

A walk through VanDusen anytime of year has us focusing on what is right before us, the rhododendrons in May and June, the Black and Gold Garden and Perennial Garden during summer or the green expanse of the Great Lawn year round. On this walk however we are going to look up, way up, and consider the giants of VanDusen, the magnificent conifers that give the garden so much of its texture and character.

VanDusen has been a fortunate beneficiary of its history. Many of the largest trees, especially the Douglas-fir and western redcedar, were planted during the development of the Shaughnessy golf course which preceded the garden. These trees were planted around 1910. Before the golf course it was a virgin west coast temperate rain forest with enormous coniferous trees over 700 years old. European settlement in the 19th and early 20th century entirely cleared off that forest. So the big conifers now in VanDusen are about 130 years old and are among the largest trees to be found in the city to this day. It was, and remains, on the traditional and unceded territory of the x̣ẉməθḳẉəỵəm (Musqueam), ṣḳẉx̣ẉú7mesh (Squamish) and ṣəḷiḷẉəṭəḷ (Tsleil-Waututh) Nations.

We begin our walk on the Plaza outside the Visitor Centre. Facing the fountain in Livingstone Lake go left and cross the wooden bridge. Keeping to the left, pass the jade drinking fountain and carry on using the paved path on the far left. About 25 meters along you will see on the left **1 - grand fir (*Abies grandis*)**. In BC, grand fir is found on the south coast, usually growing with Douglas-fir in areas that are somewhat drier or in rain shadow. They can grow to great height, up to 80 meters. Grand fir are noted for the strong scent their needles produce when crushed. They have been used by west coast first nations as a kind of air freshener or a personal deodorant. It has thin bark and is susceptible to fire. Extensive fire suppression has increased its spread in recent years.

Trace your steps back to the Visitor Centre Plaza and cross in front of it going down the few steps off the Plaza to the right of Livingstone Lake. Follow the directional arrows for "self-guided tour" and proceed down the path to the floating bridge. Cross the bridge and stay on the path until you come to **2 - coast redwood (*Sequoia sempervirens*)**. Coast redwoods are the tallest known trees, growing over 100 meters tall. These specimens were planted in the early 1970s. Coast redwood can live for 1500 years, so given the relative youth of these trees they have many years ahead of them and will truly become giants. At present in spite of their young age they are among VanDusen's largest trees. In their native habitat in northern California they have been completely logged out and now can only be found in parks.

Continue along the path through the bamboo thicket, come out to the paved path and directly in front of you is a grove of **3 - giant redwoods (*Sequoiadendron giganteum*)**. Most remarkable about this stand is that it was planted in 1975 and has grown to this size in just over 45 years. In terms of volume these are the largest trees in the world at maturity and can live for 3500 years. Anyone thinking of planting a giant redwood as a garden tree should take a second look at these specimens. Sadly, in its natural habitat this species is becoming seriously endangered, mainly due to climate change and the ever increasing risk of fire in its native California habitat. In 2020 one forest fire, the Castle fire, destroyed almost 14% of the remaining natural growth of the tree.

Return to the paved walkway where you exited from viewing the coast redwoods and go left. Carry straight on passing through the Mediterranean and Southern Hemisphere Gardens. The path curves down to the right and comes to a zigzag bridge. Cross the bridge and go up the slight rise. Directly in front of you is a **4 - ponderosa pine (*Pinus ponderosa*)**, sometimes called yellow pine. These trees are native to the dry climates of the BC interior and are common in the Okanagan and central interior. It is used for lumber as it has soft and easily worked wood. All species of pine in BC and western North America have been disastrously affected by the mountain pine beetle. The ponderosa pine is one of the most affected. Since 1990, 18 million hectares of pine forest have been killed off, resulting in a loss of 58% of merchantable pine. The main cause of the outbreak of mountain pine beetle infestation is warmer winters causing the beetle to survive the winter and multiply and spread.

To the right of the ponderosa pine take the path that goes through what appears to be a tunnel known as the "Grotto". Once through the Grotto which is covered mostly by spreading yew, you will be in the Heather Garden. Walk past the stone work Scottish shelter on the left, cross the small stone bridge and turn right at the intersection. A few steps along, on the left, you will come to **5- white spruce (*Picea glauca*)**. This spruce naturally hybridizes with Sitka spruce (*Picea sitchensis*). Both Sitka and hybridized white spruce are native to the BC coast and like so many other coastal conifers grow to become very large trees, up to 70 meters tall and 2 meters in diameter. This specimen is a non-hybridized white spruce and is not common in

coastal areas as it does not grow well in wet climates. Spruce is used in construction mainly for stud lumber. West coast spruce, mainly Sitka spruce, was used in the construction of the Mosquito, one of the most important war planes of World War II.

