

Compiled here is distribution, characteristics and other information on host species featured as 'Host of the Month' in past issues of the COMTF Monthly Report.

***Abies concolor* (white fir)**

This is an evergreen tree native to the mountains of southern Oregon, California, the southern Rocky Mountains, and Baja California. Large and symmetrical, white fir grows 80 – 120ft tall and 15 – 20ft wide in its native range and in the Pacific Northwest. White fir is one of the top timber species found in the Sierra Nevada Mountains of CA and is a popular Christmas tree, as well as one of the most commonly grown native firs in Western gardens. Young trees are conical in shape, but develop a dome-like crown with age. The flattened needles of white fir are silvery blue-green, blunt at the tip, and grow 2 – 3in long. Often curving upwards, the needles extend at right angles from the twig, and twigs produce a citrus smell when needles are broken. White fir is monoecious, producing yellow- to red-toned, catkin-like male flowers and inconspicuous yellow-brown female flowers. The oblong cones grow 3 – 5 in upright, are yellow-green to purple in color, and are deciduous at maturity, dispersing seed in the fall. New twigs are dark-orange, but become gray-green, then gray with maturity. The bark of saplings is thin, smooth, and gray, turning thick, ash-gray with age, and developing deep irregular furrows. *P. ramorum*-infected *Abies concolor* (white fir) was first reported in the October 2005 COMTF newsletter as having been found at a Christmas tree farm in the quarantined county of Santa Clara. Additional sampling of the tree farm is underway. Koch's Postulates have not been completed. The USDA Animal and Plant Health Inspection Service (APHIS) has reviewed the CDFA data and expects to add *A. concolor* to the official list of associated host plants soon.

References:

- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. p 163.
- Virginia Tech Forestry Department; Dendrology at Virginia Tech; *Abies concolor*, 2005-2006

***Acer davidii* – David's maple (Aceraceae)**

David's maple was named after the Jesuit priest, Jean Pierre Armand David, who discovered it in China in 1869. This deciduous tree, native to central China, Grows 20 – 35 ft. tall and wide, and has shiny green bark striped with silvery white. Leaves are glossy green, lobed, have deep veins, and grow 2 – 7 inches long and 1.5 – 4 inches wide. New foliage has a bronze-tinted appearance, with fall colors revealed in yellow, red-orange, and purple. Spring flowers are clustered and greenish yellow, and the glabrous samara fruits are approximately 3 cm long and horizontally spread. David's maple was first identified on 11/25/05 in a Canadian nursery. With Koch's postulates not yet completed, it will be added to the USDA APHIS associated host list.

References:

- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. p 167.

- Oregon State University, Department of Horticulture; Landscape Plants; Images, Identification, and Information, Vol. 1, 1999 - 2006
<http://oregonstate.edu/dept/ldplants/acda.htm>

***Acer laevigatum* (Evergreen maple)**

This is a frost-sensitive tree native to the Himalayas and China, and can grow to 35 feet. Its leaves are lanceolate shaped and can grow five inches or more in length. Evergreen maple was detected in a United Kingdom outdoor green area. Symptoms included chlorotic leaves and leaf necrosis.

References:

- <http://www.malletcourt.co.uk/catalogue.htm>

***Acer pseudoplatanus* (Planetree Maple)**

This hardy tree is native to Europe and central Asia, and has been cultivated in Europe for centuries. While it prefers cool, sunny environments, it is generally very adaptable, and tolerates salt and seaside locations. It is also a good shade tree for lawns. The Planetree Maple is easily transplanted and established, and has even demonstrated a capability of escaping from cultivation and naturalizing in minimally managed areas. Planetree Maple is a deciduous, medium to large tree, growing 40 ft. or more in height and nearly as wide. Its foliage and branching is dense and compact, with upright spreading. Planetree Maple bark is irregularly scaly, and is a steel gray color with orange color showing when bark flakes off. Summer foliage is attractive, with thick, leathery leaves that are 3 – 6 inches across and have impressed veins and coarsely toothed margins. The leaf surface is dark green on the top and greenish white on the underside. Autumn foliage is generally poor and yellowish to greenish brown. This tree blooms yellowish-green flowers in May and produces samaras 1.25 – 2 inches in pendulous clusters. This species is susceptible to necrotic cankers, aphids and sooty mold, stem borers, and twig dieback in cold winters. *P. ramorum* was found causing characteristic lesions on an infected Planetree Maple found at a known *P. ramorum*-positive woodland garden site in the UK. The 70 cm diameter tree had lesions on two sides of the trunk, extending from ground level to 1.5 and 2.0 meters high. The pathogen was readily isolated from cankers. Additionally, *Armillaria* was identified on the tree as a secondary invader.

References:

- Personal email communication Clive Brasier, Emeritus Mycologist Forest Research, UK Forestry Commission
- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. 169. University of Connecticut
- UConn Plant Database of Trees, Shrubs, and Vines *Acer pseudoplatanus*
<http://www.hort.uconn.edu/plants/a/acepse/acepse1.html>

***Adiantum aleuticum* (Maidenhair fern)**

This fern is native to western North America and thrives along shady moist banks, streamsides, and in serpentine soils. It has reddish-brown to black petioles, and its fronds create an airy effect, forking to make a fingerlike pattern atop slender stems reaching 1-2 feet tall. The stems of this Maidenhair fern are used for designs in basketry by the Karok, Makah, Quinault, Tolowa, and Yurok. This fern is most commonly planted in containers or shaded beds. Symptomatic *P. ramorum* maidenhair fern were found along the same Mendocino County tributary as infected *V. planipetala* and *T. californica* (see below). Symptomatic plants were found on a hillside associated with infected CA bay laurel, tanoak, Pacific yew, woodrose, CA honeysuckle, madrone, evergreen huckleberry, and toyon. Symptoms were similar to those observed on *Adiantum jordanii* (CA maidenhair fern), with necrotic areas on the leaves. The necrosis appeared to begin near the leaf margins and advance between the veins. Although some leaves were nearly or entirely necrotic, the disease did not appear to be fatal to the ferns. *P. ramorum* has been recovered from plated leaf tissue, but PCR testing has not been conducted. State and federal regulatory officials are reviewing the findings.

References:

- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. p 172.
- Central Washington Native Plants Gallery; *Adiantum aleuticum*
<http://www.cwnp.org/photopgs/adoc/adaleuticum.html>
- Rainy Side Gardeners in the Pacific Northwest; Plant Gallery and Growing Guide – Native Plants; *Adiantum aleuticum*
http://www.rainyside.com/features/plant_gallery/nativeplants/Adiantum_aleuticum.html

***Adiantum jordanii* (California maidenhair fern)**

Native to California and southern Oregon, this fern is found in shaded hillsides and in moist woody areas under oaks and pines or on damp banks at the base of rocks and trees. Fronds are twice-divided and grow to 2ft. Maidenhair fern requires steady moisture and soil rich in organic matter. It is a close relative of *Adiantum spp* commonly sold as a houseplant and appreciated for its graceful form and delicate structure. The symptomatic maidenhair fern were found at Jack London State Park along a trail with symptomatic woodrose, western starflower, and CA bay laurel. Symptoms on the ferns ranged from leaf spots to entirely necrotic leaves. **References:**

- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. p 172.
- Las Pilitas Nursery *Adiantum jordanii* <http://www.laspilitas.com/plants/19.htm>
- Personal email communication Dave Rizzo, Professor Department of Plant Pathology, UC Davis
- Southern California Wildflowers and Other Plants California Maidenhair Fern
<http://www.calflora.net/bloomingplants/californiamaidenhairfern.html>

