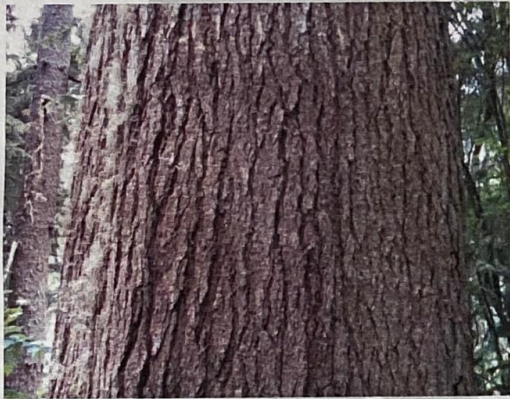


5 February 5, 1806, "rises to the high of 160 or 180 feet very Commonly and is from 4 to 6 feet in diameter." -William Clark

**Western hemlock:** a smaller, slower-growing and shorter-lived tree compared to the Sitka spruce. The largest hemlocks reach 6-8' in diameter, and 200' in height. Hemlocks are capable of outcompeting other species for several reasons: they are highly shade-tolerant and can grow on a variety of surfaces, a mature stand of trees can produce millions of seeds per year, and each seed can be blown ½ mile away from the parent tree by the wind.



Western hemlock bark



Western hemlock needles (leaves) & cones

6 December 16, 1805, "The winds violent. Trees falling in every direction, whorl winds, with gusts of rain Hail and Thunder, this kind of weather lasted all day. Certainly one of the worst days that ever was!" -William Clark

**Weather:** During harsh winter storms large trees like this can be blown down, eventually becoming nurse logs. The opening in the canopy allows understory trees to thrive. Sometimes many trees are blown down at once, ushering in pioneer species like red alder.

7 February 9, 1806, "The stem of the...alder is simply branching...the bark is smooth of a light colour with white coloured spreading spots or blotches" -Meriwether Lewis

**Red alder:** the largest alder in the Northwest, it can reach up to 110' in height in 60 years. Alders are "nitrogen-fixers," meaning they extract the gas from the air and transfer it to the soil, thus enriching the forest floor. A shade-intolerant tree, red alders rarely live to 100, serving as pioneers for the giant conifers like Sitka spruce and Western hemlock that follow in its nutrient-rich wake.



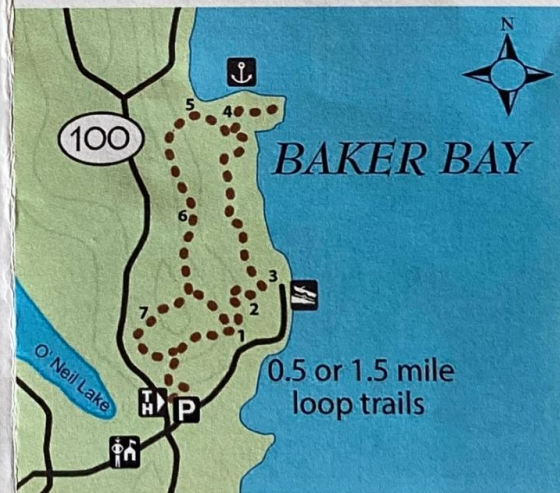
Red alder bark, leaves and catkins (cones)

## Coastal Forest Loop Trail

When the Lewis and Clark Expedition explored Cape Disappointment in 1805 their journals described an ancient coastal forest. Today this primitive trail includes a moderate ½ mile loop and difficult 1½ mile loop through a wilderness-like section of Cape Disappointment State Park.

Along the 1½ mile loop are a few fine examples of old growth Sitka spruce—trees that the Lewis and Clark Expedition might have seen when they hiked in the area.

Be advised, muddy conditions may exist year round. Trails can be narrow and heavily-rooted. Sturdy footwear is recommended. This brochure corresponds with numbered posts along the 1½ mile loop trail to serve as a self-guided interpretive hike through the coastal forests of Cape Disappointment.



❶ February 4, 1806, "...a species which grows to immense size;...36 feet in the girth or 12 feet in diameter...they frequently rise to the height of 230 feet..." -Meriwether Lewis

**Sitka spruce:** a giant of the Northwest coast, the "tideland spruce" is a fast-growing and long-lived species. Capable of reaching 300' in height and up to 12' in diameter, it is crucial to the coastal forest ecosystem, providing habitat for the endangered marbled murrelet. Ahead between posts 3 and 6, look for the old growth Sitka spruce. One tree near post 6 has a diameter of nearly 9' at the base!



Sitka spruce bark



Sitka spruce needles (leaves) & cones

❷ November 19, 1805, "I observed in many places pine of 3 or 4 feet through growing on the bodies of large trees which had fallen down...yet part Sound." -William Clark

**Nurse logs:** nurse logs are dead and downed trees that serve a vital role in the temperate rainforest. Nurse logs retain water, transfer nutrients, provide habitat, and bring seedlings closer to sunlight. A "nurse stump" is a remnant of logging with similar characteristics. Nurse logs can take as long to decay as they took to grow playing an important role at ground level in the forest.

❸ November 30, 1805, "...observed rose bushes, different species of pine, ...and several species of under growth common to this lower part of the Columbia river." -William Clark

**Imagine the forest you see here divided into four, distinct layers:**

**Canopy or Overstory:** dominant evergreens like Sitka spruce and western hemlock grow here. The canopy supports a unique habitat for mosses, lichens, ferns, red tree voles and marbled murrelets.

**Secondary or Understory:** shade-tolerant trees like red alder, Cascara and tall, red elderberry shrubs grow in this layer.

**Shrub Layer:** shrubs like Salal and evergreen huckleberry provide food for mammals like black bear and black-tailed deer.

**Ground Layer:** nurse logs and herbaceous plants such as grasses, sedges, ferns, and annually flowering plants are found here.

❹ November 18, 1805, "...this rock Island is small and at the South of a deep bend in which...the Ships anchor" -William Clark

**Anchorage Island:** the rocky, forested outcrop in this marsh was once surrounded by deep water. Beginning in the 1790's, fur-traders anchored their ships nearby to trade with the Chinook Indians. Lewis and Clark hoped to meet a ship here in order to replenish their supplies, but none was found. When jetties were constructed at the mouth of the Columbia River it changed the movement of sand. Now the anchorage is only an island on the highest tides.



Anchorage Island at different stages of the tide. The "island effect" (seen below) is best viewed on the largest high tides associated with the new or full moon.

