

# Utah Forest Facts

Utah State University  
COOPERATIVE EXTENSION

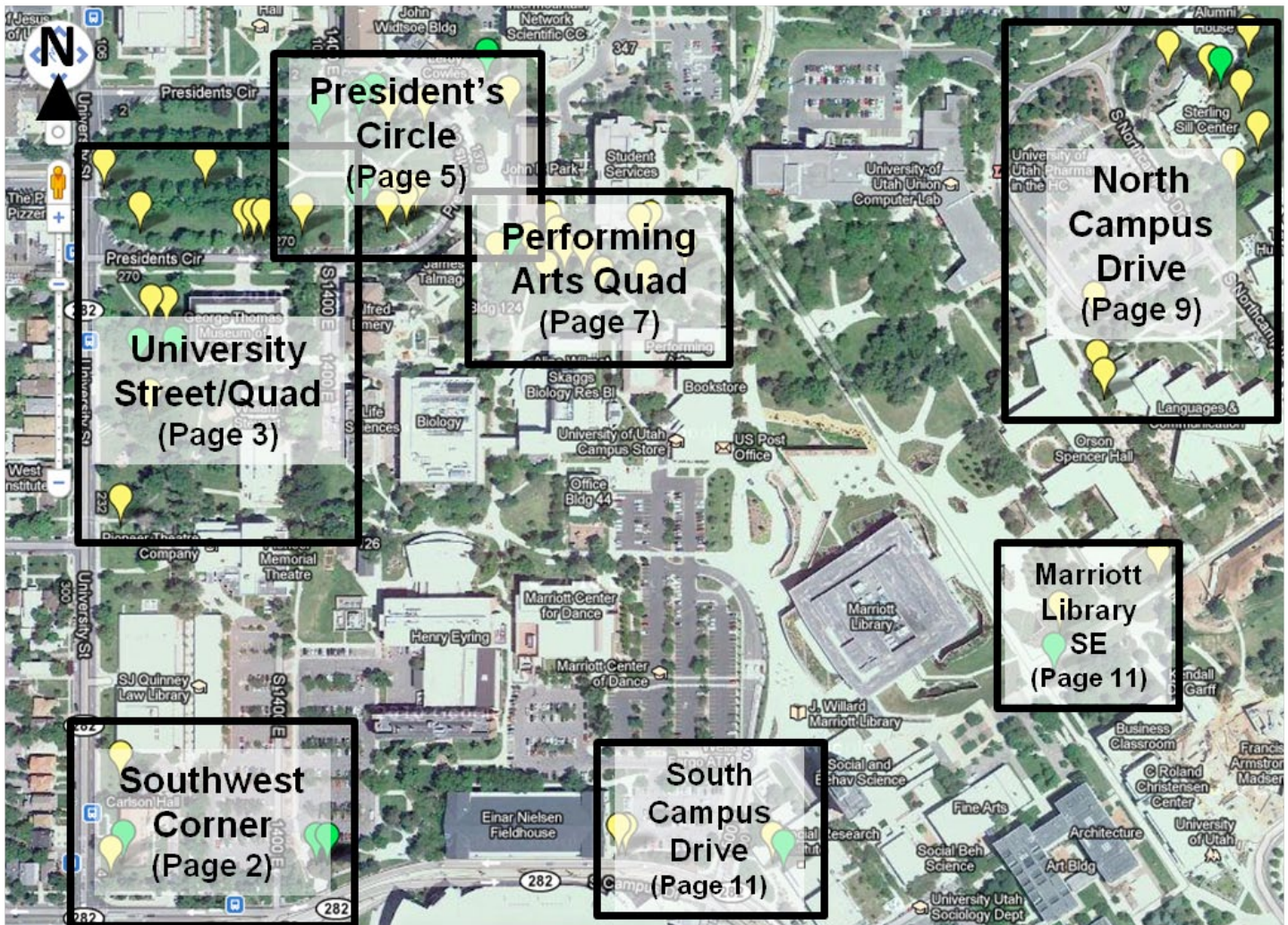
Urban Forestry

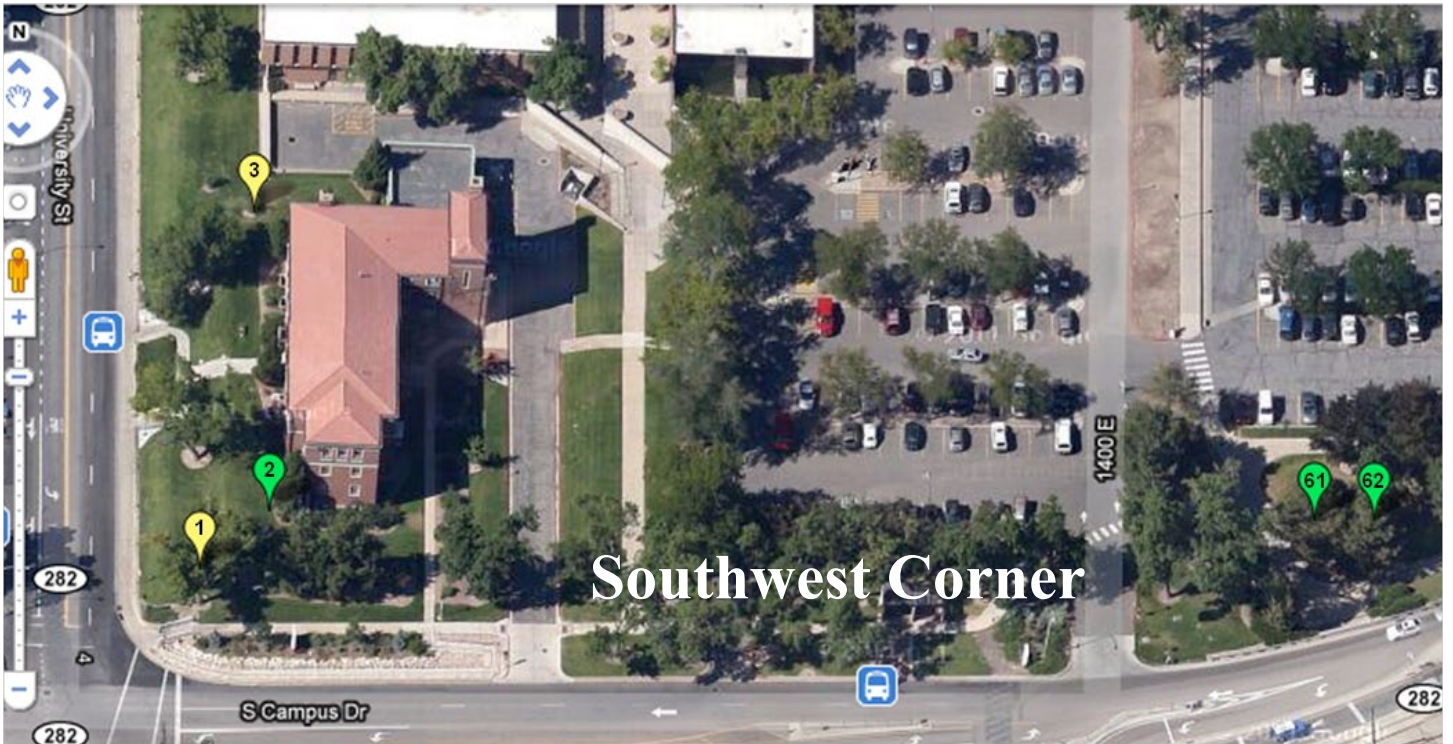
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## UofU Tree Identification Tour

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Trees on the University of Utah (UofU) campus are very diverse. As a designated State Arboretum the UofU values its urban forest resources and readily shares them with the public. Here we highlight some of the most interesting trees in the western part of campus, including key identifying characteristics for each species. Green markers indicate gymnosperms and yellow angiosperms. Visit <http://goo.gl/jw5bh> to find this tour on the web with an interactive map and GPS coordinates, current as of August 12, 2011. Consider carrying a tree identification book with you when you go out. Tree identification tips and references are listed on the last page.





**1 – Black Walnut** (*Juglans nigra*). Chambered pith; pinnately compound leaves, typically missing terminal leaflet; round nut with indehiscent husk; chocolate color when older bark is broken; stout twigs. *Fact*: Stout twigs are common on trees with compound leaves.