***Arbutus unedo* (Strawberry tree)**

Strawberry tree is native to southern Europe and Ireland and is a common landscape tree in low-lying areas of the western United States that do not have severe winters. Since it is drought tolerant and attractive, it is commonly planted in the Bay Area. It is closely related to madrone (*Arbutus menziesii*), a native to the Pacific Coast of the United States and British Columbia, and also a host for *Phytophthora ramorum*. Strawberry trees are attractive and compact, with smooth, shredding reddish bark, and grow to about 35 feet in height. It has clusters of small white urn-shaped flowers in the fall and winter, and round fruits turning from yellow to red that take a year to ripen. It is tolerant of a wide range of moisture conditions, wind, and pollution. This spring (2003), *Phytophthora ramorum* was isolated from strawberry trees and camellias in a garden center on the island of Majorca, Spain. *Phytophthora ramorum*-infected rhododendron and viburnum plants had been confirmed in this garden center prior to the new finds; consequently, it is believed that the camellia and strawberry trees were infected on-site. Symptoms of the disease on strawberry tree are similar to those on madrone, with leaf necrosis extending down the leaf, through the petiole and into the twig. Strawberry tree leaves have been found to be highly susceptible to *Phytophthora ramorum* in laboratory tests. (Moralejo and Hernandez, 2002. Inoculation Trials of *Phytophthora ramorum* on Detached Mediterranean Sclerophyll Leaves. Sudden Oak Death Science Symposium, <http://danr.ucop.edu/ihrmp/sodsymp/paper/paper25.html>.) The susceptibility of strawberry tree is not only of concern to the nursery industry and gardeners in Europe and North America, but for the natural ecosystem of the Mediterranean, since this species occurs extensively in this area (Moralejo and Descals, 2003. Risk analysis of *Phytophthora ramorum* establishment in the Mediterranean area, Sudden Oak Death Online Symposium, http://www.apsnet.org/online/sod/Papers/Moralejo_Descals/default.htm.)

***Ardisia japonica* (Japanese ardisia)**

Japanese Ardisia or marlberry (Myrsinaceae) – is native to Asia, and is one of two species in this genus typically grown in Western gardens. It is a low-growing non-aggressive evergreen shrub that spreads by runners to produce upright branches ranging 6 – 18 inches high. Its leathery, 4-inch-long bright green leaves cluster at the tops of branches. Its pink and white star-shaped flowers, ranging from 2 – 6 in a cluster, appear in fall and are inch in size. The bright red berries can be found throughout winter. This plant makes a good ground cover in the shade, but requires well-drained soil and does not tolerate foot traffic. *Ardisia japonica* was first found *P. ramorum*-positive on 12/14/05 in a Canadian nursery. Since Koch's postulates have not been completed, this species will be added to the USDA APHIS Associated Host List.

References:

- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. p 199.
- North Carolina State University, Department of Horticultural Science; Ground Covers, 2000 – 2004
http://www.ces.ncsu.edu/depts/hort/consumer/factsheets/groundcover/ardisia_japonica.html

***Calceyanthus occidentalis* (Spice bush)**

This deciduous shrub is native to California's Coast Ranges and Sierra Nevada foothills, growing along streams and moist slopes. It grows 4-12 ft. high and equally as wide. Its bright green leaves turn yellow in the fall, and range from 2-6 inches long and 1-2 inches wide. In mid- to late spring or summer, brownish red fragrant flowers up to 2 inches across can be found. Spice bush requires regular watering and grows well in sun or shade. It is tolerant of sandy or clay soil, as well as poor-drainage and seasonal flooding. It can be trained into a spice vine or used as a multi-stemmed small tree, but is best as a background shrub or screen. Symptomatic spice bush samples from Jack London State Park were found along a creek near symptomatic bigleaf maple and CA bay laurel. Symptoms on spice bush ranged from leaves with necrotic lesions along leaf margins to dead leaves. The lesions were grayish-brown in color, and some had a dark margin. Small necrotic spots were also observed beyond the lesions found on spice bush. (While this is the first official confirmation of spice bush, original identification was made by Arborist Rob Gross in Sonoma County.)

References:

- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. p 242.
- Las Pilitas Nursery *Calycanthus occidentalis* <http://www.laspilitas.com/plants/127.htm>
- Personal email communication Dave Rizzo, Professor Department of Plant Pathology, UC Davis

***Calluna vulgaris* (Scotch Heather)**

Added to the USDA APHIS associated host list in August, *Calluna vulgaris* is native to much of Europe. It is a low-growing evergreen groundcover, growing 2 – 3' tall and equal in spread. Branching is upright, forming thick, compact, dense mats. The evergreen leaves range from .05" - .1" long, are scale-like, and are 4-ranked with opposite arrangement, making shoots look square-like. Foliage is medium green during the summer, turning bronze, yellow, reddish, or silvery in autumn depending on the cultivar. Scotch Heather flowers range in color from rosy to purplish pink, and are .25" long and clustered. Infested *Calluna vulgaris* was identified in Polish container-ornamental nurseries. Symptoms were observed on plants near the nursery road, and included cankers on 2 – 4 cm shoots, as well as shepherd crook tips. Koch's postulates have not been completed. Although this first report of *P. ramorum* in Poland on *Calluna vulgaris* nursery stock is preliminary, it does raise concern that heathlands in the UK and other parts of Europe may be impacted by this pathogen. Heathlands composed of *Calluna vulgaris*, *Vacciniums* and other plants support many rare wildlife species and are ecologically valuable. For more information on the heathlands and the importance of this natural resource, go to the European Heathlands homepage at: <http://www.english-nature.org.uk/heathlands/default.htm>.

***Cinnamomum camphora* – camphor tree (Lauraceae)**

This is an evergreen tree native to China, Taiwan, and Japan. This slow-growing, strong-structured tree has a substantial trunk with heavy, upright spreading limbs, and grows to more than 50 ft. in height. Its leaves grow 2.5 – 5 in. long and are a glossy green with three main veins arriving from near the base. When crushed, the leaves produce an aromatic camphor smell. New

foliage in early spring appears pink, red, or bronze, maturing to a shiny yellow-green. Fragrant yellow flowers bloom in spring, followed by small blackish fruits. Camphor tree timber can be distilled to produce an essential oil. Traditional uses of camphor include colds, influenza, fever, pneumonia, inflammation, and diarrhea. However, camphor is toxic in large doses and should not be used without professional supervision. *P. ramorum*-positive *Cinnamomum camphora* was found in the UK. Symptoms included shoot tip die-back and stem necrosis or canker. Consequently, USDA APHIS has added this species to the list of regulated Plants Associated with *Phytophthora ramorum*.

Resources:

- Van Wyk, Ben-Erik and Wink, Michael. Medicinal Plants of the World. Portland, OR: Timber Press, Inc., 2004. 104.
- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. 275.

***Clintonia andrewsiana* (Andrew's clintonia bead lily/Andrew's clintonia/Red clintonia/blue-bead lily)**

Andrew's clintonia bead lily is closely associated with redwood forests, making their ranges very similar. While redwood forests with bead lily in the understory are found from San Luis Obispo County, along the Northern California coast, Andrew's clintonia bead lily is believed to have been extirpated from its former range in coastal southern Oregon. Andrew's clintonia bead lily grows in moist, shady forests at elevations less than 2,000 feet. The plant is one of the larger species in the genus *Clintonia*, with a rosette of 5 to 6, 10 inch-long leaves and a central flower stalk up to 20 inches tall. Attractive, deep red bell-shaped flowers, which bloom from May to July, are followed by light blue berries. (See a photo of [healthy *Clintonia andrewsiana*](#).) *Phytophthora ramorum*-infected Andrew's clintonia bead lily was found at Muir Woods National Monument, Marin County, in March, 2004. The infected plants were under a canopy of redwoods and infected California bay laurel. Symptoms included lesions both at the tip and base of the leaves. Note that over time, the necrotic tissue develops a shot hole appearance. (See photos of [infected *Clintonia andrewsiana*](#).)

