

Utah Forest Facts

EXTENSION 
UtahStateUniversity

Rural/Conservation Forestry

NR/FF/026

Key to the Trees of Logan Canyon

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This fact sheet is designed to help people who are not tree experts identify trees found in Logan Canyon in northern Utah. This key includes native and commonly found non-native trees found on wild lands in northern Utah, southern Idaho and southwestern Wyoming.

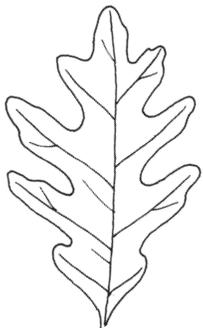
Introduction

This is a (mostly) dichotomous, or two-way, key for trees on wildlands in northern Utah, centered on the Logan Canyon vicinity. To use the key to identify a tree, start at #1 and decide which question is best answered “yes” for the tree. Then either go to the next number as indicated or read the species identification. Check your tree against the illustration and with other field guides to confirm your identification. One or two typical common names are given for each species. The Latin or botanical name is given in *italics*.

When checking a tree for identifying characteristics, look at many leaves, fruits and other aspects to get an idea of what is typical on that tree. Looking at one leaf can be very misleading, since it may not have developed normally. Sun leaves on the outer edges of the canopy are usually more typical in size and shape than shade leaves. If the leaves have fallen or you can't reach the leaves, twigs or fruit, look for plant material on the ground. Leaf scars on twigs can tell you whether leaves were opposite or alternate before they fell. Also, since twigs come from buds that form at the base of each leaf stalk, opposite twigs mean opposite leaves and alternate twigs usually mean alternate leaves. This can be especially useful when you can't reach leaves or twigs and must look up into the tree's canopy for an indication of leaf arrangement. Below are illustrations of leaf type, arrangement and other plant characteristics you may need to use this key.

Leaf Types

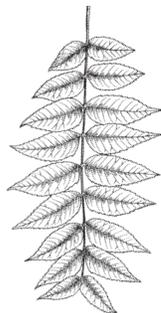
Broadleaves



oak



peachleaf willow



black walnut



blue spruce



Austrian pine

Leaf cross-section, enlarged

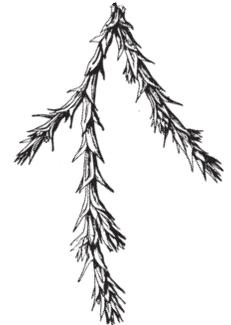


Scotch pine

Scale-like and Awl-like Leaves

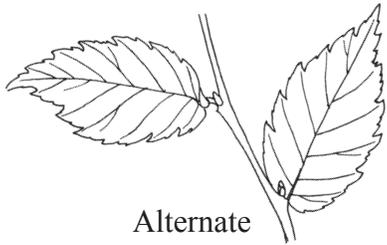


northern white-cedar

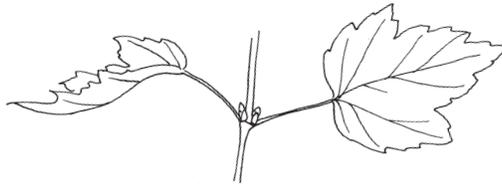


Utah Juniper

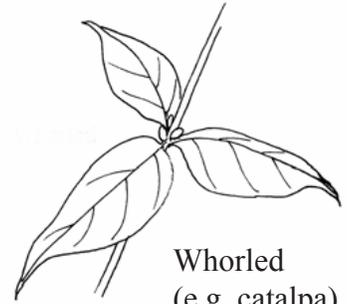
Leaf Arrangement



Alternate
(e.g. elm)

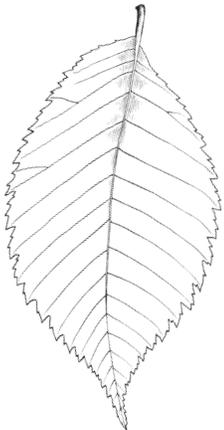


Opposite
(e.g. maple)

