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Welcome to VanDusen Botanical Garden's 55 acres, which contain 8,088 taxa (species, subspecies, cultivars, varieties), from around the world. This year's May tour will focus on plants native to North America. Follow the arrows to the numbered signs.

Facing Livingstone Lake, turn to your right and follow the path to the Eastern North America sign. Turn left, a few feet away, on your right is **1 – cucumber tree or big leaf magnolia (*Magnolia macrophylla*)**. This magnolia has the largest leaves and flowers of any deciduous tree in North America. It grows in a small pocket in southwest Ontario and the warmer eastern United States. Just behind it is an **Ashe's Magnolia**, a smaller tree and quite rare in its natural habitat. White magnolias are used in hybridization resulting in magnolia trees with yellow flowers. Continue down the path and turn left. A few yards down the path, on your left, is a **2 – hybrid magnolia (*Magnolia x brooklynensis* 'Yellow Bird')** considered one of the best yellow-flowered magnolias. It was developed by the Brooklyn Botanic Garden in 1981.

Turn back to the main path and turn left. On your right is **3 – Kentucky coffeetree (*Gymnocladus dioica*)**. *Gymnocladus* is Greek for 'naked branch'. The large bipinnate leaves are late to sprout in the spring and fall early in the autumn, leaving the tree bare for a good part of the year. The species is fairly rare and botanists believe the pod-like fruit evolved to be eaten and dispersed by now-extinct megafauna prior to the Ice Age. The seeds are too heavy for effective dispersal by water and wind, a factor that contributes to the decline of the tree. The seeds in the long brown woody pods contain a small amount of a toxic alkaloid, **cytisine**. The poison can be neutralized by roasting which enabled early settlers to use the beans to make a coffee substitute, hence its common name. First Nations peoples used the glutinous material in the pods and the leaves for food. The large seeds were dried and used in games and ceremonies.

**4 – Mayapple or American mandrake (*Podophyllum peltatum*)** bears a small white flower on a single stem under its umbrella shaped leaves in May. The small lemon shaped 'apple' fruit appears later in the summer. It is edible and tastes like passionfruit. Early Indigenous people and settlers used mayapple for several medicinal purposes, for example a topical extract was used to remove warts. The seeds are poisonous, so caution was paramount. ***Podophyllum* 'Spotty Dotty'** is a hybrid cultivar of several Asian 'sister' species. It is easily spotted by its somewhat creepy mottle leaves and smelly red flower.

Continue along the path. **5 – Ostrich fern (*Matteuccia struthiopteris*)** is native from Alaska, through Canada and Eastern USA. The fronds resemble ostrich feathers once they unfurl. This fern is the source of fiddleheads, considered a delicacy, which must be harvested as the tightly wound fronds first emerge in early April. They are said to taste like asparagus with a 'hint of soil'. It is named for Carlo Matteucia, a 19<sup>th</sup> century Italian physicist. Ostrich ferns are also native to Europe and Eastern Asia. They belong to the sensitive fern family (Onocleaceae). Early Indigenous peoples boiled stems for medicines used to alleviate back pain and pain during childbirth. Ostrich ferns add a dramatic backdrop to bright azaleas on the Rhododendron Walk.

A few feet ahead on your right is **6 – White sassafras (*Sassafras albidum*)**. The chemical **safrole** which gave root beer and sarsaparilla its distinctive flavour was deemed carcinogenic and banned in 1960 by the American FDA. Modern day root beer is now made with such plants as wintergreen. Being dioecious, male and female flowers develop on separate trees. Small yellow flowers appear in spring along with polymorphic leaves, that is three different shapes of leaves on the same branch. They can be three-lobed, bilobed (mitten shaped) or unlobed (oval shaped). The population of this tree is depleted as it was heavily harvested by early settlers who thought the root bark used for medicine was a cure-all. It was also the second most exported North American plant to Europe, after tobacco. Our tree is young – planted in 2016. There two other trees in the Canadian Heritage Garden.

Continue to your left across the grass or the paved path until you reach a woodchip path, turn left and stop when you come to the edge of the **Cypress Pond**. Ahead lies **7 – bald cypress (*Taxodium distichum*)** a unique member of the cypress family. This deciduous conifer is native to Louisiana and Florida and forms woody projections called 'knees' that rise out of the root system. These knees or pneumatophores are evident at the base of the trees and in the water in front of you. The purpose of these knees has long been a mystery, but recent evidence suggests they help take up oxygen. The knees are strong enough to

push through the asphalt pathway near the pond, and must be regularly trimmed to avoid tripping visitors.