Resources:

- Jepson Manual: http://ucjeps.berkeley.edu/cgi-bin/get_JM_treatment.pl?Clintonia+andrewsiana
- Bureau of Land Management sensitive species database: <http://www.or.blm.gov/surveyandmanage/SP/VascularPlants/clintoniaandrewsiana.htm>

***Drimys winteri* (Winter's-bark)**

Native to Argentina and Chile, [Winter's-bark](#) is an evergreen tree that can grow to a height of 50 ft. Its mildly fragrant flowers bloom from late winter to mid-spring, are white with yellow centers, and are found in clusters on branch tips. Its leathery aromatic leaves have a peppery smell when crushed, and the aromatic bark is used to treat certain stomach ailments. Winter's-

bark grows best in full sun to light shade, and prefers moderate temperatures in addition to well-drained soil. *Phytophthora ramorum*-infected Winter's-bark was found in Southwest England, December 2003. The plant was a large bush shape, and exhibited foliar blight as well as shoot dieback. Numerous infected rhododendrons were also found in the vicinity. To date, Koch's postulates have not been completed, as the host was originally thought to be a rhododendron, so the isolate was discarded. **Resource:**

- University of Oklahoma, Department of Botany and Microbiology
<http://www.plantoftheweek.org/week071.shtml>

***Dryopteris arguta* (California wood fern/coastal wood fern)**

California wood fern is a common understory species growing in moist, open wooded areas, especially along creeks and northern slopes. It ranges from Arizona to British Columbia, at elevations up to 6,000 feet. Fronds are 1-2 feet in length, and 5-7 inches wide. (See a photo of [healthy *Dryopteris arguta*](#).) CA wood fern root stocks were used by Native Americans as a starchy food source. Infected coastal wood fern was found at Fairfield Osborne Preserve in Sonoma County, CA in a coast live oak/California bay laurel forest. Symptoms were necrotic frond tips. This host find is significant because previously identified *P. ramorum* hosts were limited to plants with seeds: Gymnosperms (Douglas-fir, redwood, yew, and grand fir) and a wide range of Angiosperms (broadleaf plants). This is the first known *P. ramorum*-susceptible species in the fern group (division Pteridophyta).

Resource:

- Jepson Manual online: http://ucjeps.berkeley.edu/cgi-bin/get_JM_treatment.pl?19,27,28

***Euonymus kiautschovicus* (Spreading euonymus)**

Euonymus kiautschovicus (*E. patens*) – Spreading Euonymus (Celastraceae) – is native to eastern and central China, and grows to 8 ft. tall and at least as wide. This shrub is often an evergreen, although it may lose leaves or suffer leaf damage if snow is present or temperatures reach 0 F. Its 2 – 3 in. dark-green, thin-textured leaves are oblong shaped and grow in an opposite leaf arrangement. Small greenish white flowers can be found blooming in July and are attractive to bees. The characteristic squarish "hatbox" fruit matures in October and is pink with orange seeds. This durable shrub is often used for landscape structure, as a hedge or divider. *Euonymus kiautschovicus* was found *P. ramorum*-positive for the first time on 12/8/05 in a Canadian nursery. With Koch's postulates not yet complete, it will be added to the USDA APHIS federal *P. ramorum* Associated Host List.

References:

- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. p 343.
- University of Connecticut; UConn Plant Database of Trees, Shrubs, and Vines, 1999 – 2001; <http://www.hort.uconn.edu/plants/e/euokia/euokia1.html>

***Fagus sylvatica* (European beech)**

European beech's natural range extends across southern Scandinavia down to central Spain, Corsica, Sicily, and Greece, as well as eastward to western Russia and Crimea. European beech is common and prized in the UK. Roughly one third of the UK's forestland is hardwood, comprised of beech oak, birch, and ash. The total area of forest and woodland in Britain is more than two million hectares, approximately 10% of the UK's total land area. Botanists are uncertain whether European beech naturally colonized the UK following the last Ice Age, or if it was introduced by humans, but the tree has an important place in the UK's culture and natural environment. Beech nuts were eaten by prehistoric man and are still consumed today. Beech wood has been used for centuries for both firewood and furniture. Historians claim that the first written European literature was inscribed on beech bark in Sanskrit. The English word 'book' comes from the Anglo-Saxon "boc," a derivative for the Anglo-Saxon "beece" or beech. A wealth of information on European beech and other UK forest species may be found on the Royal Forestry Society website: <http://www.rfs.org.uk/> In addition to growing in natural stands in Europe, European beech is widely planted as an ornamental tree in the US. European beech is a stately tree (see [photo](#)), and is more tolerant of cultivation and human disturbance than its North American counterpart, *Fagus grandifolia*. A number of European beech cultivars have been developed, including 'Asplenifolia' with finely cut foliage; 'Atropunicea' with purple foliage; 'Fastigiata' with a columnar form; and 'Pendula' with weeping branches. To date, only two beech trees in Cornwall, England have been found with bark cankers and bleeding symptoms similar to those on true oaks and tanoak in California. Inoculation studies indicate European beech is highly susceptible to *P. ramorum* (<http://www.defra.gov.uk/environment/index.htm>), but European beech's susceptibility in a natural setting is not yet fully understood.

References:

- Department of Environment, Food and Rural Affairs (DEFRA) <http://www.defra.gov.uk/environment/index.htm>
- Havre University Natural Sciences website <http://www.univ-lehavre.fr/cybernat/pages/quercerr.htm>
- National Arbor Day Foundation website <http://www.arborday.org/treeguide/nitree.cfm?id=132> <http://www.arborday.org/treeguide/nitree.cfm?ID=164>
- Royal Forestry Society website <http://www.rfs.org.uk/>
- University of Florida Cooperative Extension website <http://edis.ifas.ufl.edu/>
- Urban Forest Ecosystem Institute website <http://selectree.calpoly.edu/photos.lasso?KeyValue=1242>
- Wikipedia website http://www.fact-index.com/h/ho/holm_oak.html, http://en.wikipedia.org/wiki/List_of_Quercus_species and http://www.fact-index.com/t/tu/turkey_oak.html

***Fraxinus latifolia* (Oregon ash)**

This is a deciduous tree that thrives in moist conditions and is native to the West Coast of the US. It is most often found in central oak woodlands, northern oak woodlands, riparian

environments, and yellow pine forests. Growing 40 - 80 feet tall and one to three feet in diameter, this is one of only a few native western trees with compound leaves. These pinnately compound leaves are five to 14 inches long, have five to nine leaflets that are broadly ovate, obovate, or elliptical, and are green above and paler in color below. The Oregon ash flower is dioecious, small, greenish-white in color, and borne in dense clusters. Its flat samaras are one to two inches long and are attached singly, but hang in clusters. The twigs of this tree are stout and round, with flattened nodes, and appear olive-gray when young, turning gray-brown with age. Its bark is thin, smooth, and gray-green when young, eventually thickening to 1 inches and furrowed with thin, flat ridges and a gray-brown color. The wood of Oregon ash is used for making baseball bats and ax handles. A *P. ramorum*-symptomatic Oregon ash was found at Sugarloaf State Ridge Park, along Sonoma Creek, near the visitor's center. The infected tree was part of a research plot established that included 10 *P. ramorum* infected CA bay laurel trees. Symptoms on the Oregon ash consisted of necrotic lesions developing on the leaves and along the leaf margins. Lesions had a grayish-brown color with a water-soaked appearance, similar to lesions caused by ash anthracnose. Leaf tissue isolations were made, and *P. ramorum* was recovered. PCR testing has not been performed. State and federal regulatory officials are reviewing the findings.

References:

- Reed College, Portland, Oregon; Trees of Reed website
<http://web.reed.edu/trees/TreePages/FRAX.html>
- Las Pilitas Nursery; *Fraxinus latifolia*; Communities for Oregon Ash;
<http://www.laspilitas.com/plants/741.htm>
- Virginia Polytechnic Institute and State University; Dendrology at Virginia Tech website; Oregon ash <http://www.cnr.vt.edu/dendro/dendrology/syllabus/factsheet.cfm?ID=209>

***Gaultheria shallon* (Salal)**

Gaultheria shallon – Salal (Ericaceae) – is a member of the heath family and a common evergreen shrub native from California's central coast to Alaska. Capable of reaching 4 – 10 ft. tall and slightly wider, in the unfavorable conditions of full sun and poor, dry soil, this plant only reaches 1-2 ft. high. Its nearly round, glossy, bright green, leathery leaves are 1 - 4 in. long, and finely serrated. The bell-shaped pendent white or pink flowers are found in 6 in.-long loose clusters and can be seen on reddish stalks in spring. The edible fruit of this plant follows the spring blossoms and appears black, resembling large huckleberries. Although the berries have a bland flavor, birds eat them. Salal is also useful as a groundcover in moist, shady, peaty soils, and branches are also collected for use by florists in bouquets. The name *shallon* is a derivative of *Kikwu-salu*, the Chinook name for this plant. Salal was first confirmed *P. ramorum* positive on 12/20/05 in a Canadian nursery, and has since been reported positive in a nursery in Oregon and along a roadside outside a nursery in Washington. Since Koch's postulates have not been completed, this species has been listed on the USDA APHIS Associated Host List.

