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Forest Biology Campus Tree Walk

Notes of Interest

The Forest Biology Campus Tree Walk is a 1-2 hour tour of some of the interesting trees on the UVic campus. It was difficult to choose from among the many species planted, and we hope the walk will inspire you to identify more of the trees that you find on your way. In formal garden areas, tree signs are placed at the base of the tree on a metal post. In other areas, signs are hung fairly high on the main stem or a lower branch of the tree. Part of the fun is finding the sign!

Trees on the Campus Tree Walk are listed in order below. The common name is followed by the scientific name and the family to which the tree belongs. The natural range of each tree is described and some distinguishing features are listed. Other information of interest is included.

1) Douglas-fir - *Pseudotsuga menziesii* (Pinaceae)

An evergreen conifer native to the coastal regions of western North America, from west-central British Columbia, south to central California. There is considered to be a coastal and an interior variety in B.C. Douglas-fir is not a true fir (true firs are in the genus *Abies*) thus the common name is hyphenated. Douglas-fir is distinguished by its thick, furrowed, fire-resistant bark, needles arranged all around the stem, pointed buds and three-pronged bract emerging from between the scales in the mature cone. Coastal Douglas-fir is a very large tree, some say the second tallest in the world after Coast Redwood. It commonly lives more than 500 years and occasionally more than 1,000 years.

2) Southern Magnolia - *Magnolia grandiflora* (Magnoliaceae)

An evergreen angiosperm also known as bull bay. Southern magnolia is native to the southeastern United States, from coastal North Carolina south to central Florida, and west to southeast Texas. It is distinguished by its large, white, lemon-scented flowers, glossy, leathery leaves, and fuzzy brown buds.

3) Bigleaf Maple - *Acer macrophyllum* (Aceraceae)

A deciduous angiosperm native to the Pacific coast of western North America from southern Alaska to southern California. Bigleaf maple is distinguished by the largest leaves of any maple, typically 15-30 cm across, with five deeply-incised, palmate lobes. We understand that it is possible to make maple syrup from the sap of Bigleaf maple, but it requires a lot of reduction.

4) Vine Maple – *Acer circinatum* (Aceraceae)

A deciduous angiosperm native to western North America from southwest B.C. to northern California, always within 300 km of the Pacific Ocean. Vine maple is distinguished by its

to grow in nitrogen-poor soils, even old road beds. In disturbed moist forest areas, red alder can rapidly form a dense cover. A russet dye can be made from a decoction of the bark and was used by First Nations people to dye fishing nets so as to make them less visible underwater. Red alder can be recognized by its leaves which have coar

11) Monkey puzzle – *Araucaria araucana* (Araucariaceae)

An evergreen conifer native to southern Chile and Argentina, Monkey puzzle is the hardiest species of *Araucaria*. Its range is now restricted to a small area approximately 200 km long x 50 km wide in the Andes, and a few patches in the coastal cordillera of Chile. Monkey puzzle is distinguished by its triangular, sharply pointed leaves. It has very regular, whorled growth when young, but self-prunes and becomes flat-topped when old. Trees are usually dioecious (separate male and female trees). This specimen is a male and will produce pollen cones, but the female cones contain edible seeds. Trees can grow to 50 m height and 2 m diameter. The name is said to have come from a British garden owner who said “it would puzzle a monkey to climb that” (if there were any monkeys in its native range).

12) Western redcedar - *Thuja plicata* (Cupressaceae)

An evergreen conifer native to the west coast of North America from southern Alaska to northern California; and to inland valleys in southern B.C. to western Montana. Western redcedar is the provincial tree of B.C., and is distinguished by its scale-like leaves, red-brown, fibrous bark, and seed cones with leathery, paired, spine-tipped scales. It is not a true cedar (see # 22), hence the spelling of ‘redcedar’. Western redcedar was used for many purposes by the aboriginal peoples of the north Pacific coast and played a key role in their culture. Its wood is easily split and rot-resistant, and is highly valued.