Tree #1 – Black Walnut

**2 – Eastern Redcedar** (*Juniperus virginiana*). Cones resemble berries; dioecious; this tree is a male; juvenile and adult foliage differ. *Compare*: Cones mature in 1 year, so all cones on female trees are the same age; *J. scopulorum* matures in 2 years.

**3 – Red Horsechestnut**

(*Aesculus x carnea*). Dark green, palmately compound leaves with 5 leaflets; red flowers in panicles; somewhat prickly husk on fruit; small tree; this is a group of 3 trees; girdling root on eastern one. *Compare*: *A. hippocastanum* looks similar but has larger, lighter colored leaves with 7

leaflets and larger, sticky buds.

**Continued from p. 11**

**61 – Ponderosa Pine** (*Pinus ponderosa*). Needles in bundles of 2 & 3; woody cones with prickles; buds cinnamon brown; bark scaly, furrowed, becoming platy & orange-red at maturity; bark vanilla scented. *Fact*: This and Austrian pine are “hard pines” or “red pines”; pines with 5 needles per bundle are called “soft pines” or “white pines.”

**62 – Austrian Pine** (*Pinus nigra*). Medium long needles in bundles of 2; woody cones with bumps rather than sharp prickles; buds white; bark gray-brown and not scaly. *Fact*: Like all hard pines, cones take 2 years to mature, and fascicles have sheath; white or soft pines take 1 year, no sheath.



Ponderosa Pine Cone,  
With Prickles



Austrian Pine Cone,  
No Prickles

# University Street/Quad



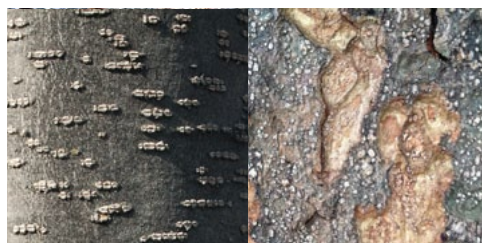
**4 – Weeping European Beech** (*Fagus sylvatica* var. ‘Purpurea pendula’). Often looks like a pile of branches; purple or purple-green, entire leaves, or with very small teeth; zig-zag twigs; smooth gray bark; fruit a small nut in 4-part capsule. *Fact*: Always under 10 feet tall.

**5 – Japanese Zelkova** (*Zelkova serrata*). Young bark with horizontal lenticels, becoming scaly and multi-colored on older trees; fruit is a small drupe; red fall color. *Note*: This is a

very large, old specimen; Ulmaceae (elm) family.

**6 – Port Orford Cedar** (*Chamaecyparis lawsoniana*).

Small (1/4”), round female cones with wrinkled scales (*Thuja* cones are elongated); scaly foliage in flattened, drooping sprays with white X markings underneath; uncommon in Utah; a *Juniperus scopulorum* is located to the west of this tree. *Fact*: Also called Lawson falsecypress.



Japanese Zelkova, Young & Old Bark

**7 – Giant Sequoia** (*Sequoiadendron giganteum*). Dense pyramid shape; leaves 1/8-1/2” long, blue-green and awl-shaped, point toward the branch tip, and stay on the tree 3-4 years; fruit a woody cone, oval, 1-1/2 to 3” long. *Fact*: Spongy bark helps tree resist fire injury in nature.

**8 – Lacebark or Chinese Elm** (*Ulmus parvifolia*). Samaras ripen in fall; interlacing bark; leaves small, serrate, leathery, dark green and glabrous above, hairy beneath when young. *Note*: Very large, old specimen.

**9 – Hackberry** (*Celtis occidentalis*). Very warty, ridged bark; leaves lanceolate and serrate, typically with nipple galls caused by insects; fruit dark purple. *Compare*: Native netleaf hackberry (*C. reticulata*) has broader, nearly entire leaves with yellow to orange-red fruit; both are in the Ulmaceae (elm) family.

**Trees 10 to 27 are Inside the Oval Driveway**

**10 – Norway Maple** (*Acer platanoides*). Milky sap when petioles broken (less in late summer); samaras with widely spreading wings; tight, ridged bark; opposite leaves. *Fact*: Use MADCap Horse to remember species with opposite leaves (**maple**, **ash**, **dogwood**, **Caprifoliaceae**, and **horsechestnut**).