References:

- Brenzel, Kathleen. 2001. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation. p 361.
- National Museums and Galleries of Northern Ireland. 2003. The Garden Flora of Northern Ireland. http://www.habitas.org.uk/gardenflora/gaultheria_shallon.htm.

***Griselinia littoralis* (New Zealand Privet)**

Griselinia littoralis – New Zealand Privet – is an evergreen shrub native to New Zealand. Flowering in May, the New Zealand Privet grows to 6 m high and nearly as wide. Having dioecious flowers, both male and female plants must be grown to produce seed. Tolerating maritime exposure, this plant grows well by the sea and likes full or partial sun as well as moist soil. It has an upright form and thick, leathery, lustrous green leaves. Since this shrub always looks well groomed and has a dense, compact screen, it is a good shrub for espalier use and is often used as an ornamental. *P. ramorum*-infected New Zealand Privet was found on one established plant in South Wales. Symptoms included leaf blight and dieback. Culturing and TaqMan PCR are complete; Koch's postulates are pending. The identified plant has been destroyed.

Resources:

- Plants for a Future, "[Griselinia littoralis](#)"
- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. 376.

***Hamamelis mollis* (Chinese witch-hazel)**

Hamamelis mollis - Chinese witch-hazel – is a deciduous large shrub or small tree native to central China. As a shrub, Chinese witch-hazel grows slowly to 10' - 15' tall and wide; as a small tree it may reach 30 ft. Its somewhat rounded leaves grow 3" – 6" long and are dark green and rough on the top side, while gray and felted underneath. Turning yellow to yellow-orange in the fall, the Chinese witch-hazel has very showy autumn foliage. Its flowers have a sweet fragrance and grow 1" wide. Blooming on bare winter stems, these rich golden yellow flowers with red-brown sepals are excellent for cutting. *P. ramorum*-infected Chinese witch-hazel was found on one grown plant in South Wales. Symptoms included leaf blight and dieback. Culturing and TaqMan PCR are complete, but Koch's postulates are not. The identified plant has been destroyed. *Hamamelis mollis* is the second *P. ramorum*-regulated witch hazel, following *Hamamelis virginiana*. Resources:

- University of Connecticut, Plant Database, "Hamamelis Mollis"
- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. 379.

***Hamamelis virginiana* (witch hazel)**

Another *Phytophthora ramorum* host has been discovered in the United Kingdom, Virginian Wych hazel or [witch-hazel](#) (*Hamamelis virginiana*). Witch-hazel is a deciduous shrub or small

tree with a short trunk, bearing numerous spreading, crooked branches. At maturity, it is commonly 15 to 25 (4.5-7.5 m) feet tall. This is the first tree host to be identified in Europe. Witch-hazel is native to North America. The genus name (*Hamamelis*) translates from Greek as "at the same time" and "apple," possibly because flowers and fruits are present simultaneously. The species name (*virginiana*) refers to the Virginia colony. It obtains its common name from the dowsers, or "water witches" who used forked witch-hazel sticks to detect groundwater. Leaf and bark extracts were traditionally used medicinally, a practice that is still common today. Extracts of the twigs were also believed to infuse the imbiber with occult powers. Witch-hazel is unusual in its flowering schedule. Pale yellow flowers appear from late October to early December and are pollinated by the winter moth, which can visit trees during temperatures as low as 28 F. Because of this rare winter flowering and its tolerance for shade, witch-hazel is a common ornamental tree. As individuals, witch-hazel probably does not live more than 100 years, but they reproduce from root sprouts, and clones may live for a very long time. The *P. ramorum*-infected witch-hazel was discovered in August 2003 in a public garden in Wales. The garden was being treated to eradicate *P. ramorum* from infected rhododendrons. The symptoms on witch-hazel were brown lesions on the leaves, often delimited by large and small leaf veins, and often on the leaf tip or edge. Twigs were also affected, resulting in aerial dieback. Laboratory test confirmed *P. ramorum* and Koch's postulates were completed. The plants were destroyed and measures taken to eradicate *P. ramorum*. No other cases of infected witch-hazel have been found.

References:

- P.M. Giltrap, A.J. Inman, V.C. Barton, A.V. Barnes, C.R. Lane, K.J.D. Hughes, J. Tomlinson, M.L. Dean and K. Izzard. Plant Health Group, Central Science Laboratory (CSL), Department for Environment, Food & Rural Affairs; Plant Health and Seeds Inspectorate (PHSI); and Horticultural Marketing Inspectorate.
- U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (2003, October). Fire Effects Information System, [Online]. Available: <http://www.fs.fed.us/database/feis/> [17 October 2003].
- Tree Guide, Athenic Systems – The Outdoor Asset Management Company. <http://www.treeguide.com/>

***Hamamelis X intermedia* (Hybrid witchhazel)**

Hamamelis X intermedia – hybrid witchhazel (Hamamelidaceae) – is a group of winter-blooming hybrid shrubs between *H. mollis* and *H. japonica*. These deciduous shrubs, with upright, loosely branched forms, grow 12-15 ft. high and wide and are often grafted. The bright fall foliage and yellow to red blooming clusters flower in winter, and appear as narrow, crumpled petals, resembling shredded coconut. *Hamamelis X intermedia* was found *P. ramorum*-positive 7/6/05 in a Canadian nursery. Koch's postulates have not been completed, so this species will be added to the USDA APHIS Associated Host List.

References:

- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. p 379.
- North Carolina State University, Department of Horticultural Science; Trees, 2000 – 2003; http://www.ces.ncsu.edu/depts/hort/consumer/factsheets/trees-new/hamamelis_x_intermedia.html

***Laurus nobilis* (Sweet bay laurel)**

[Sweet bay laurel](#) is an evergreen shrub or small tree, native to Mediterranean region woodlands. It can grow 12 – 15 ft. tall and equally as wide, or it can be clipped and shaped as a shrub. It is adaptable to sun or shade, and while it requires well-drained soil, it is drought tolerant once established. The dark to bright green leaves are very fragrant, and after drying can be used for culinary flavoring. Leaves and branches are also used for garlands and wreaths. As a medicinal plant, bay leaves and berries have been used for rheumatism, skin rashes, earaches, and insect repellent. *Phytophthora ramorum*-infected Sweet bay laurel was identified in a Southwest England nursery, May 2004. The infested plants were container grown and exhibited foliar blight symptoms. Other infected container -grown plants were also identified at the nursery. Koch's postulates have been completed. Once the UK reports its completed findings to APHIS, and APHIS reviews and accepts the information, *Laurus nobilis* will be moved from the associated host list to the host list.

Resource:

- Simon, J.E., A.F. Chadwick and L.E. Craker. 1984. Herbs: An Indexed Bibliography. 1971-1980. The Scientific Literature on Selected Herbs, and Aromatic and Medicinal Plants of the Temperate Zone. Archon Books, 770 pp., Hamden, CT.

***Leucothoe axillaris* (Coast leucothoe)**

Coast Leucothoe (Ericaceae) - is a relative of *Pieris* and native to the south-eastern US. A spreading, arching evergreen plant that grows 2-4 ft. tall and 3-6 ft. wide, its leathery, shiny leaves are 4 inches long and bronze upon emerging, turning dark-green once mature, and then red in winter. Its drooping urn-shaped creamy white flowers bloom in mid-spring along the stems and grow 1-3 inches long in clusters. Coast Leucothoe was confirmed *P. ramorum*-positive on 7/6/05 in a Canadian nursery. Since Koch's postulates have not been completed, this species will be added to the USDA APHIS Associated Host List.

References:

- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. p 430.