13) Umbrella pine – *Sciadopitys verticillata* (Sciadopityaceae)

An evergreen conifer native to Japan. Umbrella pine is the only species in the family Sciadopityaceae and the genus *Sciadopitys*. The leaves are variously interpreted as a pair of true leaves fused together, or as highly modified shoots. This species is among the oldest of the extant conifers and is known in the fossil record from > 230 million years BP, thus it is considered a “living fossil”.

14) Empress tree – *Paulownia tomentosa* (Scrophulariaceae)

A deciduous angiosperm native to central and western China. The Empress tree is also called the Princess tree or Foxglove tree, and is distinguished by its large, heart-shaped leaves and tall clusters of purple, tubular flowers, resembling foxglove flowers. Empress tree is tolerant of poor soils and disturbed areas and is considered a weed tree in some areas. The wood can be very valuable, however, and is used for furniture and decorative boxes.

15) Silver Maple – *Acer saccharinum* (Aceraceae)

A deciduous angiosperm native to southeastern Canada and the eastern United States. Silver Maple is also known as Soft Maple and hybridizes with Red Maple. It can be recognized by its deeply lobed leaves with 5-7 lobes, and very large keys with a 90° wing angle. The seeds are the largest of any native maple. Silver Maple does not become highly colored in autumn, and leaves usually remain yellow or brownish.

16) Copper Beech – *Fagus sylvatica* ‘*Purpurea*’ (Fagaceae)

A deciduous angiosperm, the Copper Beech is a purple variety of European Beech. The natural range of European Beech extends from southern Sweden to central Italy, west to France and east to northwest Turkey, where it intergrades with the Oriental Beech (*F. orientalis*), which replaces it further east. It can be recognized by the long, pointed buds, smooth, gray bark, and leaves

conifers which shed pollen in the spring, *Cedrus* sheds pollen in the late summer or autumn. The specific name *deodara* is derived from the Sanskrit name, 'devadara', meaning timber of the gods. It is the national tree of Pakistan. The related *Cedrus libani* is the Cedar-of-Lebanon, and BC's native western red cedar and yellow cypress (also known as yellow-cedar) are not considered "true" cedars as they are in different genera and a different family. Although this individual lost most of its needles after cold damage in the winter of 2006/07, it is now recovering.

23) Coast Redwood – *Sequoia sempervirens* (Cupressaceae)

An evergreen conifer native to the coast of California and Oregon. Coast Redwood is distinguished by flat sprays of dark green needles on new side shoots, 2-3 cm globular seed cones, and thick, fibrous, red-brown bark. The Coast or California Redwoods are among the tallest trees in the world. The tallest redwood was the "Dyerville Giant" in Humboldt State Park. It was 113.4 metres high when it fell in March 1991, and was estimated to be 1600 years old. A tree claimed to be 115.8 m was cut down in 1912. A paper by Koch et al. (Nature, 2004, Vol. 428, pp. 851-854) postulated that due to leaf water stress imposed by gravity and path length resistance, maximum tree height is limited to 122-130 m.

24) Dawn Redwood – *Metasequoia glyptostroboides* (Cupressaceae)

A deciduous conifer native to the Sichuan-Hubei region of central China. Dawn Redwood is characterized by soft, bright-green needles, opposite in two ranks. The shoots are also arranged in opposite pairs, and the entire shoot is deciduous. There is only one extant species in the genus, but four species are known from the fossil record. Between 65-5 million years ago, *Metasequoia* was widely distributed across Asia and North America, and fossils have been found as far north as 80°

regular Black Locust rootstock The flowers and fruits are pea-like as this tree is a nitrogen-fixing legume, like peas.

28) Dove tree – *Davidia involucrata* (Cornaceae)

A deciduous angiosperm native to south-west China. Dove Tree is also called Ghost-tree or Handkerchief-tree because of the two large, white bracts subtending a cluster of small male and

A deciduous angiosperm native to southern and eastern Asia from Iran to Japan. Silk tree is recognized by its tripinnate leaves which close slowly at night and during periods of rain, and its clusters of silky flowers which lack petals and are mostly clustered stamens.

33) Tulip-tree – *Liriodendron tulipifera* (Magnoliaceae)

A deciduous angiosperm native to eastern North America, including southern Ontario. Tulip tree is recognized by its distinctive leaves, which have a low notch at the tip so that the leaf appears cut off at the top. The flowers are yellow, large and tulip-like with many parts, and the fruits are winged in cone-like aggregates. Tulip-tree is planted widely as an ornamental as it is generally free of pests and diseases and has good form.