**11 – Japanese Flowering Cherry** (*Prunus serrulata*). Glands (2-4) on petiole near base; flowers pink; often grafted on a standard 4-6’ up; prominent horizontal lenticels on shiny, reddish bark. *Note*: This is likely ‘Kwanzan’ variety. Group of 4 trees.

**12 – Kentucky Coffeetree** (*Gymnocladus dioica*). Fruit a fairly large, thick legume with 1/2” seeds; leaves 2x pinnately compound, dark blue-green; coarse texture in winter; crowns somewhat narrow. *Fact*:



Tree #12 – Kentucky Coffeetree

Either dioecious or polygamo-dioecious, so there is no guarantee of a fruitless male; ‘Espresso’ is a reliably male cultivar. Many of these trees in this area.

**13 – Ohio Buckeye** (*Aesculus glabra*). Leaves opposite, lighter green than red horsechestnut, palmately compound with 5 leaflets and no rusty hairs underneath; yellow-green flowers. *Compare*: *A. x carnea* has darker leaves and *A. hippocastanum* has spinier fruit.

**14 – Red Horsechestnut** (*Aesculus x carnea*). Leaves opposite, dark green, palmately compound, with 5 leaflets; red flowers; somewhat prickly husk on fruit; tree matures quite small. *Compare*: *A. hippocastanum* has larger leaves and buds and much stickier buds. Group of 3 *Aesculus* trees; girdling root on eastern one.