***Magnolia stellata* (Star magnolia)**

Magnolia stellata – star magnolia - is a deciduous shrub native to East Asia/Japan. Growing 10 feet high and having up to a 20 foot spread, this slow growing shrub or small tree has large,

scented white flowers that blossom before the plant leaves out. The flowers grow to 3" and are pollinated by beetles. The star magnolia requires well-drained, moist soil and can grow in semi-shade to full sun. A very ornamental plant, it is popular in borders or garden entries. *P. ramorum*-infected star magnolia was found on one established plant in South Wales. Symptoms were limited to leaf blight. Culturing and TaqMan PCR are complete; Koch's postulates are pending. The identified plant has been destroyed.

Resources:

- Plants for a Future, "[Magnolia stellata](#)."
- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. 453.

***Magnolia x loebneri* (Loebner magnolia)**

Magnolia x loebneri – Loebner magnolia – is a deciduous slow growing hybrid of *Magnolia kobus* and *Magnolia stellata*. This shrub commonly grows 12' – 15' and is similar in spread. Loebner magnolia flowers are similar to that of *Magnolia stellata*, although somewhat longer and wider and fewer in number. Blooming occurs before leaf out in mid-spring, with some selections being fragrant. This shrub is commonly used in lawns as a shrub border or as a woodland edge. Loebner magnolia was found infected with *P. ramorum* on one established plant in South Wales. Symptoms were limited to leaf blight. Culturing and TaqMan PCR are complete; Koch's postulates are pending. The identified plant has been destroyed.

Resources:

- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. 450.

***Magnolia x soulangeana* (saucer magnolia)**

Magnolia x soulangeana – saucer magnolia – is a deciduous hybrid of *Magnolia denudate* and *Magnolia liliiflora*. This small tree can grow to 30' with equal spread. It may be multi-trunked or have low main branches and is round to irregular in shape. Saucer magnolia leaves are 3" – 6" long and half as wide, and are elliptical in shape with a sharply pointed tip. New foliage is reddish bronze, turning dark green with age and yellow-brown in the fall. The fragrant flowers bloom in late winter or early spring and are white to pink or purplish red, cup-like in shape, and range from 3" – 6" wide. Saucer magnolia prefers moist, fertile, deep soil and full sun. It is commonly used as a lawn plant and as an anchor plant in big container plantings. Saucer magnolia was found infected with *P. ramorum* on three grown plants in a nursery in Northwest England. Symptoms included leaf blight and dieback. Culturing and TaqMan PCR are complete; Koch's postulates are pending. The identified plants have been destroyed. **Resources:**

- University of Connecticut, Plant Database, "[Magnolia x soulangeana](#)"
- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. 452.

***Michelia doltsopa* (Michelia)**

This is an evergreen tree native to China. In its natural Himalayan environment, it can grow to 90 feet, but it has only been found to grow to 25 feet in the western US. This tree varies from bushy, to narrow and upright. Its leaves are thin-textured, dark-green, and leathery, growing three to eight inches long and one to three inches wide. In the winter, furry brown buds open to blossoms ranging from cream-colored to white, with a slight green tinge at the base. The flowers are five to seven inches across, with 12 to 16 segments that each grow to an inch wide. During flowering, this tree may be mistaken for a magnolia. Surviving in zones 14 – 24, H1, H2, this tree requires regular watering and part shade in its hottest climate range. Michelia was detected in an outdoor green area of the United Kingdom. Michelia *P. ramorum* symptoms were limited to necrotic leaf lesions.

References:

- Canopy Trees for Palo Alto; Canopy Tree Library; <http://www.canopy.org/db/main.asp?tree=39>
- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. p 468.

***Nerium oleander* - oleander (Apocynaceae)**

This is an evergreen shrub or small tree native to the Mediterranean. Growing 3-20 ft. tall and 4-12 ft. wide, its narrow, 4-12 in. long bright green, leathery leaves have a prominent white midrib. Blooming from late spring to fall, the fragrant, 2-3 in. wide flower clusters grow at twig and branch ends and can be found in shades of white, yellow, pink, salmon, and red. Oleander is an exceptionally tough plant and is commonly planted along California highways. Traditionally Oleander has been used as a heart stimulant and as a skin treatment for rashes and scabies; however, due to the difficulty of standardizing herbal preparations, and the plant being very poisonous, the use of oleander in self-medication is no longer considered safe. *P. ramorum*-positive *Nerium oleander* was found at a Humboldt County nursery, and has since been officially added to the official USDA APHIS Plants Associated with *P. ramorum* list. Symptoms included leaf tip necrosis, with the most symptomatic leaf lesions covering up to a quarter of the leaf area. Lesions on oleander, as with most lesions due to *Phytophthora* infections, were wet and flexible, not dry and crisp.

Resources:

- Van Wyk, Ben-Erik and Wink, Michael. Medicinal Plants of the World. Portland, OR: Timber Press, Inc., 2004. 215.
- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. 482.

***Osmorhiza chilensis* (Sweet Cicely)**

This plant grows in montane, subalpine, and woodland environments, and is a native US perennial herb, occurring mostly in the west and in the northern states, stretching from the east to west. Sweet Cicely is found in open mixed or coniferous forests, forest edges, and thickets. Its erect stem ranges from nine to 40 inches long, and it is branched on the top portion of the plant. The coarsely toothed leaves extend out from a point into three parts, and further divide into three leaflets. Sweet Cicely flowers and seeds are spread in an upward pointing spray. Its seeds are nearly cylindrical. Its scented flowers are small, greenish-white, organized in loose umbrels, and pollinated by insects. The stems, leaves, seeds, and especially roots of this herb are sweet and often licorice flavored. Hence, the Greek genus name for Sweet Cicely: "osmo" meaning smell and "rhiza" meaning root. The name Chilensis is for the country of Chile where the plant was first collected in the late 1820s. This herb can be used in teas, stews, or soups. *P. ramorum* was isolated from Sweet Cicely plants collected at Bouverie Preserve in Sonoma County. The plants were found near heavily infected CA bay laurel and dead and dying coast live oak. Symptoms observed included leaves with marginal necrosis, necrotic leaf lesions, and leaf dieback. In addition, *P. ramorum* infected Sweet Cicely was found in Humboldt County in association with *P. ramorum* infected maidenhair fern, as well as symptomatic CA bay laurel and canyon live oak. The sample was taken from private property west of Redway, near Redwood Creek. Symptoms observed consisted of marginal leaf necrosis, necrotic leaf lesions, and leaf dieback. Leaf tissue isolations were made, and *P. ramorum* was recovered. PCR has not been performed. State and federal regulatory officials are reviewing the findings.

References:

- Southwest Colorado Wildflowers, Osmorhiza
<http://www.swcoloradowildflowers.com/Yellow%20Enlarged%20Photo%20Pages/osmorhiza.htm>
- University of Oregon; Environmental Studies Service Learning Program; Hendricks Park Project <http://darkwing.uoregon.edu/~ecostudy/elp/hendricks/index.html>

***Parrotia persica* (Persian Parrotia)**

Parrotia persica – Persian Parrotia – is a deciduous tree or shrub native to Iran. Growing 15' – 35' tall and wide, this slow growing plant is naturally multi-stemmed with low branches and an oval crown. This colorful tree is attractive all year, with autumn foliage turning golden-yellow, then orange to rosy pink, and finally scarlet. The smooth showy gray bark peels, creating white showy patches and dense clusters of red flowers bloom in late winter or early spring before leafing out occurs. New foliage is seen as reddish purple and matures to a dark green color ranging from 2" – 5" long by 1" – 2" wide. Persian Parrotia prefers full sun or light shade and well-drained soil. It is drought tolerant and needs little pruning, but is susceptible to Japanese beetles. Persian Parrotia was found infected with *P. ramorum* on one grown plant in South Wales. Symptoms were limited to leaf blight. Culturing, TaqMan PCR, and Koch's postulates have been completed. The identified plant has been destroyed.

Resources:

- University of Connecticut, Plant Database, "Parrotia persica"

- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. 497-497.

