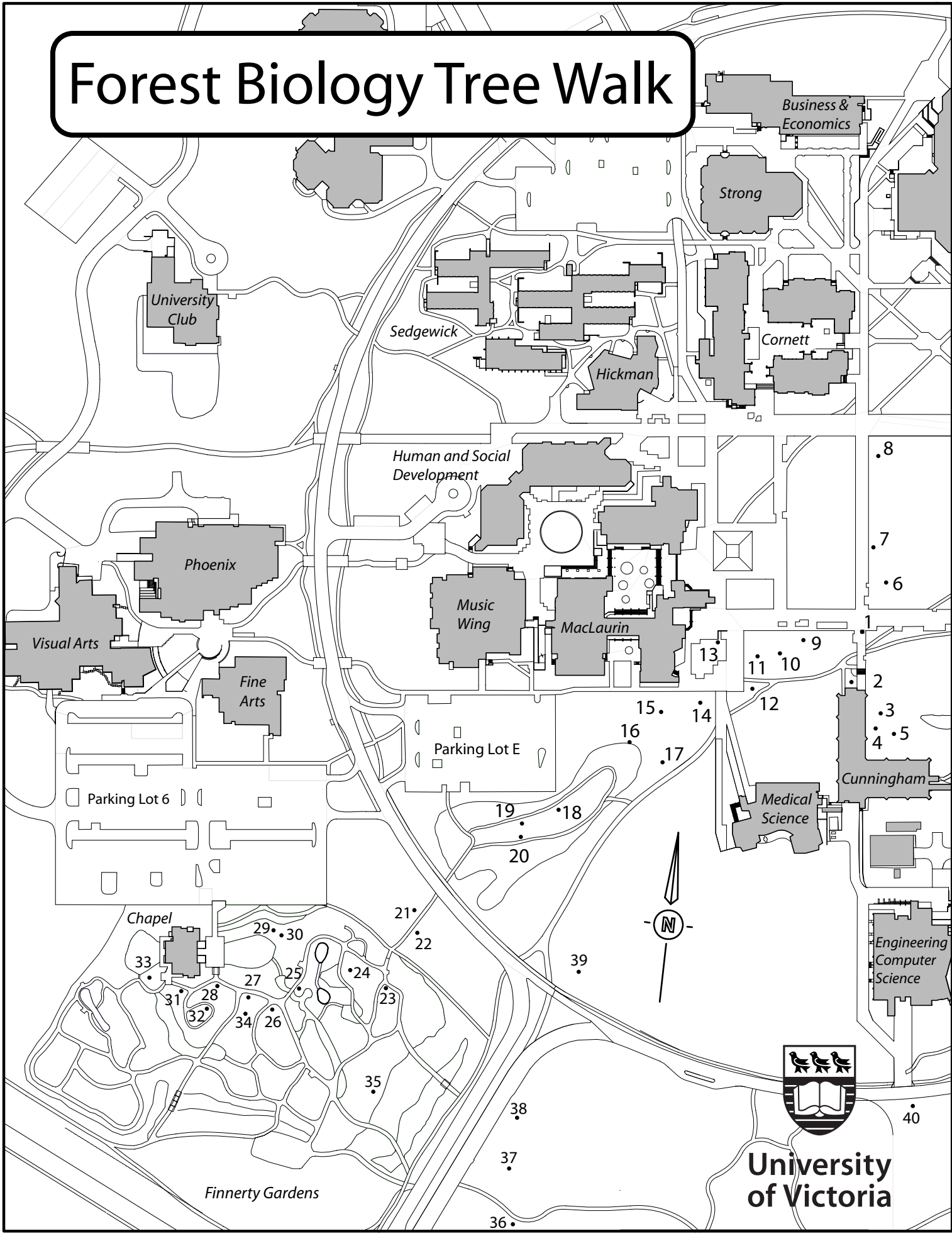


Forest Biology Tree Walk

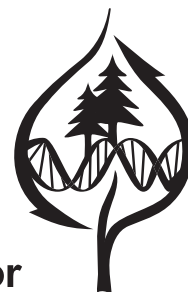


University of Victoria

Forest Biology Tree Walk

Please enjoy our tree walk. Just follow the numbers on the map. This list contains all the trees on the map.