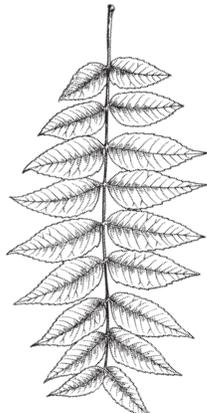


Whorled
(e.g. catalpa)

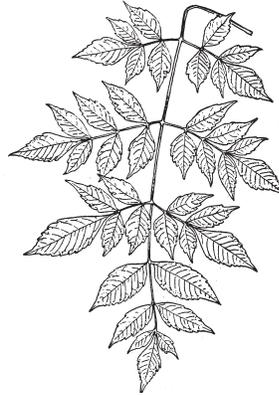
Leaf Composition



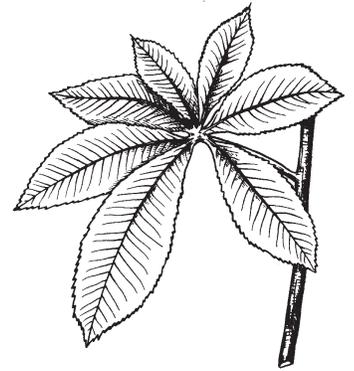
Simple
(e.g. elm)



Pinnately Compound
(e.g. walnut)



Bipinnately Compound
(e.g. goldenraintree)



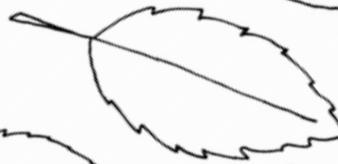
Palmately Compound
(e.g. horsechestnut)

Leaf Margins

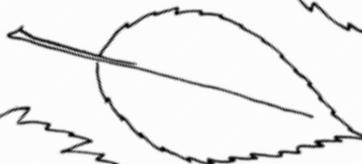
Smooth
(entire)



Serrate (toothed;
teeth point forward)



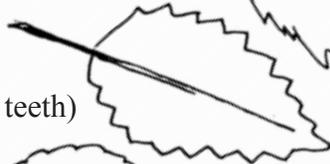
Serrulate
(fine teeth)



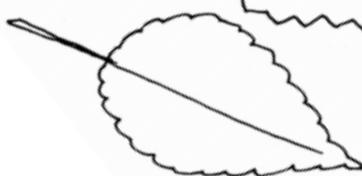
Doubly serrate
(teeth on teeth)



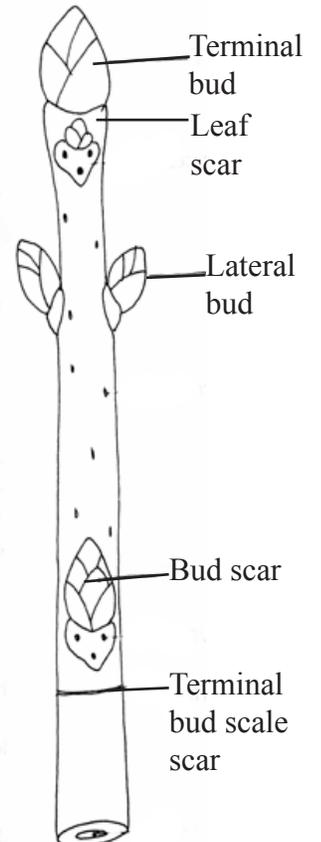
Dentate
(teeth point
sideways)



Crenate
(rounded teeth)