Right in front of you is **8 – dawn redwood (*Metasequoia glyptostroboides*)** thought to be extinct until a grove of them was found in China during the Second World War. Fossil remains indicate the dawn redwood once grew in the north of our continent. Like the bald cypress it is deciduous.

Leave the Eastern North American collection and head west down the path through VanDusen's redwood 'forests'. Here are a few **9 – California redwood or coast redwood (*Sequoia sempervirens*)** on either side of the path. Redwoods are monoecious meaning 'one house' in that seed cones and pollen cones are on one tree. The coast redwood differs as it also reproduces via root sprouts. The sprouts can grow on burls around the base of parent trees or on fallen trees and branches. Coast redwoods are native to the north Californian coast and southwest corner of Oregon. They need fog and rainfall to thrive whereas giant Sequoias are happy in their dry Sierra Nevada terrain. Low-density forest fires clear away underbrush leaving a layer of ash which replenishes nutrients depleted by rain.

Continue along until you reach the main pathway, cross over into the middle of the **10 – giant Sequoia (*Sequoiadendron giganteum*)** grove. Statistics show the coast redwood is the tallest and the giant Sequoia is the largest by volume. However, the coast redwood wins when it comes to the volume of usable timber. Both have thick bark, contain tannin rather than pitch or resin, and lose their lower branches with age giving mature trees their fireproof properties. Many city blocks containing rows of houses built of naturally fire-resistant coast redwood survived the fires of the 1906 San Francisco earthquake.

A recent lightning storm struck the tree in front of you. Note the long vertical slash. The tree is healthy and safe. There are a few damaged branches in its crown, hence the yellow tape. This *in-situ science lab* goes to show how First Nations Peoples practiced sustainability long, long ago. When building their longhouses, they cut vertical planks from a living tree if there were no other sources available, such as fallen trees or branches. Cutting the outer layers all around the circumference of a tree stops the xylem (transports water & nutrients) and phloem (transports carbohydrates) from doing their jobs, eventually killing the tree. Very old trees where planks have been cut still live today and are protected from removal.

Return to the pathway, ahead on your left are four **11 – hybrid white flowering dogwood (*Cornus* 'Eddie's White Wonder')** bred by British Columbia nurseryman and rosarian Henry Matheson Eddie (1882 – 1953) during the late 1930s and 1940s. Here east meets west: they are the cross between the **eastern flowering dogwood (*Cornus florida*)** and our BC native **Pacific dogwood (*Cornus nuttallii*)**.

Just down the path is **12 – incense-cedar (*Calocedrus decurrens*)**, native to the higher elevations of Mount Hood in Oregon and south to Sierra Nevada and Baja California. Incense-cedar grows amongst many other trees, so it was not heavily logged. Because of its resistance to decay, early pioneers and gold miners used the species for structures in contact with the ground and for flumes in the mines. When the supply of **eastern redcedar** ended in the early 1900's, pencil manufacturers turned to incense-cedar (in 1956, 96% of pencils in the United States were made of incense-cedar). Its branches and wood smell like .....newly sharpened pencils. It has many uses because of its straight grain and aromatic properties. Note the duck bill shape of its cones scattered on the ground.

Continue to the corner of the path to the **BC Habitat Garden** which showcases local plants favoured by wildlife, birds, and bees. First Nations peoples used some of these for medicinal purposes. This area of the Garden contains evergreen conifers indigenous to the Pacific Northwest. **13 – Sitka spruce (*Picea sitchensis*)** planted next to the nursery log is a new addition to the Garden and is very young. Last spring a local farmers market vendor offered spruce tips for \$5.00 per 100 grams. She cited five health benefits and eight culinary uses. More BC native plants are in the bed opposite and are backed by a row of **14 – western hemlock (*Tsuga heterophylla*)**, a graceful tree with drooping leader and branches (note the blue underside of the needles). In BC it is used for pulp and lumber. Take your time to read the labels.

Kitty-corner on the path is a candelabra shaped **15 – western redcedar (*Thuja plicata*)**. The western redcedar was named British Columbia's official tree 1988. It is sometimes called *arborvitae*, Latin for 'tree of life', and has been the cornerstone of Northwest Coast aboriginal culture for at least 3,000 years. A natural fungicide *thujaplicin* prevents rot in its moldy temperate rainforest habitat. 100-year-old fallen trees have been salvaged and used for shingles. Walk around to the back of this tree to fully appreciate the girth of vertical branches growing out from the main trunk. This growth pattern may have been

caused by some damage to its leader (main upright stem) during its 125ish year history, causing it to branch out horizontally.

You have walked through a small area of the Garden. Any of the paths from here will take you to some of the beautiful areas, all in their blooming glory. Enjoy our day and be sure to come back again.