***Photinia fraseri* (Red tip photinia)**

Photinia fraseri - *Red tip or Fraser's photinia* (*Rosaceae*) is a hardy evergreen shrub native to China that grows 10 – 12 ft. Used as a hedge or informal screen, Fraser's photinia is used for year-round color. Its dense, attractive toothed foliage is 5 inches long and tinged red when young, followed by a glossy dark green color. In the spring, lacy white flower clusters can be seen, while in the fall it has small red berries. It prefers sun to partial shade and moderate watering. *P. ramorum* was isolated from *Photinia fraseri* in 2003 from a nursery in Poland. To date, no symptomatic Red tip has been identified in 2004. Confirmed plants were originally imported from Western Europe. Symptoms were limited to leaf blight and resembled *P. ramorum* leaf spots on rhododendron. All symptomatic plants were destroyed; the grower chose to stop growing Red tip at the nursery since it is not an important ornamental plant in Poland.

Resources:

- University of Arizona Landscape Architecture, Dr. Margaret Livingston
<http://ag.arizona.edu/classes/lar520/unit10/photxfra.htm>
- Personal communication, Leszek Orlikowski, Research Institute of Pomology and Floriculture, Poland.

***Pyracantha koidzumii* (Formosa firethorn)**

Pyracantha is a genus of shrubs belonging to the rose family (*Rosaceae*). There are seven species originating from southeast Europe and eastern Asia, in addition to a number of cultivars. Tough, thorny branches and showy orange to red berries characterize this genus. Several cultivars are used for ground cover applications due to their low growth habit. Scarlet firethorn (*Pyracantha coccinea*), Formosa firethorn (*Pyracantha koidzumii*), and Roger's firethorn (*Pyracantha rogersiana*) are the most popular species for cultivating. [Formosa firethorn](#) is native to Taiwan. While grown for its showy, bright red berries, it is also used as a natural fence, due to its formidable array of thorns and ability to grow up to 12 feet in height. Clusters of white, five-petaled flowers bloom in late spring, followed by a heavy crop of berries ripening in the fall. The berries can persist all winter if not eaten by birds. Firethorns prefer sunny locations (although they will tolerate partial shade), and are good for growing in hot, dry conditions.

References:

- Arcadian Archives Gardening Resource (Cumbria, UK)<http://www.arcadian-archives.com/pyracantha.htm>
- Clemson University Home & Garden Information Center:
<http://www.clemson.edu/extension/hgic/>
- Oregon State University horticultural website: <http://oregonstate.edu/dept/ldplants/>

- Plants of Hawaii, Hawaii Ecosystems at Risk website: http://www.hear.org/starr/hiplants/images/thumbnails/html/pyracantha_koidzumii.htm

***Quercus acuta* Japanese evergreen oak (Fagaceae)**

This is an evergreen tree native to East Asia. Growing 20 – 30 ft. in height and 15 – 20 ft. wide, it is round to oval in shape and has dense, low branching, with smooth grey bark. Leaves of the Japanese evergreen oak grow 2.5 – 5 in. long and are dark green and glossy, with a paler underside, with new growth purplish-brown in color. The monoecious flowers are pollinated by wind, and followed by brown, cupped acorns. After leaching out tannins, tree seeds can be ground into a powder and used for making bread or as a thickening agent for stews. The roasted seed is also used as a coffee substitute. Medicinally, the galls produced on the tree are strongly astringent and can be used in the treatment of hemorrhages, diarrhea, or dysentery. Additionally, a mulch made of Japanese evergreen oak tree leaves repels slugs and grubs, although fresh leaves should not be used as they may inhibit plant growth. *P. ramorum*-positive *Quercus acuta* was found in the United Kingdom (UK) . Symptoms included bleeding trunk cankers. Consequently, USDA APHIS has added this species to the list of regulated Plants Associated with *Phytophthora ramorum*.

Resources:

- Gilman, Edward F. and Watson, Dennis G. *Quercus acuta* Japanese Evergreen Oak. Fact Sheet ST-539. October 1994. Environmental Horticulture Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. http://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/queacua.pdf.
- Plants for a Future, "*Quercus acuta*" <http://www.pfaf.org/user/Plant.aspx?LatinName=Quercus%20acuta>.

***Quercus cerris* (European Turkey oak)**

European Turkey oak is native to Mediterranean Europe and Asia. While not commonly grown in the US, it is climatically suitable in a band from the mid-Atlantic states through the southern plain states and north through the Rocky Mountain states. (There is another shrubby oak native to the US with the common name turkey oak - *Quercus laevis*.) European Turkey oak, a deciduous oak, is widely planted and naturalized in much of Europe. With a fast growth rate, it may grow to be 130 feet, but is generally 30 - 50 ft tall (see [photo](#)), and is used in windbreaks, and as an ornamental (see photo). *P. ramorum* caused bleeding cankers on the infected European Turkey oak found near Cornwall. European Turkey oak is in the section Cerris, a division of the genus *Quercus*, that only includes Eurasian species; it is neither a white nor a red oak (see [Quercus species list](#)).

***Quercus ilix* (Holm oak)**

Holm oak, also called holly oak or evergreen oak, is a large evergreen oak tree native to the Mediterranean region, where it tends to grow on dry limestone hillsides. Similar to holly leaves, holm oak leaves are glossy, leathery, variably shaped, and, where lobes are present, the tips

contain a single spine. Holm oak grows in much of maritime northern Europe, but is intolerant of cold continental winters. In the US, it is adaptable to climate zones in the southeast states and the Pacific Coast (see [photo](#)). With a rounded crown and pendulous low-hanging branches, its size and solid evergreen character make it desirable for urban and garden settings (see photo). *P. ramorum* affected only the leaves of the four infected holm oaks detected in Cornwall. In California, *P. ramorum* infects oak through the bark, primarily only oaks in the red oak group are susceptible, and the leaves are not infected. Holm oak is a member of the white oak group, which may explain why the leaves are susceptible.

References (European Turkey oak and Holm oak):

- Department of Environment, Food and Rural Affairs (DEFRA) website <http://www.defra.gov.uk/environment/index.htm>
- Havre University Natural Sciences website <http://www.univ-lehavre.fr/cybernat/pages/quercerr.htm>
- National Arbor Day Foundation website <http://www.arborday.org/treeguide/nitree.cfm?id=132> <http://www.arborday.org/treeguide/nitree.cfm?id=164>
- Royal Forestry Society website <http://www.rfs.org.uk/>
- University of Florida Cooperative Extension website <http://edis.ifas.ufl.edu/>
- Urban Forest Ecosystem Institute website <http://selectree.calpoly.edu/photos.lasso?KeyValue=1242>
- Wikipedia website http://www.fact-index.com/h/ho/holm_oak.html, http://en.wikipedia.org/wiki/List_of_Quercus_species and http://www.fact-index.com/t/tu/turkey_oak.html

Quercus petraea (Sessile oak)

Quercus petraea is one of only two oaks native to the United Kingdom. This deciduous oak grows at a moderate rate to an average height of 60 to 80 feet, and often reaches 300 years of age. Its bark is grayish in color and has vertical cracks that form shapes called plates. The acorns are short at 1.2 inches, conical, broadest below the middle, and sit directly on twigs. The lobed leaves are more forward-pointing than *Quercus robur* (the other native UK oak), grow on stalks, are three to five inches in length, and a glossy dark-green color. The trunks of these trees are less branched, and the crown narrower, than the spreading shape of an English oak. *P. ramorum*-infected Sessile oak was found in an outdoor green area of the UK. Symptoms on the tree were limited to bole cankers. **References:**

- Great Britain Forestry Commission; Sessile oak - *Quercus petraea*
- <http://www.forestry.gov.uk/forestry/infid-5nlj46>
- Isle of Skye Flora
- <http://www.plant-identification.co.uk/skye/fagaceae/quercus-petraea.htm>
- First Nature; *Quercus petraea* Sessile oak http://www.first-nature.com/trees/quercus_petraea.asp
- NC State University; Trees: *Quercus petraea*
- http://www.ces.ncsu.edu/depts/hort/consumer/factsheets/trees-new/quercus_petraea.html

***Rosa gymnocarpa* (baldhip rose, wood rose, or dwarf rose)**

[Wood rose](#) is a common and very widespread shrub in the western United States. It is found in wildland habitats ranging from redwood forests to chaparral and mountain grasslands, from British Columbia to California's Sierra Nevada mountains, and east into Idaho and western Montana. It grows at elevations up to 5,000 feet, tolerating shade as well as sunlight, thriving in moist and dry areas. Wood rose plants tend to have one or two spindly stalks that are up to 5 feet tall. The stalks are covered with numerous fine, soft prickles, rather than the heavy, stiff thorns common in most roses. It bears 1 inch pink flowers in late spring or early summer, and showy, bright red fruits (hips) in mid-summer that can persist through the winter. The sepals fall away from the hips early in their development, giving the species its common name (baldhip rose). Deer and livestock browse the foliage of wood rose; its winter persistence makes the hips an especially important source of food for mammals and birds. While quite nutritious, the hips have been eaten sparingly by Native Americans, as the seeds are covered with hairs that are quite irritating to the digestive system. Other traditional uses include using the leaves to make tea for drinking and for medicinal purposes, as well as for drying and smoking the bark and leaves.