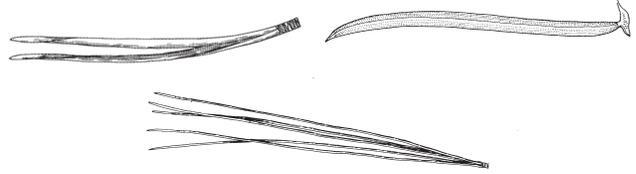


Buds



Key to the Trees of Logan Canyon

1. Does the tree have leaves that are **needle-like** and are usually **evergreen**? Yes? **Go to 5.**

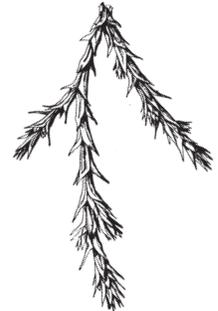


-OR-

1. Does the tree have leaves that are small, **scale-like or awl-shaped** and hug the twig; and fruit that is berry-like, often with a whitish, waxy covering? These are **junipers**. Yes? **Go to 12.**



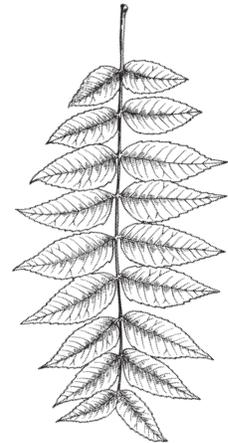
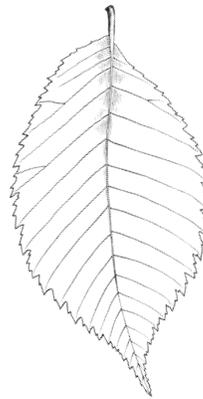
Scale-like foliage



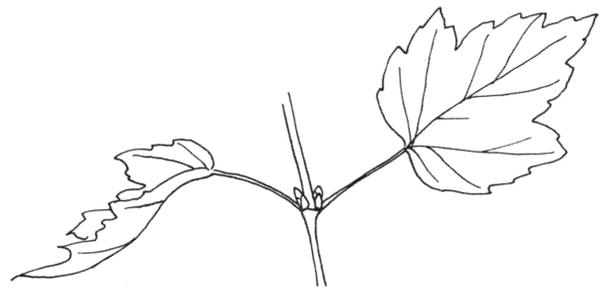
Awl-shaped foliage

-OR-

1. Does the tree have leaves that are **broad and thin**, and are deciduous (do not stay green or stay on the tree over winter) or evergreen? Yes? **Go to 2.**

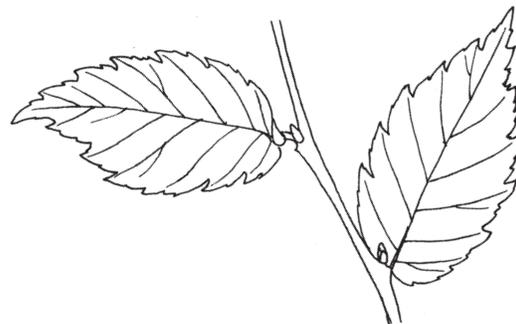


2. Are the leaves **opposite** each other on the twig? Hint: a missing leaf may make leaves appear to be alternate. Look for a bump or scar where leaves were attached, or look to see if twigs are opposite each other where they attach to the stem. Yes? **Go to 3.**



-OR-

2. Are the leaves **alternate** (not opposite each other on the twig)? Hint: some species have some of their leaves attached very close together on short spur shoots. In that case, look at leaves that aren't on spur shoots or look to see if twigs are alternate where they attach to the stem. Yes? **Go to 4.**



3. Are the **opposite leaves simple** (one blade attached to a stalk or petiole; some leaves may be compound on the same tree), and the leaves palmately lobed (like fingers on the palm of a hand)? Hint: the fruit is a winged samara in pairs. These are **maples**. Yes? **Go to 13.**

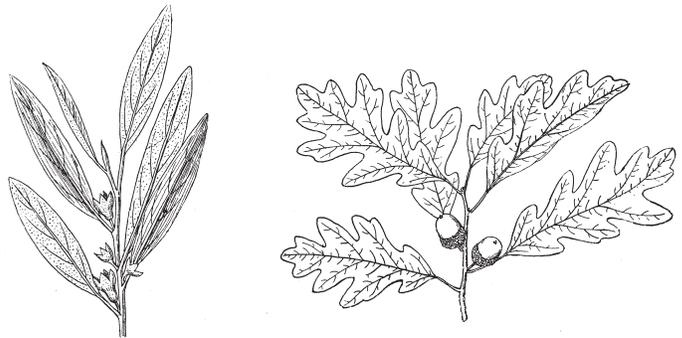


-OR-

3. Are the **opposite leaves compound** (three to many blades attached to one leaf stalk; some leaves may be simple on the same tree)? Yes? **Go to 15.**