1.	Douglas-Fir	<i>Pseudotsuga menziesii</i>
2.	Southern magnolia	<i>Magnolia grandiflora</i>
3.	Bigleaf Maple	<i>Acer macrophyllum</i>
4.	Vine Maple	<i>Acer circinatum</i>
5.	Red Alder	<i>Alnus rubra</i>
6.	Oriental Plane-tree	<i>Platanus orientalis</i>
7.	Garry Oak	<i>Quercus garryana</i>
8.	Finnerty Apple	<i>Malus sylvestris</i>
9.	Arbutus	<i>Arbutus menziesii</i>
10.	Black Cottonwood	<i>Populus trichocarpa</i>
11.	Monkey puzzle	<i>Araucaria araucana</i>
12.	Western Redcedar	<i>Thuja plicata</i>
13.	Umbrella Pine	<i>Sciadopitys verticillata</i>
14.	Empress tree	<i>Paulownia tomentosa</i>
15.	Silver maple	<i>Acer saccharinum</i>
16.	Copper Beech	<i>Fagus sylvatica 'Purpurea'</i>
17.	Sweetgum	<i>Liquidambar styraciflua</i>
18.	English Walnut	<i>Juglans regia</i>
19.	Persian Ironwood	<i>Parrotia persica</i>
20.	Hiba Arborvitae	<i>Thujopsis dolabrata</i>
21.	Red Oak	<i>Quercus rubra</i>
22.	Deodar Cedar	<i>Cedrus deodara</i>
23.	Coast Redwood	<i>Sequoia sempervirens</i>
24.	Dawn Redwood	<i>Metasequoia glyptostroboides</i>
25.	Mountain-Ash	<i>Sorbus americana</i>
26.	Grand Fir	<i>Abies grandis</i>
27.	Black Locust	<i>Robinia pseudoacacia 'Frisia'</i>
28.	Dove tree	<i>Davidia involucreta</i>
29.	Blue Atlas Cedar	<i>Cedrus atlantica 'Glauca'</i>
30.	Yellow-Cedar (weeping)	<i>Callitropsis (Chamaecyparis) nootkatensis</i>
31.	Ginkgo	<i>Ginkgo biloba</i>
32.	Silk tree	<i>Albizia julibrissin</i>
33.	Tulip-tree	<i>Liriodendron tulipifera</i>
34.	Shrubby Japanese Yew	<i>Podocarpus macrophyllus</i>
35.	Cut-leaf Alder	<i>Alnus glutinosa 'Imperialis'</i>
36.	Horsechestnut	<i>Aesculus hippocastanum</i>
37.	Paper Birch	<i>Betula papyrifera</i>
38.	Sierra Redwood	<i>Sequoiadendron giganteum</i>
39.	Trembling Aspen	<i>Populus tremuloides</i>
40.	Pacific Yew	<i>Taxus brevifolia</i>



**CENTRE for
FOREST BIOLOGY**
University of Victoria

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... but some are missing. 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 and some distinguishing features are described. Other information of interest is included. If a tree number is missing from this list, it is because that tree is no longer there.

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* (Sapindaceae)

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* (Sapindaceae)

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 shrubby form, sympodial growth (terminal bud usually lacking) and almost circular leaves with 7-9 palmate lobes separated by narrow notches which become red or yellow in autumn.

5) Red Alder - *Alnus rubra* (Betulaceae)

A deciduous, angiosperm native to western North America, from southeast Alaska to central coastal California. Red alder is the world's largest species of alder, reaching heights of 20-35 m. The name derives from the bright rusty red color that develops in bruised or scraped bark. Red alder roots are host to the nitrogen-fixing actinomycete *Frankia*. This association allows the tree

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 coarse, blunt teeth and margins rolled under. The fruits are conelets.

6) Oriental Plane-tree – *Platanus orientalis* (Platanaceae)

A deciduous, angiosperm native to Eurasia from the Balkans to India that crosses with American sycamore (*Platanus occidentalis*). The Oriental Plane-tree is grown widely for shade. This specimen at UVic is reputed to have been grown from a seed brought from the tree under which Hippocrates taught medicine on the Greek island of Kos. Leaves of the Oriental Plane tree can be distinguished from those of maple because the bottom-most veins are not palmate. The puzzle-like bark and globose fruits are also distinguishing features.