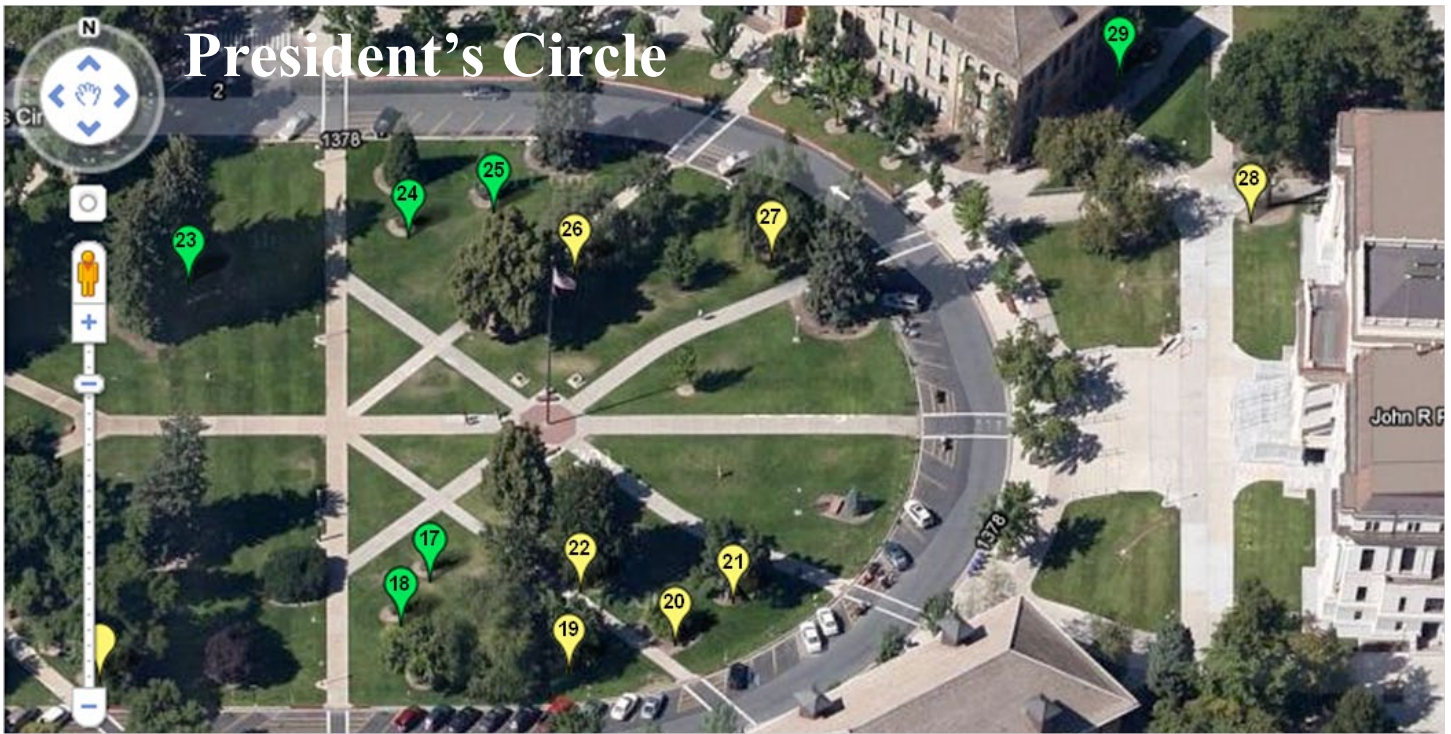
Tree #14 – Red Horsechestnut

**15 – Yellow Horsechestnut** (*Aesculus octandra*). Opposite, palmately compound leaves with 5 leaflets; yellow flowers; fruit a smooth capsule with 2 seeds. *Compare*: Gets larger than *A. glabra*.

**16 – Green Ash** (*Fraxinus pennsylvanica*). Opposite, bright green leaves in summer turning yellow in fall; leaf scar half circular, straight or shallow notched across top. *Compare*: Cross-hatching of bark less distinct than for *F. americana*.



Green Ash Bark, White Ash Bark



**17 – Nootka False-cypress** (*Xanthocyparis* [was *Chamaecyparis*] *nootkatensis*). Pendulous branches; looks like it belongs in a Dr. Seuss book; leaves lack white markings underneath. Cones up to 1/2"; 2 years to mature. *Compare:* Port-Orford cedar has smaller cones and white markings under leaves.



Tree #55 – Spanish Fir

**18 – Spanish Fir** (*Abies pinsapo*). Leaves dark green above and whitish beneath, short, stiff, sharp, and not flattened in cross-section; cones upright, 4-8" long. *Fact:* Heat and drought tolerant.



Tree #19 – English Hawthorn Trunk

**19 – English Hawthorn** (*Crataegus laevigata*). Leaves deeply lobed; flowers red to pale pink in small clusters; thorns 1" long but may not be present. *Note:* trunk like a bundle of stems.

**20 – Saucer Magnolia** (*Magnolia x soulangiana*). Large, deciduous, entire leaves; large (5" to 10") white, pink, or purple flowers with 9 tepals (petals); hairy buds, stipular scars, and smooth gray bark like all magnolias; gets to be fairly large. *Fact:* Hybrid of *M. liliiflora* (5 tepals) and *M. denudata* (7 tepals).

**21 – Lavalle Hawthorn** (*Crataegus x lavellei*). Leaves shiny dark green on top, finely pubescent beneath; twigs very hairy at first but becoming glabrous; fruit fairly large (5/8" to 3/4") pome turning bright orange-red when mature. *Fact:* Hybrid of *C. crusgalli* and *C. pubescens*. Old specimen.



Tree #21 – Lavelle Hawthorn, Immature Fruit

**22 – European Beech** (*Fagus sylvatica*). Leaves entire leaves or with very small teeth; zig-zag twigs; smooth gray bark; fruit a small nut in 4-part capsule (present in summer and fall); sharp pointed buds. *Note:* This cultivar is semi-fastigiata and contorted, but there are many other cultivars with different shapes, leaf colors, etc.

**23 – Blue Spruce** (*Picea pungens*). Often bluish needles; needles diamond shaped in cross section. Cones larger than Engelmann but smaller than Norway; scales with erose (toothed) margins; hang down. Rosette bud scales. *Fact*: Spruces have female cones above, male below to reduce chances of self pollination. Remember “Sharp Spruces” – pointed tips.



Tree #24 – Norway Spruce  
cv. ‘Pendula’

**24 – Norway Spruce** (*Picea abies* var. ‘Pendulum’). Cones 4-7” long. Branchlets often pendulous. *Fact*: Many cultivars with different shapes and sizes.

**25 – White Fir** (*Abies concolor*). Fir cones upright (near tree top), disintegrate. Needles flat and white fir has

longer needles than subalpine fir. Broader crown, blue instead of green color, and larger cones compared to subalpine. *Fact*: Remember “Flat, Friendly Firs.”