34) Shrubby Japanese Yew – *Podocarpus macrophyllus* (Podocarpaceae)

An evergreen conifer native to southern Japan and China. Shrubby Japanese Yew is not in the Yew family at all, but rather in the southern hemisphere conifer family Podocarpaceae. The Japanese name for this species is Kusamaki. Shrubby Japanese Yew is recognized by its strap-shaped leaves 6-12 cm long. It does not have a cone like many conifers, instead the seed develops at the end of a bract which swells and becomes purplish-red when the seed is ripe.

35) Cut-leaf Alder – *Alnus glutinosa* ‘*Imperialis*’ (Betulaceae)

Alnus glutinosa, common name Black Alder, is deciduous angiosperm native to most of Europe. The ‘*Imperialis*’ variety is known as Cut-leaf Alder because when the leaves develop, little leaf tissue develops between the veins. Like Red Alder (#5), Cut-leaf Alder roots are host to the nitrogen fixing actinomycete *Frankia*.

36) Horsechestnut – *Aesculus hippocastanum* (Hippocastanaceae)

A deciduous angiosperm native to Eurasia from the Balkans to the Himalaya. Horsechestnut is recognized by its opposite, palmately compound leaves, large, sticky, chocolate-brown terminal bud, showy, erect clusters of white or pink flowers, and large, green, globular, spiny fruits. The inedible seeds are large and shiny brown with a pale spot and are the conkers (i.e. conquerors) of children’s games. The glucoside esculin is extracted from the leaves and bark, and is used as a skin protectant.

37) Paper Birch – *Betula papyrifera* (Betulaceae)

A deciduous angiosperm which occurs in all forested regions across Canada. Paper Birch is recognized by its white bark which sheds in large sheets, and leaves which are widest below the middle and double-toothed with a smooth-edged base. The bark has long been used for making canoes, baskets, snow-goggles and other useful and ornamental items. ‘*Papyrifera*’ means paper-bearing, referring to the bark.

38) Sierra Redwood – *Sequoiadendron giganteum* (Cupressaceae)

An evergreen conifer native to the western slopes of the Sierra Nevada in the western U.S. Sierra Redwood is recognized by its conical crown in young trees, the large, conical stem of older trees, soft, spongy, red-gray bark, short, scale-like, overlapping leaves, and 5-10 cm long seed cones with peltate scales. Sierra Redwood, also known as Bigtree, is probably the world’s largest tree in terms of stem volume. These trees can grow very quickly when young and live for over 1000 years.

39) Trembling Aspen – *Populus tremuloides* (Salicaceae)

A deciduous angiosperm native throughout forested regions of Canada and the northern U.S. Trembling Aspen is one of the most widely distributed species in North America. It is recognized by its small rounded leaves, reddish-brown buds and whitish bark. The stalks or petioles of the leaves are flattened and so ‘tremble’ in the breeze, hence the name ‘*tremuloides*’. Aspen wood is white and low in resins and is valued for making chopsticks, chipboard and pulp. The species reproduces vigorously from root sprouts, and clones of thousands of trees derived from a single individual have been found to occupy up to 80 hectares. It is thought these clones may have originated on land exposed soon after the Pleistocene ice sheet melted, making them among the largest and oldest organisms in the world.

40) Pacific Yew – *Taxus brevifolia* (Taxaceae)

An evergreen conifer native to the Pacific coast from southernmost Alaska to central California, and to wet interior regions of B.C. Pacific Yew is often a shrubby tree, and reaches a maximum height of 20 m. It is recognized by its flattened, pointed needles which are yellowish-green above and pale below. The twigs are green with flat ridges below each leaf and green buds. Pacific Yew does not produce cones, rather single seeds develop in a reddish, fleshy cup called an aril. The seed is poisonous. Taxol, a natural product of the bark, is a potent drug used to treat ovarian and breast cancers. The heavy, close-grained wood was prized by native peoples and was used for bows, wedges, clubs, paddles, digging sticks, harpoons and tool handles.