References:

- Huberli, D., Reuther, K.D., Smith, A., Swain, S., Tse, J.G. and Garbelotto, M. (2004) First report of foliar infection of *Rosa gymnocarpa* by *Phytophthora ramorum*. Plant Disease online: <http://apsnet.org/pd/current/top.asp>
- Morelejo, E. and Hernandez, L. Inoculation Trials of *Phytophthora ramorum* on Detached Mediterranean Sclerophyll Leaves. Sudden Oak Death Science Symposium, 2002. <http://danr.ucop.edu/ihrmp/sodsymp/paper/paper25.html>
- Plants of Garland Park website: http://www.coestatepark.com/dicots_garland_park_3.htm
- Pojar, J. and MacKinnon, A. 1994. Plants of the Pacific Northwest Coast. BC Ministry of Forests and Lone Pine Publishing, Vancouver, BC.
- USDA Forest Service, Fire Effects Information System <http://www.fs.fed.us/database/feis/plants/shrub/ros gym/all.html>

***Salix caprea* cv Kilmarnock (Goat willow)**

[Goat willow](#) is a small, deciduous tree (15 – 25 ft.), native to Europe and northeastern Asia. Newer bark is yellowish-brown in color, while older bark is dark brown. Goat willow leaves are dark green, oblong in shape with serrated edges, and range from 2 – 4 inches. Fall foliage is yellow. Its showy white bottle-brush flowers range from 1 – 2 inches and bloom in April. It is fast growing, prefers moist soil, and full sun. *Phytophthora ramorum*-infected Goat willow was found in container -grown plants in Northwest England, July 2004. Symptomatic plants exhibited foliar blight and aerial dieback. Koch's postulates have not yet been completed. **Resource:**

- University of Connecticut, "UConn Plant Database"
<http://www.hort.uconn.edu/plants/s/salcap/salcap1.html>

***Smilacina racemosa* (false Solomon's seal/Solomon's plume)**

False Solomon's seal is a very common understory herbaceous perennial. It grows from rhizomes, often in dense clusters, and the leafy, arching stems grow to about 3 feet tall. Small white flowers are densely clustered at the end of the stalks, and have a strong perfume-like fragrance. The berries are small (5-7 mm diameter), densely clustered, and start off green or brown with mottles or stripes, then ripen to bright red. (See photos of [healthy *Smilacina racemosa*](#).) This plant grows in rich woods, thickets, and moist clearings at low to sub-alpine elevations throughout the US and Canada, and is popular in native plant gardens. Native Americans ate the young greens, fleshy rhizomes, and the ripe berries of this plant. The rhizomes were cooked after being soaked to get rid of their disagreeable taste. The rhizomes were also utilized as a poultice, and brewed to make a tea to treat rheumatism, sore back, and kidney ailments. The berries were eaten raw, though they are not especially palatable. False Solomon's seal is so named because its leaf stalk resembles that of Solomon's seal (*Polygonatum multiflorum*). However, the latter has bell-shaped flowers hanging individually along the leaf stalk. Solomon's seal is thought to have gotten its name either from markings on the rhizomes resembling a 6-pointed star, or from the hanging flowers resembling a seal on a document. *P. ramorum*-infected false Solomon's seal was found in spring, 2004, at Jack London State Park, Sonoma Co., CA when necrotic leaf tip symptoms were identified. (See a photo of [infected *Smilacina racemosa*](#).)

Resource:

- Washington State Department of Transportation ethnobotany
<http://www.wsdot.wa.gov/Environment/CulRes/herbs.htm#Smilacina>

***Syringa vulgaris* (Lilac)**

One of the recently discovered *Phytophthora ramorum* hosts is lilac (*Syringa vulgaris*). This tall, long-lived shrub, one of the most popular landscape plants in temperate regions of the US and Europe is valued for its fragrant flowers. There are 22 botanical species of *Syringa* and over 1000 cultivated varieties. The genus name means "pipe", referring to its hollow stems. *Syringa vulgaris*, or common lilac, originated from Persia and Europe, and was introduced to central Europe in the 16th century, then brought to North America by early settlers. *P. ramorum*-infected lilacs (*Syringa vulgaris* "Belle de Nancy") were discovered in March 2003 in a nursery in Aberdeen, Scotland by Dr. Alexandra Schlenzig, Scottish Agricultural Science Agency. Symptoms were black buds on some of the stems, resembling frost damage, which failed to sprout and develop leaves. Two months later, Dr. Schlenzig found another infected batch of lilacs in the same nursery. Symptoms on *S. vulgaris* "Katherine Havermeier" included leaf lesions, brown areas around the leaf edge. In some cases, wilting could be observed, as well as dieback where infected buds failed to sprout. *P. ramorum*-infected lilacs were also found in June 2003 in England on two *S. vulgaris* in a nursery in Sussex and 10 plants of *S. vulgaris* "Madame Lemoire" from North Yorkshire. Symptoms on those plants were limited to leaf lesions.

References:

- http://www2.ville.montreal.qc.ca/jardin/en/info_verte/lilas/lilas.htm#lilas

- <http://www.gardenersnet.com/lilac.htm>
- Dr. Alexandra Schlenzig, personal communication
- Dr. Alan Inman, DEFRA, UK, personal communication

***Taxus brevifolia* (Pacific yew)**

Pacific yew are usually found in the understory of late successional conifer forests, along with Douglas-fir or western hemlock. It ranges from southeastern Alaska to northern California, and east into Alberta, Montana, and Idaho. Pacific yew reaches its maximum size in the Washington Cascades, with the largest recorded specimen almost 60 inches in diameter and over 50 feet in height. Specimens over 20 inches in diameter can be found elsewhere, although it is typically less than 12 inches in diameter. Pacific yew is a gymnosperm. Its flat, dark green needles resemble those of redwood, but its seeds are born in an open berry-like red aril rather than a cone. (See photos of [healthy *Taxus brevifolia*](#).) These arils are poisonous to humans, although attractive to birds. Pacific yew is dioecious, having male and female plants. The wood is hard and heavy, and is prized for woodcarving. Native peoples of the Pacific Northwest Coast considered yew wood very valuable, using it for weapons and implements that require strength and toughness. Most coastal peoples used it for harpoons, fish spears, fish clubs, and dip net frames. Nearly everyone who could collect, or trade for it, used it for bows (its Haida name means bow-plant) and almost any implement that could be made from wood. Yew had numerous medicinal uses, many of which were a magical nature, using the tree to impart strength. The leaves were ground or chewed and applied to wounds. Yew was also smoked alone or with other plants. Yew bark is a source of the chemical taxol, used to fight several forms of cancer. When this discovery was first made in the late 1980s, it was feared that harvesting could endanger this slow-growing species, but since then, synthetic formulations have been developed that do not require the harvesting of trees. Infected Pacific yew have been found at one location in Mendocino County, CA, by John Bienapfl, UC Davis, growing under a canopy of California bay laurel, tanoak, and madrone. *Phytophthora ramorum* symptoms include needle and twig dieback. (See photos of [infected *Taxus brevifolia*](#).)

Reference:

- Gymnosperm database: <http://www.conifers.org/>

Reference used for all species:

- Pojar, Jim and Andy MacKinnon (eds.). 1994. Plants of the Pacific Northwest coast. Vancouver, BC: Lone Pine.