**26 – Gambel or Scrub Oak** (*Quercus gambellii*).

In white oak group (rounded lobes, sinuses or no lobes; acorns mature in one season, glabrous inner shells rather than downy, warty caps; tyloses). Leaves smaller than white oak; tree often shrubby; sprouts from roots. Acorn short or no stalk. *Note*: This is probably a hybrid from by Dr. Walter P. Cottam.



White Fir Foliage

**27 – Littleleaf European Linden**, *Tilia cordata*. Dark green, irregularly heart-shaped leaves. Fruit several nutlets borne on a light green bract. Dense conical form. Compare: Smaller leaves, flowers, and fruit than American linden. *Compare*: *Tilia x euchlora* (to the west) has longer petioles, leaves non-glabrous underneath.



Tree #28 – American Elm

**28 – American Elm** (*Ulmus americana*). Leaves glabrous or slightly rough on top, 4-6” long, unequal base (Siberians are equal). Samaras notched at tip, ripen in spring. *Note*: Broken bark w/ alternating light and dark layers, black on bark caused by mildew on honeydew from scale insects.

**29 – Scots or Scotch Pine** (*Pinus sylvestris*). Butterscotch colored upper bark; twisted, blue-green needles, medium length, 2 per fascicle; fairly small woody cones with no prickle.



Tree #29 – Scots Pine Upper Bark



## Performing Arts Quad

**30 – Tree-of-heaven or Ailanthus** (*Ailanthus altissima*). Compound leaves 1' to 2-1/2' long with 11 to 41 leaflets; musty smell when crushed. Coarse twigs. Flowers dioecious (some perfect). Smooth gray bark. Samara has one seed and hangs in bunches, orange-red when mature.

that hang down like a chain. Fruit a 1" to 2" long legume. *Fact:* Hybrid of *L. alpinum* and *L. anagyroides*.



Tree #31 – Ginkgo

**31 – Ginkgo or Maidenhair Tree** (*Ginkgo biloba*). Fan-shaped leaves; dichotomous venation; on short spur shoots on older stems. Golden fall color. *Fact:* Dioecious; female trees have bad smelling fruit; deciduous gymnosperm.

**34 – Goldenraintree** (*Koelreuteria paniculata*). Once pinnately compound leaves; leaflets toothed and sometimes deeply lobed. Flowers bright yellow in large bunches. Fruit a papery capsule resembling a lantern, with 3 hard black seeds inside.



Tree #32 – European Hornbeam

**32 – European Hornbeam** (*Carpinus betulus*). Somewhat broad crowned. Fruit a nutlet with distinctive 3-lobed bract in loose clusters. Leaves doubly serrate. Bark smooth and stem is sinewy. *Fact:* Often found in landscape as upright, tight-crowned variety (see #38).

**33 – Goldenchain Tree** (*Laburnum x watereri*). Leaves trifoliolate (3 leaflets). Bright yellow flowers in clusters



Tree #35 – Cork Oak Bark

**35 – Cork Oak** (*Quercus suber*). Very thick, corky, ridged bark. Leaves with small, sharp serrations and bristle tips but no lobes. Acorns 1" to 1-1/2" long with scaly cap. *Fact:* Member of the red oak group.

**36 – Mongolian Oak** (*Quercus mongolica*). Leaves with large, rounded teeth or shallow lobes. Bark thick and furrowed. Warty acorn cap. *Fact:* *Q. suber* and *Q. mongolica* are very rare in Utah.



Tree #37 – European White Birch

**37 – European White Birch** (*Betula pendula*). Smooth, bright white bark with horizontal lenticels; not papery. Doubly serrate leaves; sometimes lobed (cut-leaved varieties). Fruit a nutlet in catkins. *Fact:* Commonly planted as cut-leaved variety. Name (*pendula*) refers to hanging branches.

**38 – European Hornbeam** (2) (*Carpinus betulus* var. 'Fastigiata'). Leaves doubly serrate. Bark smooth and stem is sinewy. Compact, upright crown. *Note:* Same species as #32 but with tighter, more upright crown.

**39 – English Oak** (*Quercus robur* var. 'Fastigiata'). Acorn with long peduncle or stalk (sometimes called pedunculata oak). Lobes at the base of the leaf blade resemble earlobes. *Fact:* *Q. robur* can have a broad, spreading canopy,



English Oak Foliage with 'Earlobes'



English Oak Acorn Peduncle

but this upright form ('Fastigiata') is more commonly planted in Utah.