4. Are the **alternate leaves simple**, or sometimes with many close together on short “spur” shoots? Yes? **Go to 17.**



-OR-

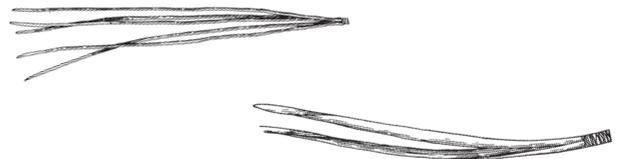
4. Are the **alternate leaves pinnately compound** (like a feather); and the fruit a bright orange-red pome (multi-seeded and apple-like)? Hint: this is usually shrubby but can be tree-sized. Yes? It is a **Greene mountainash** (*Sorbus scopulina*), not a true ash.



Immature fruit

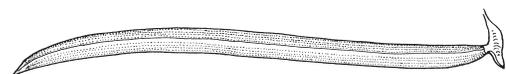
Mature fruit and leaves

5. Are the needles arranged in clusters of **two to five** and evergreen? These are **pin**es. Yes? **Go to 6.**

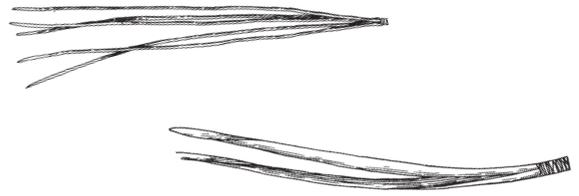


-OR-

5. Are the needles arranged **singly** and evergreen; and the fruit a woody or papery cone of scales with seeds? Yes? **Go to 8.**



6. Are needles **clustered in twos and/or threes**; and the cone scales thick and with or without prickles? Yes? **Go to 7.**



-OR-

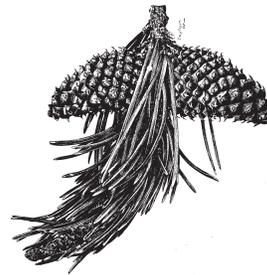
6. Are the needles mainly **clustered in fives**; and the cones 3" to 10" long, the scales without prickles? Hint: the young branches are very flexible. Yes? It is a **limber pine** (*Pinus flexilis*).



Flexible twig



7. Are the needles mainly **clustered in twos**, 1" to 3" long; with the cones unsymmetrical, often remaining closed and attached to the tree for many years, the scales armed with a sharp spine? Yes? It is a **lodgepole pine** (*Pinus contorta*).

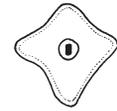


-OR-

7. Are the needles **clustered in twos and threes** on the same tree, 4" to 7" long? Is the tree found throughout the West? Hint: these are not native in Logan Canyon, but there are plantings at the Tony Grove turn-off and elsewhere. These are also native to mountainous areas in much of the rest of Utah. Yes? It is a **ponderosa pine** (*Pinus ponderosa*).



8. Are the needles fairly sharp pointed, easy to roll between two fingers (**four-sided or diamond-shaped in cross section**), and held on the twig on peg-like projections that persist after the needle falls? Hint: The cones are papery. These are **spruces**. Yes? **Go to 9.**



Leaf cross-section, enlarged

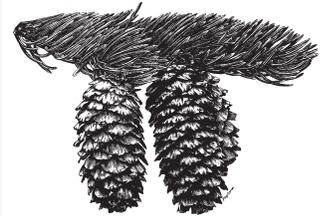
-OR-

8. Are the needles not sharp pointed, not easy to roll between two fingers (**flat in cross section**), and not held on the twig on peg-like projections? Yes? **Go to 10.**



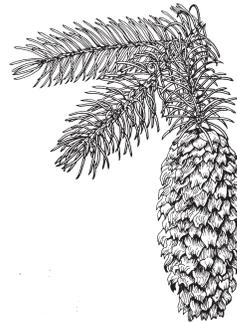
Leaf cross-section, enlarged

9. Are the **cones 1" to 2 1/2" long**; and the needle tips somewhat blunt? Yes? It is an **Engelmann spruce** (*Picea engelmannii*).