***Taxus media* (Yew)**

Taxus media (a yew) – is a hybrid cross between *T. baccata* and *T. cuspidata* that was developed in the early 1900s. It can be found in a wide range of sizes and with great variation in growth characteristics depending on the cultivar. While it is most often found as an evergreen medium-sized tree or large hybrid shrub, its size ranges from two to 20 ft. It is a slow-growing plant with needle-like two-ranked leaves and blunt bud scales. Its foliage is dark-green on the upper side

and light to medium green on the underside. While the leaf apex is always pointed, needles can either be straight or curved. The dioecious flowers of the yew bloom in March and April and form on the previous years' wood. The poisonous yew fruit is a slightly compressed olive-brown seed that is covered by a red aril and is mildly attractive. The bark is scaly and flaky brown, and is usually covered by foliage. *T. media* is often used as foundation plantings in groupings, as a hedge or screen.

- The one confirmed positive *T. media* found at a Boskoop, Holland nursery was observed in November 2003. No other host plants at the nursery were found to be *P. ramorum*-positive. Symptoms included *P. ramorum* stem-base rot and root rot caused by *P. cinnamomi*. The plants in the lot were two to three years old. (NOTE: *Taxus baccata* was formerly identified as a host in the UK from a container plant.)
- **References:**
 - Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. p 628.
 - University of Connecticut, UConn Plant Database
 - *Taxus x media*
 - <http://www.hort.uconn.edu/plants/t/taxmed/taxmed1.html>
 - Personal email communication
 - Jonathan Jones
 - National *P. ramorum* Program Manager USDA APHIS PPQ

***Torreya californica* (California nutmeg)**

Torreya californica is a tree native to California; however, it is rare and local, found along mountain streams, protected slopes, creek bottoms, and moist canyons of the Coast Range and the Sierra Nevadas. It is conical in shape, with wide spreading branches, and ranges in height from 15 to 70 feet. The bark of California nutmeg is gray-brown, thin, with shallow, irregular fissures, and scaly ridges. Its persistent, lance-shaped, flat, and aromatic needles are very stiff, one to three inches long, two-ranked, and are dark-green above and green below, with two narrow white lines. The twigs of this tree are slender, mostly paired, and yellow-green when young, turning reddish-brown with age. The flower of California nutmeg is dioecious. Male flowers are small, elliptical, pale yellow, and occur at the bases of leaves, while female flowers are tiny and consist of an ovule surrounded by a fleshy sac, and are borne on current year twigs. The fruit of this tree is an aril, with a fleshy outer green covering and an inner yellow-brown, thick-walled seed; it takes two years to mature. *P. ramorum*-infected California nutmeg was found in Mendocino County along the same unnamed tributary as the infected Redwood ivy (see below). One understory symptomatic California nutmeg was found near infected CA bay laurel, tanoak, CA honeysuckle, toyon, and madrone. Identified symptoms were similar to those seen on Douglas-fir, with wilted, necrotic shoots and twig cankers. *P. ramorum* was successfully recovered from the margins of the twig cankers, but not from necrotic needles. PCR testing has not been performed. State and federal regulatory officials are reviewing the findings.

References:

- Gymnosperm Database; *Torreya californica*

- <http://www.conifers.org/zz/pinophyta.htm>
- Virginia Polytechnic Institute and State University; Dendrology at Virginia Tech website; California nutmeg
- <http://www.cnr.vt.edu/dendro/dendrology/syllabus/factsheet.cfm?ID=420>
- Nearctica; Native Conifers of North America; *Torreya californica*
- <http://www.nearctica.com/trees/conifer/taxus/Tcalif.htm>

***Vancouveria planipetala* (Redwood ivy)**

This plant is a perennial herb native to southwest Oregon and parts of California. It is evergreen, although it may lose its leaves during cold winters. Redwood ivy is a spreading plant, that usually grows five to 12 inches in height. Its leaves grow three to 11 inches and have a glabrous upper surface, with a glabrous to sparsely hairy lower surface. Flowers are white or lavender and are found in upright clusters of 25 to 30. Redwood ivy is found in coastal coniferous forests, and can grow in part sun to full shade, preferring cool, moist conditions. *P. ramorum*-infected Redwood ivy was found in Mendocino County along the same unnamed tributary as the infected California nutmeg. Other *P. ramorum*-infected host plants present included CA bay laurel, tanoak, Pacific yew, woodrose, evergreen huckleberry, and CA honeysuckle. Symptoms consisted of necrotic lesions developing along the leaf margins. Lesions had a grayish-brown color and sometimes had a dark lesion margin. Small spots were observed beyond the lesions, and dead leaves were also observed. *P. ramorum* was recovered in culture; PCR testing has not been performed. State and federal regulatory officials are reviewing the findings. **References:**

- Oregon State University; Department of Horticulture; Landscape Plants Volume 3
- <http://oregonstate.edu/dept/ldplants/vaplan.htm>
- University of California Jepson Flora Project
- http://ucjeps.berkeley.edu/cgi-bin/get_JM_treatment.pl?1996,2012,2015
- Brenzel, Kathleen. Sunset Western Garden Book. Menlo Park, CA: Sunset Publishing Corporation, 2001. p 644.

***Viburnum opulus* (= *V. trilobum*) - (American cranberry viburnum)**

Viburnum opulus (= *V. trilobum*) - (American cranberry viburnum) - belongs, is a dense, rounded crown large deciduous shrub native to the northeastern and northwestern US that grows 8 – 12ft tall, and equally as wide. The opposite three-lobed ovate shaped leaves have a toothed margin and grow 2 – 5in long. Leaf color in the summer is dark-green, turning a red to purple color in fall. Showy 4-5 in cyme white flowers bloom in early June, and the edible persisting red drupe fruit matures in late summer. American cranberry viburnum bark is waxy and gray brown in color. The juicy, but acidic American cranberry viburnum fruit can be eaten raw or cooked, tasting best after a frost. Rich in vitamin C, it is an excellent substitute for cranberries and can be used in preserves or jams. Various plant parts, such as the roots, branches, and bark are also known to be used as a laxative, to alleviate fever, to induce vomiting, and as a digestive aid. *P. ramorum*-infected *Viburnum opulus* (= *V. trilobum*) 'Baily Compact' (American cranberry viburnum) was identified as one of several *Viburnum*, *Rhododendron*, and *Camellia* species found positive at a Clackamas County , OR nursery.

References:

- University of Connecticut; UConn Plant Database; *Viburnum trilobum*;
<http://www.hort.uconn.edu/plants/v/vibtri/vibtri1.html>
- Minnesota Power Website; The Right Tree Book; *Viburnum trilobum*;
<http://www.mnpower.com/environment/>
- Plants for a Future Website; *Viburnum trilobum*;
<http://www.pfaf.org/user/plantsearch.aspx>

***Viburnum x rhytidophylloides* (Alleghany Viburnum)**

Viburnum x rhytidophylloides - Alleghany or Willowood Viburnum (Caprifoliaceae) is a hybrid of *V. rhytidophyllum*, a native of central and western China, and *V. lantana*, native to Europe. Popular in the US Midwest, Alleghany Viburnum is commonly used as a screening shrub. Averaging 10 ft. tall and 11 ft. wide, this dense shrub is deciduous to semi-evergreen. Easy to transplant and grow, it thrives in full sun or partial shade and prefers moist, well-drained soil. Alleghany Viburnum is distinguishable from related cultivars by its very dark green leathery leaves, bacterial leaf spot resistance, and hardiness. Its abundant cymes of small, yellowish-white fertile flowers bloom in late spring, while its brilliant red fruit are seen in September and October. When the fruit is completely ripe, it turns to a blue-black color and is enjoyed as a food source by birds. *P. ramorum*-positive *Viburnum x rhytidophylloides* were identified in a Washington County, Oregon nursery that irrigates from overhead sprinklers. Initial samples were taken on 6/24/04. Infected plants were located adjacent to other non-symptomatic *Viburnums*. Alleghany Viburnum symptoms were limited to lower leaf discoloration. Results on subsequent samples to verify whether other plants were infected are still pending. **Resources:**

- U.S. National Arboretum Plant Introduction
- Floral and Nursery Plants Research Unit <http://www.usna.usda.gov/Newintro/allegh.html>
- Personal communication, Karl Puls, Oregon Department of Agriculture