Conifers of the Hoh Rain Forest

Conifers are the cone bearing trees that are generally referred to as evergreens. They dominate the forests of the Pacific Northwest. The Hoh Rain Forest in Olympic National Park offers the visitor an opportunity to wander through an ancient forest and observe the natural processes that occur within the forest community. To understand these processes it first helps to be introduced to the forest members. There are four dominant conifers of the temperate rain forest.

Sitka Spruce
Picea sitchensis

Sitka spruce grows in the coastal fog belt from northern California to southern Alaska. Growing a few miles from the coast and up river valleys, it obtains its largest size in the rain forest valleys of Olympic National Park. It is the dominant tree of the temperate rain forest valleys.

Young Sitka spruce are able to grow well in the shade of the forest canopy. However, Sitka spruce seedlings have a difficult time getting started on the forest floor. There is too much competition from the dense mosses and other plants which carpet the forest floor for the seedlings to develop. If Sitka spruce seeds land on a downed log, they have an open growing area to germinate and develop. These downed logs are called nurse logs and are a vital part of the regeneration of the forest. Most of the Sitka spruce in the forest start on nurse logs.

To identify the Sitka spruce look for the tree with the thin purplish bark which is broken into large loose scales. The needles of the Sitka spruce are flat and very sharply pointed. The cones which are 2 1/2 - 4 inches long have papery scales. Sitka spruce can reach heights of 300 feet and live up to 600 years.

Western Hemlock
Tsuga heterophylla

Washington state honors western hemlock with the distinction of being its state tree. Out of all of the lowland trees it grows best in a shady forest. It is the end result tree of forest succession in the lowland forests of western Washington.

Nurse logs are also vital for the growth of western hemlock. Most of the western hemlock start on nurse logs. The soft needles become an important part of the winter browse for the Roosevelt elk.

The lowland forest from southern Alaska to northern California as well as the Rocky mountain region is the home of western hemlock. The leader or top of the western hemlock is droopy. The needles are blunt, flat and of unequal length. They range from 1/4 - 3/4 of an inch in length. The cones are only about an inch in length.

Western hemlock can reach heights of 200 feet and live up to 500 years. The largest recorded western hemlock is in the Hoh Rain Forest of Olympic National Park.

Douglas-fir
Pseudotsuga menziesii

Douglas-fir flourishes in a wide climate range from British Columbia to central California as well as in the northern Rockies and in the southwest.

Douglas-fir will not germinate and grow on nurse logs. It needs exposed mineral soil to germinate. Overall, the forest floor is heavily covered with mosses, ferns and other herbaceous plants. As the seeds are carried in the wind, it is unlikely that they will land in an area of exposed mineral soil making it difficult for Douglas-fir seeds to germinate. Because Douglas-fir does not tolerate shade as well as the other conifers of this forest, it will often be found in areas where past disturbances such as fire opened the forest to sunlight.

Along with Sitka spruce, coastal redwood, and giant sequoia, Douglas-fir is one of the four species that may reach heights of 300 feet. The largest recorded Douglas-fir is in the remote south fork of the Hoh valley in Olympic National Park. Douglas-fir can live to 1000 years in age.

Early botanists had a difficult time determining the taxonomy of Douglas-fir. At different times it was thought to be a pine, spruce and a fir. It was originally referred to as Oregon pine. However, it lacks the clustered needles of a pine. John Muirs' early writings refer to it as Douglas Spruce. Douglas-fir is written as a hyphenated word and not as two words because it is not a true fir. Hopefully, its taxonomy is now resolved. It is in a genus with the scientific name, *Pseudotsuga,* which means false hemlock.

Needles of the Douglas-fir are blunt to pointed and radiate around the twig. They have bud scales at their tips. The cone is 3 to 4 inches in length and has a three pronged bract under each scale. The bark is reddish-brown in color. Older trees have very deeply furrowed bark which may be a foot thick that serves to insulate the tree from fire.

Western Red Cedar
Thuja plicata

Unique among the conifers for its resistance to decay, the western red cedar was used widely by the coastal Indians. Canoes, clothing and baskets were constructed out of the wood and bark of this tree.

Found growing from southern Alaska to northern California and in moist areas of the Rocky Mountains, the western red cedar grows well in the shady forest. Western red cedar generally grows in wet areas but may also be found growing on drier sites.

Reaching heights of 200 feet, the western red cedar can live to 1000 years. The bark is stringy and fibrous, the needles are flat and scale like sprays. Cones are very small only 1/2 of an inch in length and oval shaped.