium	Dry-Moist
Pacific Ninebark	Physocarpus cap.	Ht. 15'+	Full Sun	Medium/Shallow	Moist-Wet
Red Currant	Ribes sanguineum	Ht. 8'+	Sun/Pt.Shade	Medium	Dry-Moist
Red Osier Dogwood	Cornus ser. Stolonifera	Ht. 8'+	Full Sun	Deep/Medium	Moist-Wet
Salal	Gaultheria shallon	Ht. 3'+	Sun/Shade	Medium/Shallow	Dry/Moist
Snowberry	Symphoricarpos albus	Ht. 4'+	Sun/Shade	Medium/Shallow	Moist-Wet
Tall Oregon Grape	Mahonia aquifolium	Ht. 5'+	Sun/Shade	Medium	Dry-Moist
Thimbleberry	Rubus parviflorus	Ht. 4'+	Sun/Pt.Shade	Shallow	Moist
Groundcovers					
Creeping Blackberry	Rubus ursinus	Ht. 1'	Sun/Pt.Shade	Shallow	Dry-Moist
Creeping Mahonia	Mahonia repens	Ht. 2'	Sun/Pt.Shade	Medium/Shallow	Dry/Moist
Kinnikinnik	Arctostaphylos uva-ursi	Ht. 6"	Sun/Pt.Shade	Shallow	Dry-Moist
Sword Fern	Polystichum munitum	Ht. 2'	Pt.Shade/ShadeShallow		Moist-Wet

Additional Resources:

WA Dept. of Ecology: Slope Stabilization and Erosion Control Using Vegetation,
<https://fortress.wa.gov/ecy/publications/documents/9330.pdf>

Local Geotechnical Engineering

Henry Haselton, [Aspect Consulting, hhaselton@aspectconsulting.com](mailto:hhaselton@aspectconsulting.com)
Ellisport Engineering, (206)463-5311

Erosion Control Blanketing and Materials

NW Linings & Geotextiles Products, Inc.