Stay on the path going in the same direction and you will soon come to a magnificent candelabra-shaped **6 - western redcedar** (*Thuja plicata*). The candelabra shape of this tree is the result of the lead stem or main trunk of the tree having been damaged and the adjacent branches growing out and up. Western redcedar is the official tree of BC. For indigenous people this is the “tree of life” because it has so many uses, including medicine, clothing, in particular hats and capes, housing for support beams and siding panels and in transportation for large sea going canoes made from giant hollowed out cedar trees. It is the wood most often used for carving story poles, masks and plaques. Western redcedar has been heavily logged and only a few old growth specimens remain.

From the intersection with the redcedar go to the right down the slight slope. On your left is the BC Habitat Garden where there is an on-going project to grow plants native to BC, specifically those found along the Pacific coast. At the bottom of this path is a collection of **7 - western hemlock** (*Tsuga heterophylla*). Along with western redcedar and Douglas-fir this is a predominant conifer in west coast forests. In fact it is common for all three to grow together. Western hemlock is another giant growing up to 60 meters. The western hemlock provides dense canopy so the forest floor beneath it is fairly bare due to a lack of sunlight. As with the other coastal conifers it is an important source of timber.

At the intersection of the paths go left and up a few paces then left onto a bark mulch path. This takes you into the BC Habitat Garden. As you pass through look for a metal sculpture entitled “Last of the Giants” which depicts loggers sitting on an enormous stump. This will give you an idea of the size of the conifers that were cut down for the settlement and development of the region.

Return to the candelabra redcedar and take the path that heads up the hill into the Sino-Himalayan Garden. Here are plants found in that part of the world. Stay on this path until you come to the remains of the Korean Pavilion which unfortunately collapsed during a wind storm in March of 2021. Go to the right and immediately on your right is a Chinese style arch which is the entrance to the Meditation Garden. Go through the arch into a grove of **8 - Douglas-fir** (*Pseudotsuga menziesii*). Photos of the Shaughnessy golf course in 1920 show these the size of Christmas trees. What you see is 100 years of growth. The Douglas-fir grows along the west coast from Alaska to northern California. Research by UBC forestry professor Suzanne Simard, documented in her book “Finding The Mother Tree”, has revealed how the west coast forest is in fact an interconnected web of dependencies with Douglas-fir actually dependent on the condition of the rest of the forest especially such species as birch and alder. These trees provide nourishment to the Douglas-fir and vice versa. Professor Simard has led a campaign to encourage reforestation programs that recognize these mutual dependencies and reduce or eliminate cultivation practices that use herbicides to eliminate the growth of birch and alder and other plants previously considered weeds that competed with Douglas-fir growth. In fact they support that growth.

Leave the Meditation Garden and go to the right. Up the slight incline where the path divides, stay to the left. A few paces on you will come to a **9 - Nootka cypress or yellow-cedar** (*Chamaecyparis nootkensis*). This specimen is newly planted and only a few years old. It will eventually be one of one of the largest trees in the garden. Nootka cypress are a higher elevation tree that can grow 40 meters and live one thousand years. But as with other large conifers the Nootka cypress is being affected by climate change. Nootka cypress have shallow roots and are susceptible to root freezing. Low snow cover and early snow melt caused by climate change leave the roots exposed and vulnerable to root freezing.

Close to the Nootka cypress is a path off to the left. This takes you into the Canadian Heritage Garden and **10 - jack pine** (*Pinus banksiana*). Before you is Canada’s most common pine tree found coast to coast in northern latitudes. It is a dominant tree in Canada’s boreal forest, the world’s largest forest ecosystem, which extends across the circumpolar north. Canada has one third of the planet’s boreal forest. This forest has been called “the lungs of the planet”. It takes up around 25 percent of human emissions. That considered, the jack pine and the rest of the boreal forest are essential to the health of the planet. At present Canada, along with Brazil and Russia, have the highest forest degradation rates. Much of the wood, especially jack pine, harvested from the boreal forest is used to make toilet paper.

This concludes our walk among VanDusen’s giants. Take your time to enjoy the rest of the garden while contemplating the wonder of plants and their marvelous interconnections.