**40 – White Mulberry** (*Morus alba*). Leaves are smooth and shiny above, nearly glabrous below, may or may not

be lobed. White fruit. *Fact:* Mulberries are dioecious, so fruitless (male) varieties are often planted. *Compare:* *M. rubra* leaves are scabrous above, hairy beneath, unlobed on old shoots; red to black fruit.



Tree #41 – Siberian Elm Bark

**41 – Siberian Elm** (*Ulmus pumila*). Small leaves (1-3" long), glabrous above, nearly equal base. Samara wing margin deeply notched at tip; ripens in spring. Bark gray, often darkly stained by slime flux. *Compare:* See *U. americana*, #28.

**42 – Black Locust** (*Robinia pseudoacacia*). Small legume fruit. Spines present. Interlacing bark. Borer damage common. *Fact:* Spines are modified stipules, while thorns are modified branches. Some legume fix nitrogen in soil.



Tree #42 – Black Locust Bark

**43 – White Ash** (*Fraxinus americana*). Leaves compound, dark green above and whitish below, purplish fall color; leaf scar U-shaped with deep to shallow notch across top. *Compare:* *F. americana* bark more distinctively cross-hatched than *F. pennsylvanica*.





Tree #44 – Sycamore Maple

**44 – Sycamore Maple** (*Acer pseudoplatanus*). Green buds in winter. Bark scaly and gray, flaking off to expose orange inner bark. Leaves sharply toothed, dark green. Samaras in 6-12" long, drooping panicles.

**45 – Common Smoketree** (*Cotinus coggyria* var. 'Royal Purple'). Flowers tiny; fruit a small drupe. Flowers and fruit showy; held in clusters 6-8" across with hairy pink or purple stalks. *Fact:* Is in the family Anacardiaceae (*Rhus*, *Pistacia*, *Toxicodendron*, etc.), and is dioecious.



Tree #45 – Common Smoketree

**46 – Dawn Redwood**

(*Metasequoia glyptostroboides*). Leaves opposite and deciduous. Fruit a 1” diameter, slightly elongated cone with 20-30 triangular scales. *Fact:* Baldcypress has a similar look but alternate leaf arrangement.



Tree #46 – Dawn Redwood

**47 – Horsechestnut** (*Aesculus hippocastanum*). Leaves with 7 large leaflets. Flowers white to light yellow with red spots. Fruit a prickly capsule with 1-3 kernels. *Compare:* #13, #14, and #15.



Tree #48 – Yellow-poplar Leaf

**48 – Yellow-poplar or Tuliptree**

(*Liriodendron tulipifera*). Leaves 4-lobed with base and tip flat. Large yellow-green flowers become a tulip-shaped fruit (aggregate of samaras). Stem has diaphragmed pith. *Fact:* In the Magnoliaceae.

**49 – Russian-olive** (*Elaeagnus angustifolia*). Leaves silvery, scaly, margins entire. Fruit a 1/4-1/2” silver-yellow to reddish



Tree #49 – Russian-olive

drupe. Twigs sometimes with spines. Twigs, leaves, and fruit covered with scales. *Note:* This species is a weed and in some places in Utah is illegal to grow.

**50 – Bur Oak** (*Quercus macrocarpa*).

Leaves lobed below middle and toothed above. Acorn cap fringed, surrounds half or more of acorn. Group of 7 trees. *Fact:* In the white oak group.



Bur Oak Immature Acorn & Leaves

**51-European Mountain-ash or Rowan**

(*Sorbus aucuparia*). Compound leaves, serrate margins and orange-red fall color. Buds hairy; not sticky. Fruit a berry-like pome, 1/4-1/2” diameter, orange-red.



Tree #51 – European Mountain-ash Immature Fruit

**52-Bur Oak** (*Quercus macrocarpa*). See #50.

**53-Bigtooth or – Canyon Maple** (*Acer grandidentatum*). Leaf margins palmately lobed, but lobe margins entire or divided into additional lobes. Fruit U-shaped samaras.



