



## SPOTLIGHT ON... SHORELINE PLANTING

### Salt Spray and Your Landscaping

None of us would take a rainbow trout from a Cascade Mountain lake and drop it into Puget Sound, expecting it to live. Or try to transplant manila clams to a Lake Washington beach. We all know that certain species are adapted to fresh water and others to saltwater. Yet people continually landscape their beach or bluff properties with the same plants, groundcover and trees that thrived in the yards they had before moving to a shoreline property, then wonder why they seem to be dying despite their best efforts to help them thrive. This edition of the newsletter seeks to explain why certain plants die near the shoreline, and what you can do to ensure a beautiful landscape for your beach or bluff property.

Whenever the winds cause waves and whitecaps, a certain amount of salt spray is inevitable. Some Puget Sound homes are located in harbored areas with little wave action, while others are located where severe winds and waves buffet their home and yard. All of these locations are affected by salt spray to some degree. When the droplets of spray that land on the leaves of trees and shrubs evaporate, sodium and chloride from the salt can penetrate the buds, leaves and stems, the damage being seen when the leaves begin to wilt or turn brown. You probably wouldn't think about misting your indoor plants with saltwater, but nature does it to your shoreline vegetation on a regular basis. Some signs of salt spray damage include browning of needles and leaf burn, particularly on the side that faces the water. In more serious cases, you can actually see the white salt residue left on the plants after the spray has evaporated.

The spray that lands on the ground travels downward through your soil with the rain, causing saline soil. If your yard or garden is particularly close to the beach, separated only by a small shoreline barrier, the seawater during high tides can often reach the roots of your trees and shrubs that are planted close to the barrier. If the salt in the soil is in lower concentrations, the membrane in the plant root cells prevents the salt from entering, allowing only the water into the roots. In higher concentrations, the salt can actually dehydrate the roots by drawing the water out of the cells. High levels of salts can cause compacted soils, particularly when they bind with soil clays. This happens more often in clay soils than sandy soils. Water and oxygen have a harder time penetrating the soil, and water has a more difficult time draining from this compacted soil. This affects not only plant growth but also pest resistance.

Most of our landscape plants are sensitive to salinity in the soil, especially young transplants and seedlings. Heavy winter rains can help remove this salt from the soil, thus reducing the damage from continued exposure, whereas periods of drought and hot weather increase the damage from exposure to the salty soil. There are other species that have adapted to salt spray and salty soil conditions over thousands of years. These we call "halophytic", or salt-loving plants.

### Some Thoughts on Shoreline Landscaping

If you think that you might have a problem with saline soil, one way to find out is to take a sample of your soil to a soil test laboratory, which measures the amount of salt in your soil in ppm, or "parts per million". (If you wonder where you can have this done, check with your local WSU Extension office, or your Conservation District.) Generally, a concentration of less than 1000 ppm is considered low, and 1000–2000 ppm is considered medium. Most of your landscape plants can tolerate salt concentrations in the low to medium range, with the

exception of very sensitive plants. If that is the case, you might consider planting more salt-tolerant plants, including native species that are adapted to living along the shoreline.

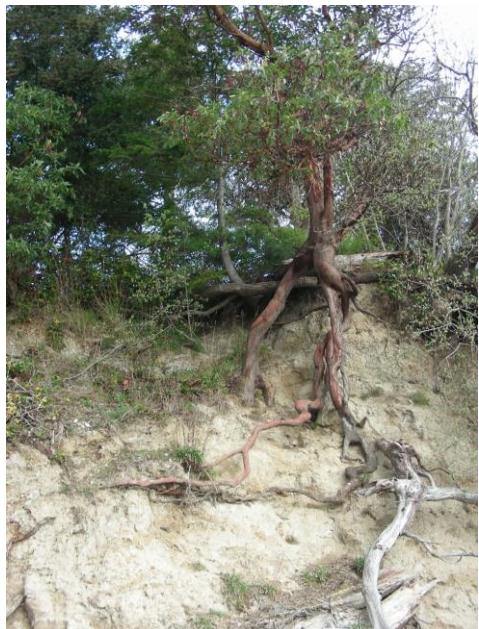
Before you consider planting any new trees, shrubs or plants, think about their impact on your drainfield. You really should only have lawn grasses or shallow-rooted native plants over your drainfield, avoiding any trees, shrubs, or plants with deep roots. Anything planted over your drainfield that requires watering will impact the ability of your drainfield to do its job. Even a vegetable garden over the drainfield is not a good idea.

Take a look up and down your beach, and see how the neighbors' yards are doing. You will see some plants, trees and foliage that are thriving, and others that just seem to be getting by, or worse yet, dying. Take a walk along the shoreline of your state, county or municipal parks to see what vegetation works well near the shoreline. Our State Parks have several wonderful examples of how beautiful native plants and trees can be, and how natural they can look. Check the native plant nurseries, and ask them which plants are salt tolerant and grow well along the shoreline. Take some time and explore the shoreline, and forget about the city and suburban landscaping you have become accustomed to in the past. You are living in a special place now, and you need special plants to create a healthy coastal garden.

## Salt Tolerant Trees and Shrubs

One of the most important things to consider when choosing a salt-tolerant tree is how large it will get. If you are planting a Douglas Fir (*Pseudotsuga menziesii*), for example, which has good slope erosion control, realize that it can reach up to 200 feet high. Maybe not in your lifetime, but it could still grow tall enough to block the view of the neighbors behind you. So that is something you should think about – as well as the impact the roots of the tree might have on your drainfield. Other great native trees that are adapted to a shoreline location include the Pacific madrone (*Arbutus menziesii*), Sitka spruce (*Picea sitchensis*), Red alder (*Alnus rubra*), Western red cedar (*Thuja plicata*), Big-leaf maple (*Acer macrophyllum*), Grand fir (*Abies grandis*), Western hemlock (*Tsuga heterophylla*), Pacific yew (*Taxus brevifolia*), Shore pine (*Pinus contorta*), and the Western white pine (*Pinus monticola*).