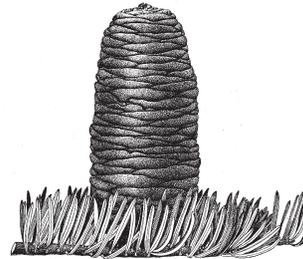


-OR-

9. Are the **cones 2 1/2" to 4 1/2" long**; and the needle tips sharp and bristled? Hint: these are not native to Logan Canyon but some are planted at home sites. These are native in mountainous areas in much of the rest of Utah. Yes? It is a **blue spruce** or **Colorado blue spruce** (*Picea pungens*).



10. Are the needle bases not stalked; the **cones erect** (at the top of the tree's canopy) with **scales that fall off** when mature; and the buds rounded? These are **true firs**. Yes? **Go to 11.**



-OR-

10. Are the needle bases narrowed so the needle appears stalked; the cones hang down and drop off in one piece with a bract that curves out from under each scale (this **bract resembles the legs and tail of a mouse** that has crawled up under the scale); and the buds are pointed? Yes? It is a **Douglas-fir** (*Pseudotsuga menziesii*), not a true fir.



Cone with bracts

11. Are the **needles 2" to 3" long** and silver-green to silver-blue? Yes? It is a **white fir** (*Abies concolor*).



Upright cone

-OR-

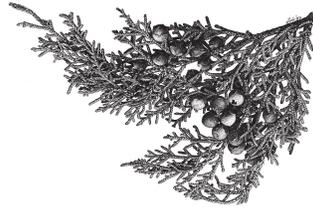
11. Are the **needles less than 2" long** and darker blue-green? Yes? It is a **subalpine fir** (*Abies lasiocarpa*).



Upright cones



12. Is the **fruit red-brown colored**, $\frac{1}{4}$ " to $\frac{3}{4}$ " in diameter; and the foliage light yellow-green? Yes? It is a **Utah juniper** (*Juniperus osteosperma*).



-OR-

12. Is the **fruit blue colored**, $\frac{1}{4}$ " to $\frac{1}{3}$ " in diameter; and the foliage blue green? Yes? It is a **Rocky Mountain juniper** (*Juniperus scopulorum*).



13. Are the leaves mostly 2" wide or wider, with **edges that have few rounded teeth or no teeth** and rounded angles between the lobes? All leaves are simple? Yes? **Go to 14.**



-OR-

13. Are the leaves 2 $\frac{1}{2}$ " wide or less, with **sharply toothed edges** and sharp angles between the lobes? Is there a mix of simple and compound leaves on the same tree? Yes? It is a **Rocky Mountain maple** (*Acer glabrum*).

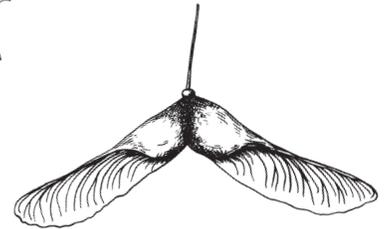


14. Are the leaves 2" to 5" wide, three- to five-lobed, with **watery sap** coming from the petiole (leaf stalk) when broken? Hint: these are native to Logan Canyon. Yes? It is a **canyon maple**, or **bigtooth maple** (*Acer grandidentatum*).