Tree #53 – Bigtooth Maple

*Fact:* Considered a hard maple. Though a Utah native, most common cultivar is grafted onto sugar maple rootstocks. *Compare:* Similar to *A. saccharum* but shrubbier and smaller.



**54 – Sycamore Maple** (*Acer pseudoplatanus*). See #44.

**55 – Spanish Fir** (*Abies pinsapo*). See #18.

**56 – Fastigiata European Beech** (*Fagus sylvatica* var. 'Fastigiata'). Tightly fastigiata form. Purple, entire leaves or with very small teeth. Zig-zag twigs. Smooth gray bark. Small nut in a 4-part capsule.

**57 – Incensecedar** (*Calocedrus decurrens*). Scaly foliage clasp and flattened along stem in 4s; 1/4" long on youngest twigs, 1/2" long on older twigs; lateral pairs hide facial pairs.



Tree #57 – Incensecedar

Cones 3/4" to 1-1/2" long with 6 (5 apparent) scales; 2 scales elongated and look like duck's bill. Somewhat narrow crowned.

**58 – Eastern Redbud** (*Cercis canadensis*). Small tree with heart-shaped leaves with

entire margins. Pink, pea-like flowers. Fruit a flattened legume 2-4" long. Gray to cinnamon-colored bark.

**59 – Mimosa or Silk tree** (*Albizia julibrissin*). Showy flowers with many 1" long or longer pink stamens. Fruit a thin, flattened, 4-6" long legume. Leaves doubly compound with 40-60 small leaflets.



Tree #58 – Eastern Redbud

**60 – Curlleaf Mountain-mahogany** (*Cercocarpus ledifolius*). Broadleaved evergreen; leaves last 2 years. Leaves with entire, revolute margins; leathery. Fruit a small achene with 2-3" long, hairy, persistent, corkscrewed style. *Fact*: Shrubby tree.

## More Information

For definitions of botanical and tree-related terms look at the Tree and Botanical Glossary at <http://forestry.usu.edu/htm/treeid/tree-and-botanical-glossary/>. For detailed information on most trees included here look in *A Guide to the Trees of Utah and the Intermountain West* by Mike Kuhns from Utah State University Press. Also visit the Tree Browser website at <http://treebrowser.org>.

Here are some other good tree identification resources:

General tree ID info  
<http://forestry.usu.edu/htm/treeid>

Digital Atlas of the Vascular Plants of Utah  
<http://earth.gis.usu.edu/plants/>

Westminster College Tree List  
<http://goo.gl/zgRGg>

Virginia Tech Dendrology Website  
<http://dendro.cnre.vt.edu/>

## Tree Identification Tips and Information

- Use an identification key that is as local as possible. For an example look at the Logan Canyon tree key at <http://forestry.usu.edu/htm/treeid>.
- Keys with photographs or drawings are much more useful than those that are text only.
- In winter look for plant parts like fruit and leaves on the ground. Also learn to recognize twig features like buds, leaf scars, lenticels, and pith.

- When using a key, look for reasons to rule out plants that seem wrong so you can narrow down your choices.

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- Become familiar with terminology and plant anatomy as much as possible.

- Visit arboreta, botanical gardens, and other plant collections. Labeled collections can be especially valuable. Arboreta and other plant collections exist in Utah at Utah State University (<http://earth.gis.usu.edu/trees>), USU's Utah Botanical Center (<http://utahbotanicalcenter.org/htm/innovation/demonstration/vargaarboretum>) and Ogden Botanical Center (<http://extension.usu.edu/weber/htm/horticulture>), BYU (<http://treetour.byu.edu>), the University of Utah and Red Butte Garden (<http://www.redbuttegarden.org>), and the Jordan Valley Water Conservancy District's Conservation Garden Park (<http://conservationgardenpark.org>).

- Visit commercial nurseries to observe unusual plants with labels.

- Take a class. Contact your county Extension office and ask what kind of educational opportunities they have available. Visit <http://extension.usu.edu><fill in your county name>. Example: Salt Lake County Extension information can be found at <http://extension.usu.edu/saltlake>.

- Consider becoming a USU Extension Master Gardener (<http://utahmastergardeners.usu.edu>) or Master Naturalist (<http://utahbotanicalcenter.org/htm/education/adults/utah-masternaturalist>).

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