7) Garry Oak – *Quercus garryana* (Fagaceae)

A deciduous, native, angiosperm ranging from southern California to the southwestern corner of British Columbia. Also known as Oregon white oak, Garry oak is a deeply-rooted, drought tolerant species. It can be distinguished from English white oak by its shiny, dark-green upper leaf surface, leaf stalks more than 1 cm long, and solitary or paired acorns on short stalks less than 5 mm in length. Garry oak tends to have short, forked trunks compared to the tall, straight trunk of English white oak. The acorns are edible after soaking to leach out bitter tannins. Small green or yellow galls can often be found on the undersides of leaves. The galls are formed by the oak around colonies of wormlike larvae belonging to one of several species of tiny wasps. A common wasp species responsible for these galls is *Cynips maculipennis*

8) missing

9) Arbutus – *Arbutus menziesii* (Ericaceae)

A drought-tolerant, evergreen angiosperm found on the west coast of North America, from British Columbia (mainly Vancouver Island) to California. It is distinguished by its glossy, evergreen leaves, red, papery, peeling bark, white, urn-shaped flowers, and clusters of orange-red berries. Like Douglas-fir, its species name was given it in honour of the Scots naturalist Archibald Menzies, who noted it during George Vancouver's voyage of exploration.

10) Black cottonwood – *Populus trichocarpa* (Salicaceae)

A deciduous angiosperm native to western North America, from Alaska to northern California. Black cottonwood is also known as western balsam poplar and is the largest species of poplar, growing to 50 m tall. It is distinguished by ovate leaves with whitish undersurfaces and short, round petioles, resinous fragrant buds, and deeply furrowed, grey bark on older trees. The seeds are covered by white, fluffy hairs, and are released prolifically in June.

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 First Nations 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* (Paulowniaceae)

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* (Sapindaceae)

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) missing

17) Sweetgum – *Liquidambar styraciflua* (Hamamelidaceae or Altingiaceae)

A deciduous angiosperm native to the southeastern United States and to regions of Mexico and Guatemala. Sweetgum is planted as an ornamental in southwest B.C. because of its symmetrical shape and orange autumn leaves. It has lobed leaves with palmate venation like maple, but the globose, aggregate fruit is distinctive. Twigs of this tree often have corky ridges. The fragrant gum produced by the tree was noted to resemble liquid amber, hence the name. With age, the gum hardens and was reputed to have medicinal properties. It was used as a perfume.

18) English Walnut – *Juglans regia* (Juglandaceae)

A deciduous angiosperm native to southeast Europe through to southwest and central Asia and the Himalaya, to southwest China. English walnut is distinguished by smooth, grayish-brown twigs and leaves with 5-9 leaflets, fewer than Black Walnut. The terminal leaflet is large in English Walnut. The pith of walnut twigs contains air spaces. English walnut is cultivated extensively for its high quality nuts, eaten fresh and pressed for their richly flavored oil. The wood is also valuable.

19) Persian Ironwood – *Parrotia persica* (Hamamelidaceae)

A deciduous angiosperm native to northern Iran, and closely related to witch hazel (*Hamamelis*). It is distinguished by flowers that are somewhat similar to witch hazel, but dark red. They are produced in late winter on bare stems. The leaves have large, lanceolate stipules, and are a dark, glossy green in summer and highly coloured in autumn. The flakey bark is also showy.

20) missing

21) Red Oak – *Quercus rubra* (Fagaceae)

A deciduous angiosperm native to southeast Canada and the northeastern United States. Red Oak is distinguished by pinnate leaves with 7-9 lobes, each lobe wider towards the base. Red Oak is the common oak of eastern Canada and the provincial tree of Prince Edward Island.

22) Deodar Cedar – *Cedrus deodara* (Pinaceae)

An evergreen conifer native to the Himalayas. Deodar Cedar is one of four species that are considered “true” cedars in the genus *Cedrus*. Deodar Cedar is distinguished by leaves up to 5 cm long borne on short shoots like larch, but the leaves of *Cedrus* are not deciduous. The cones are upright at maturity, similar to *Abies*, but they take 2-3 years to mature. Unlike our native 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. B.C.'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 or more 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°N. It was known only as a fossil genus until a small stand of trees was discovered in central China 1945. It is now commonly planted as an ornamental in North America and Europe.