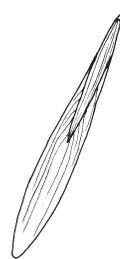


-OR-

14. Are the leaves 5" to 7" wide, five- to seven-lobed, with **milky sap** coming from the petiole when broken? Hint: these are not native to Logan Canyon; a few are found in developed areas in the lower part of the canyon. Yes? It is a **Norway maple** (*Acer platanoides*).



15. Is the fruit a single or double **samara** (winged, dry fruit)? Yes? Go to 16.



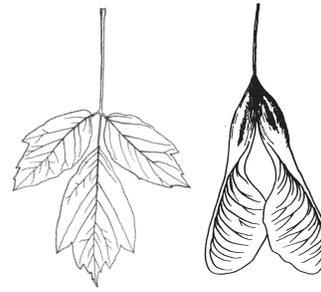
-OR-

15. Is the fruit a **blue-black berry** held in flat-topped bunches with sweet, juicy flesh; the leaves with 5 to 9 leaflets; and the flowers are yellow-white? Hint: this often does not reach tree size. Yes? It is a **blue elder** or **blueberry elder** (*Sambucus cerulea*).



16. Is the **fruit a double samara**; the leaves are all compound; the leaves with mostly three to five leaflets that are lobed or coarsely toothed; and with twigs green to purplish-green? Yes? It is a **boxelder** (*Acer negundo*; not a true elder).

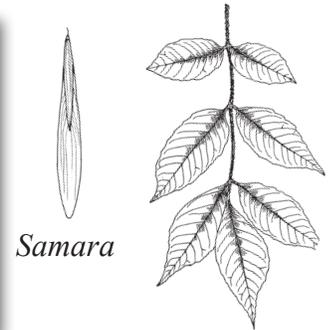
-OR-



16. Is the **fruit a double samara**; the leaves simple and compound on the same tree? Yes? It is a **Rocky Mountain maple** (*Acer glabrum*). Go to 13 for details.

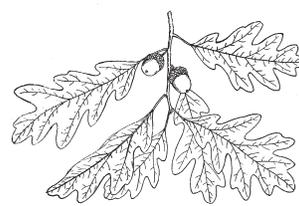
-OR-

16. Is the **fruit a single-winged samara**; the leaves with five to 13 (occasionally three) leaflets? Hint: these are not native to Logan Canyon; only a few are found in developed areas in the lower part of the canyon. Yes? It is a **green ash** (*Fraxinus pennsylvanica*).



17. Are the leaf edges toothed or lobed; and the leaves, twigs, and fruit **not** covered with silvery scales? Yes? **Go to 18.**

-OR-



17. Are the leaf edges smooth (no teeth); and the leaves, young twigs, and small, olive-like fruit covered with **silvery scales**; with thorns often present? Hint: these are not native to Logan Canyon, but have seeded naturally in the lower part of the canyon. Yes? It is a **Russian-olive** (*Elaeagnus angustifolia*), not a true olive.



Fruit and thorns

18. Are the leaf edges not lobed and the fruit is not an acorn? Yes? **Go to 19.**

-OR-

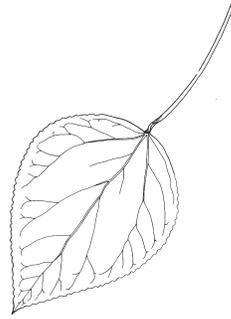


18. Are the leaf edges lobed; and the **fruit is an acorn**? Hint: this is a small tree to large shrub and is not found in Logan Canyon, but is native just to the south in Weber County. Yes? It is a **Gambel oak** (*Quercus gambelii*).



19. Do the leaves not have flattened petioles? Yes?
Go to 20.

-OR-



19. Do the leaves have **flattened petioles**, or stalks?
Hint: the leaves flutter in the wind and the bark is
greenish-white to white. Yes? It is a **quaking aspen**
(*Populus tremuloides*).



