

Identifying Common Landscape Tree Species Along Colorado's Front Range



COLORADO STATE UNIVERSITY
EXTENSION

Bud\Leaf Arrangement

A. Alternate- Go to Page 2



Alternate leaf arrangement

Genera: hackberries (*Celtis*), hawthorns (*Crataegus*), walnuts (*Juglans*), apple (*Malus*), poplars (*Populus*), cherries (*Prunus*), pears (*Pyrus*), oaks (*Quercus*), mt. ashes (*Sorbus*), lindens (*Tilia*), elms (*Ulmus*), legumes (Various genera) and etc.

B. Opposite- Go to Page 3



Opposite leaf arrangement

Genera: maples (*Acer*), buckeyes (*Aesculus*) and ash (*Fraxinus*)

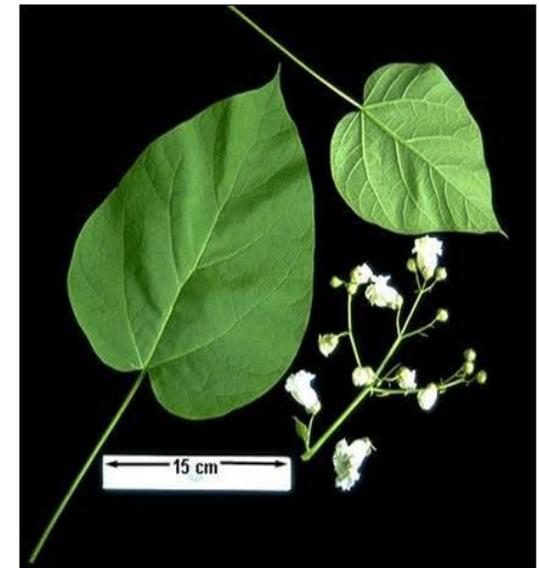
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C. Whorled- Northern catalpa



Whorled leaf arrangement:
three buds per node



Northern catalpa - Leaves and flowers

2- Alternate Leaf Arrangement



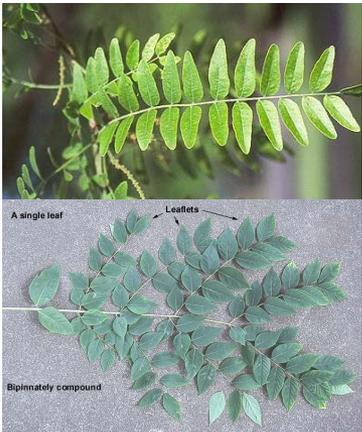
Common Species With Alternate Leaf Arrangement by Leaf Type

A. Simple Leaves- Go to Column 1



Simple leaf-
one single
undivided
leaf

B. Compound leaf- Go to Column 2



Compound
leaf- multiple
leaflets per
bud

1. Alternate with simple leaves

1a. Simple leaf which is fan-shaped, short spurs on twigs, pale bark- **ginkgo**

1b. Simple leaf with pinnate lobes, cluster terminal buds and acorns- **oaks**

Common Species: English Oak, Bur Oak, gamble oak and red oak



1c. Simple leaf with unequal base

- i. Unequal base, doubly serrate and circular samara fruit-**elms**
- ii. Unequal base, signally serrate, nipple gall common, purple drupe fruit and "warty" gray bark- **hackberry**

1d. Simple leaf with heart -shape (cordate)

- i. Heart-shaped leaves, zigzag twigs and pod fruit- **redbud**
- ii. Heart-shaped leaves, nutlet fruits, banana-shaped bract and smooth tear drop shaped buds: **lindens**

1d. Simple leaf, drupe fruit and glands at the base of the leaf- **cherries and plums**

1e. Simple leaf, pome fruit

- i. Pome fruit more oblong, buds mostly hairless- **pears**
- ii. Pome fruit more globose buds smooth and glossy often armed with thorns- **hawthorns**
- iii. Pome fruit more globose, buds and midrib of leaf often pubescent- **apples**

1f. Simple leaf, catkin flowers, often longer petiole-

- i. Buds resinous - **cottonwoods**
- ii. Buds non-resinous, bark white even on mature trees- **aspen**