25) Mountain-Ash – *Sorbus americana* (Rosaceae)

A deciduous angiosperm native to southeastern Canada and the north-east U.S. It is distinguished from the native Sitka mountain-ash (*Sorbus sitchensis*) by the taper-pointed leaflets (Sitka mountain-ash has rounded leaflets) and hairless buds.

26) Grand Fir – *Abies grandis* (Pinaceae)

An evergreen conifer native to low- to mid-elevation, coniferous forests in rainshadow areas of the south coast of B.C., south to northern California. At higher elevations and farther north on the B.C. coast, Grand Fir is replaced by Amabilis Fir (*Abies amabilis*). Grand Fir has flat needles with rounded, notched tips that are usually arranged in two distinct horizontal rows. The bark of younger trees and branches is smooth with resin blisters, like many true firs. True firs have cones upright at maturity and cone scales are deciduous. Grand Fir cones are yellowish-green to green, and 5-10 cm long.

27) Black Locust – *Robinia pseudoacacia* ‘Frisia’ (Fabaceae)

A deciduous angiosperm native to the eastern U.S. that has naturalized in much of southern Canada. Black Locust is recognized by its pinnately compound leaves with a terminal leaflet and a pair of spines at the base. The ‘Frisia’ variety has golden leaflets and is usually grafted onto 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* (Nyssaceae)

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 one female and many small, male flowers. The young leaves of the Dove Tree are pleasantly scented.

29) Blue Atlas Cedar – *Cedrus atlantica* ‘Glauca’ (Pinaceae)

An evergreen conifer native to the Atlas Mountains of North Africa. Like #22, the Deodar Cedar, Atlas Cedar is one of four species of “true cedars” in the genus *Cedrus*. Atlas Cedar is distinguished by its clusters of leaves less than 2.6 cm long. The blue or ‘Glauca’ variety is named for the blue hue of leaves caused, in part, from the thick layers of wax deposited on leaf surfaces.

30) Yellow cypress or Yellow-cedar – *Callitropsis nootkatensis* (Cupressaceae)

An evergreen conifer native to the Pacific coast from southern Alaska to northern Oregon with a few small, interior populations. Yellow cypress is recognized by its scale-like leaves in 4 rows that are prickly when rubbed backwards, its berry-like seed cone with 4-6 scales with prominent triangular projections, and its flakey bark that smells of potatoes. The alternate name, Yellow-cedar, is hyphenated because it is not considered a ‘true’ cedar. For many years the scientific name was *Chamaecyparis nootkatensis*, but after the discovery of the closely-related Vietnamese Golden Cypress in 1999, both species were placed in a new genus, *Xanthocyparis*. However, in 1864, Yellow-cedar had been placed in the genus *Callitropsis*, a fact that was overlooked by subsequent authors. The name is still under debate.

31) Ginkgo – *Ginkgo biloba* (Ginkgoaceae)

A deciduous gymnosperm native to the Zhejiang province of eastern China. Ginkgo is recognized by its fan-shaped leaves with dichotomous venation & prominent dwarf shoots on stout twigs. Ginkgo is considered a living fossil, with closely-related species in the fossil record from 270 million years before present. While fossils of Ginkgo leaves are found in many parts of the world, including northern Canada & New Zealand, western botanists thought the species was extinct in the wild prior to their being shown a population in Zhejiang province. There is still some debate as to whether this is truly a relic wild population or a population originating from temple gardens where the species has been preserved for over 1000 years. Unlike conifers & angiosperms, Ginkgo has motile sperm which is a relictual plant character. Ginkgo is an important plant in herbal medicine & extracts from the leaves and seeds are used in many herbal remedies. Ginkgo is an important ornamental plant which is resistant to pests and pollution.

32) Silk tree – *Albizia julibrissin* (Fabaceae)

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 that 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 receptacle that 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* (Sapindaceae)

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 buds, 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 that occurs in all forested regions across Canada. Paper Birch is recognized by its white bark that is shed in large sheets, and leaves that 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.

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