20. Is the fruit not a small, woody cone; and the buds
are not stalked? Yes? **Go to 21.**

-OR-

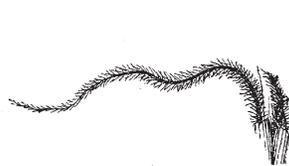


20. Is the fruit a small, woody cone; with the **buds**
bright red and on stalks? Hint: this is a shrubby tree
that grows near water. Yes? It is a **thinleaf alder** or
mountain alder (*Alnus tenuifolia*).



21. Is the small, dry fruit tipped with a long, hairy
corkscrew-twisted tail or plume that is 2" to
3" long; with the growth form somewhat shrub-
like? These are **mountain-mahogany** (not a true
mahogany). Yes? **Go to 22.**

-OR-



21. Is the fruit not tipped with such a tail or plume?
Yes? **Go to 23.**



22. Are the leaves not toothed, **leathery**, and most are **persistent through the winter**? Yes? It is a **curlleaf mountain-mahogany** (*Cercocarpus ledifolius*).



Plumed fruit

-OR-

Are the leaves **toothed**, not leathery, and **not persistent through the winter**? Yes? It is a **true mountain-mahogany** (*Cercocarpus montanus*).



23. Is the bark on older trunks not smooth and shiny bronze to purple-gray? Yes? **Go to 24.**

-OR-

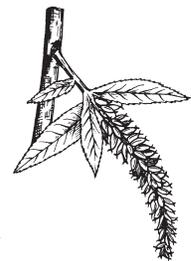
23. Is the bark on older trunks smooth, and **shiny bronze to purple-gray**? Hint: this tree usually grows in large, dense clumps near water. Yes? It is a **water birch** or a **river birch** (*Betula occidentalis*).



Younger bark

24. Is the **fruit a small, dry capsule** containing hairy, tufted seeds? Yes? **Go to 25.**

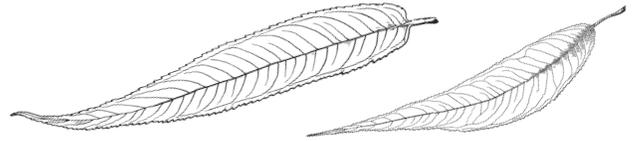
-OR-



24. Is the **fruit fleshy**, not a capsule? Hint: both of these often are shrubby, but can reach small tree size. Yes? **Go to 27.**

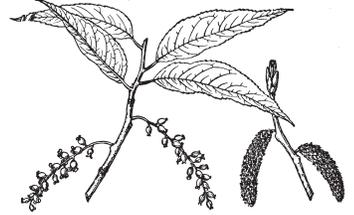


25. Do the twigs not have a terminal bud, the lateral buds covered with a single cap-like scale? These are **willows**. Yes? **Go to 26.**



-OR-

25. Do the twigs have a distinctive **terminal bud covered with several scales** (buds may not be visible when twigs are growing in the spring and early summer); with narrow, lance-shaped leaves? Yes? Hint: the tree's canopy often is narrow. It is a **narrowleaf cottonwood** (*Populus angustifolia*).

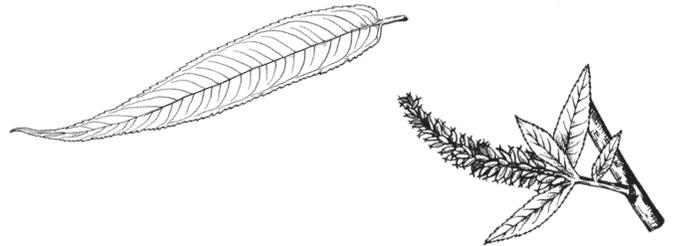


26. Are the leaves 2 ½" to 4" long and **whitish below**? Hint: this often has a tree form but may be shrubby, and is native to wet areas in Logan Canyon. Yes? It is a **peachleaf willow** (*Salix amygdaloides*).