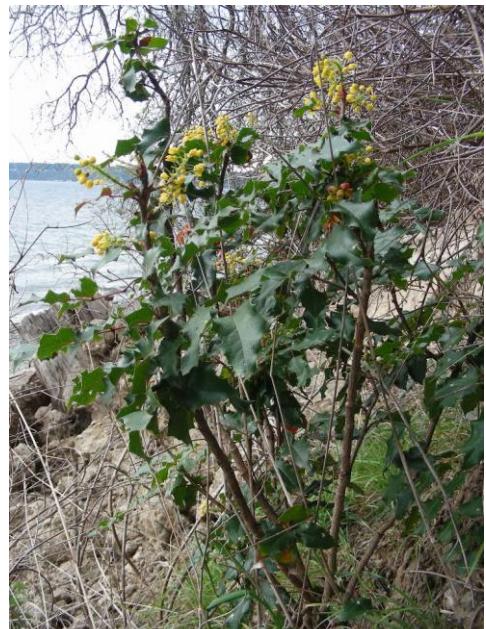
Some of the better salt-tolerant shrubs and small trees to consider include Salal (*Gaultheria shallon*), Ocean Spray (*Holodiscus discolor*), Snowberry (*Symphoricarpos albus*), Elderberry (*Sambucus species*), Tall Oregon grape (*Mahonia aquifolium*), Serviceberry (*Amelanchier alnifolia*), Nootka Rose (*Rosa nutkana*), and the Wax Myrtle (*Myrica californica*). This is by no means a complete list of all the trees and shrubs that do well along the shoreline. A short bibliography is given on page three.



Left: Pacific madrone (*Arbutus menziesii*) is not only quite salt-tolerant, it also provides bluff stability through its root system. .

Right: Tall Oregon Grape (*Mahonia aquifolium*) is shown growing on a bluff location just above the beach.

*All photos on this and next page taken by Scott Chase at Camano Island State Park.*



## Native Herbaceous Plants for Shoreline Sites

There are a variety of native plants that are commonly found near the shoreline, and which typically do well in the Puget Sound area. These include the sword fern (*Polystichum munitum*), Bracken fern (*Pteridium aquilinum*), Fireweed (*Epilobium angustifolium*), Coastal lupine (*Lupinus littoralis*), Honeysuckle (*Lonicera species*), and Coastal strawberry (*Fragaria chiloensis*). There are also many ornamental grasses that do well along the shoreline and that are very attractive. You might check one of the nurseries in the area that specialize in ornamental grasses. Try to find ones that are native and that do not spread at an excessive rate, and that are non-invasive. Andean pampas grass, which can commonly be seen in gardens around Island County, is considered to be a very invasive species in California, and viewed by their state authorities in a similar fashion as we do with our own Scotch broom or spartina!

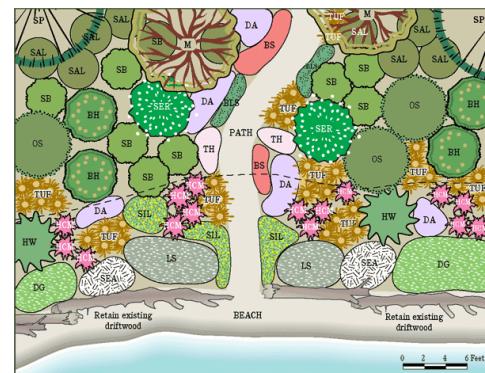


Salal (*Gaultheria shallon*) is shown in this bluff location at Camano Island State Park. Salal is salt tolerant, and works well in a variety of conditions and locations. You may find it growing in full sun, but it prefers shaded to partially shaded locations. It can grow quite thick in coastal areas, and can grow to five or six feet in height. The berries were a significant food resource for native peoples, and you can find recipes on the internet for making salal berry jams and jellies.

## Local Native Plant Guide and Shoreline Planting Plan

King County has an excellent website called the Northwest Native Plant Guide. It has a very inclusive list of native plants, as well as planting plans for a variety of locations. At right you can see a reduced example of one of their plans. Go to the landscaping plans part of their website, <http://green.kingcounty.gov/GoNative/Plan.aspx?Act=list>,

and click on Marine (salt water) Shoreline link to find this sample plan. If you click on each shrub, tree or plant shown in the plan, you'll find a full description of that item. You'll really enjoy this colorful site, and learn a lot about what works best for your location. Other sample landscaping plans are available for a variety of locations.



## Bibliography/Publications for Further Reading

**Plants of the Pacific Northwest Coast.** Jim Pojar and Andy MacKinnon, Lone Pine Publishing, Vancouver, BC, 1994.

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**Propagation of Northwest Native Plants.** Robin Rose, C. Chachulsky, D. Hasse, Oregon State University, Corvalis, OR, 1998.

**Trees and Shrubs that Tolerate Saline Soils and Salt Spray Drift.** Bonnie Appleton, Vickie Greene, Aileen Smith, and Susan French, Virginia Cooperative Extension, Virginia Beach. Publication Number 430-031, Posted January 2003

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**Vegetation Management: A Guide for Puget Sound Bluff Property Owners.** 1993, Publication #93-31. Dept. of Ecology, Washington State <http://www.ecy.wa.gov/pubs/9331.pdf>

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