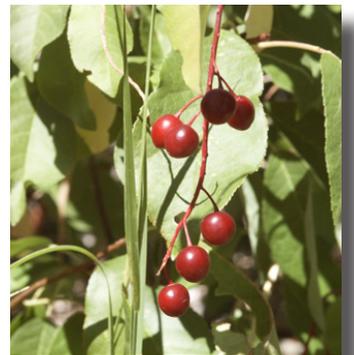


-OR-

26. Are the leaves 3" to 6" long and **green below**? Hint: this always takes a large tree form and is not native to Logan Canyon, but is planted in several campgrounds, including Guinavah-Malibu. Yes? It is a **crack willow** (*Salix fragilis*) or **black willow** (*Salix nigra*).

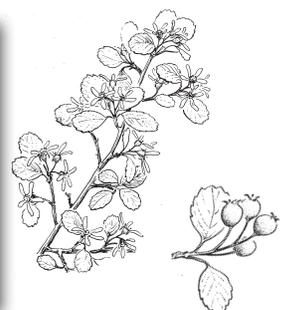


27. Is the **fruit a single-seeded cherry** (also called a drupe), less than ½" in diameter; with the leaves about 3" long? Hint: stems of these small, shrubby trees usually have sections covered with a disease called black knot, which looks like the name implies. Yes? It is a **common chokecherry** (*Prunus virginiana*).



-OR-

27. Is the **fruit a small pome** (multi-seeded and apple-like), turning dark blue to purple at maturity; with the leaves about 1 ½" long? Yes? It is a **Utah serviceberry**. (*Amelanchier utahensis*).



For More Information

- For detailed information on these trees, look in *A Guide to the Trees of Utah and the Intermountain West* by Mike Kuhns from Utah State University Press.
- Another good source for detailed tree descriptions and characteristics is Michael Dirr's *Manual of Woody Landscape Plants*.
- For northern Utah-specific guides, go to forestry.usu.edu/htm/treeid and click on "Checklist Logan Canyon" and "Checklist Tony Grove."
- Read definitions of botanical and tree-related terms in the Tree and Botanical Glossary at forestry.usu.edu/htm/treeid/tree-and-botanical-glossary.
- You can find photos for the species in this key and over 200 other species at the USU Tree Browser. Go to <http://treebrowser.org> to access this database of trees, many of which are suitable for Utah landscapes.

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- Page 1: left (Dirr 1975), middle (Otis 1925), right (Sudworth 1915).
- Page 2: top all (Dirr 1975), mid left (Otis 1925), mid middle (USDA 1979), mid right (Otis 1925), bottom all (Dirr 1975).
- Page 3: top (Otis, 1925), Sudworth (1915), middle (Otis 1925), bottom (Dirr 1975).
- Page 4: top (Otis 1925), (Sargent 1905), middle (Garcke 1908), (Sargent 1905), (Hayes & Garrison 1960), bottom (Otis 1925).
- Page 5: top (Otis 1925), (Sudworth 1908), middle (Sudworth 1908), bottom (Sargent 1905).
- Page 6: top (Otis 1925), (Sudworth 1908), middle (Sudworth 1908), (Otis 1925), bottom (Sudworth 1908).
- Page 7: top (Sudworth 1908), middle (Sudworth 1908), bottom (Sargent 1905) (Otis 1925) (Sargent 1905).
- Page 8: top (Sargent 1905) (Otis 1925), middle (Otis 1925), bottom (Hayes & Garrison 1960) (Sudworth 1908).
- Page 9: top (Otis 1925), middle (Sargent 1905) (Otis 1925) (Garcke 1908), bottom (Otis 1925) (Hayes & Garrison 1960), (Sargent 1905).
- Page 10: (Otis 1925), middle (Sudworth 1908), (Otis 1925), (Hayes & Garrison 1960), bottom (Sudworth 1908), (Otis 1925), (Sudworth 1908).
- Page 11: (Sudworth 1908), middle (Sudworth 1908),

- bottom (Otis 1925) Elmore (1976).
- Page 12: (Otis 1925) (Sargent 1905), middle (Otis 1925) Photo (Matt Lavin), bottom (Otis 1925) (Elmore 1976).
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