2. Alternate with compound leaves

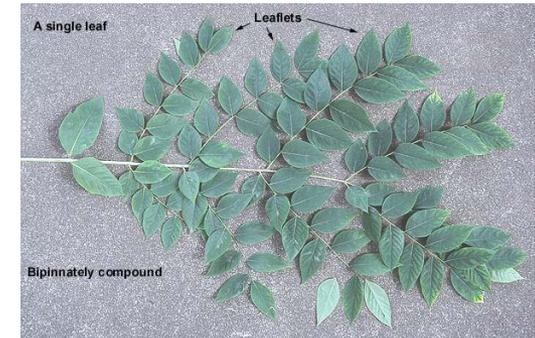
2a. Pinnately Compound Leaf



Pinnately
Compound Leaf-
Leaflets arranged
like a feather

- i. Terminal bud present, chambered pith, leaflets larger and leaves longer- **black walnut**
- ii. Large pubescent terminal bud, solid pith, small serrated leaflets orange to red pome fruits in clusters: **mountain ash**
- ii. No terminal bud, small glossy leaflets, twigs zigzag and are swollen at nodes- **thornless honeylocust**
- iii. No terminal bud, small dull leaflets, short thorns in pairs, pod fruit- **black locust**
- iv. No terminal bud, leaflets serrated, 'paper lantern' fruits, smaller tree- **panicled golden rain tree**

2b. Bipinnately Compound Leaf- **Kentucky coffee tree**



3- Opposite Leaf Arrangement



Common Species With Opposite Leaf Arrangement by Leaf Type

A. Simple Leaves- Go to Column 1



Simple leaf-
one leaf per
bud

1. Opposite with simple leaves- maples (excluding boxelder- *Acer negundo*)

1a. Common maples with clustered buds

- i. Large clusters of brown buds, deeply lobed leaves silver exfoliating bark – silver maple
- ii. Clusters more red (not always true) leaves less deeply lobed- autumn blaze (Freeman) maple



Autumn blaze maple,
leaf and buds

Silver maple leaf and
buds

1b. Common maples without clustered buds

- i. Smaller tree (~20ft or less), leaves nearly unlobed- tatarian maple
- ii. Stout branches, larger terminal bud, bleeds milky sap when leaves are removed- Norway maple
- iii. Buds scaly and pointed- sugar maple



Plump terminal bud of
Norway maple



Pointy buds of sugar
maple

2. Opposite with compound leaves

2a. Palmately Compound Leaf- Ohio buckeye or horse-chestnut



Palmately Compound Leaf- Leaflets arranged like fingers on a hand (horse-chestnut pictured)

2b. Pinnately Compound Leaf



Pinnately
Compound Leaf-
Leaflets arranged
like a feather

- i. Leaves have 3-5 leaflets, twigs waxy, double samara fruit born in pendulous chains - boxelder
- ii. Leaves have 5 or more leaflets, bud covered with short hairs, single samara fruit- ash



Waxy twig of boxelder
(more green in summer)



White ash twig

2. Compound leaf- Go to Column 2



Compound
leaf- multiple
leaflets per
bud



Identifying Common Landscape Conifer Species Along Colorado's Front Range



Conifers by Leaf Type

A. Leaves scale or awl-like-

1. All leaves scale like, branchlets flat and small woody cone- **arborvitae (*Thuja sp.*)**



Flat branchlets of scale like leaves with both mature (left) and immature cones (right) of arborvitae

2. Leaf may be a mixture of scale and awl type and berry-like cone- **juniper (*Juniperus sp.*)**

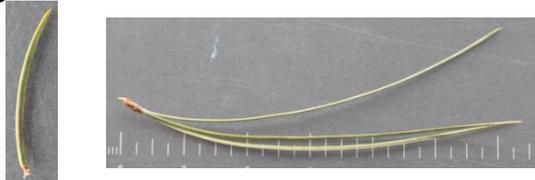


Scale (left) and awl (right) type juniper needles

Berry-like Juniper Cones

B. Leaves needle-like

- go to column 1



1. Needle-like leaves bundled in groups, woody cones- **pines (*Pinus sp.*)**



- 1a. Needles in groups of 2
 - i. Needles curve, cone resinous with large nut-like seeds- **pinyon pine**
 - ii. Needles straight or nearly straight cone small and dark brown- **mugo pine**
 - iii. Needles twisted, bark orange and exfoliating- **Scots pine**
 - iv. . Needles longer and stiff, buds silvery **Austrian pine**
- 1b. Needles in groups of 2 and 3- **ponderosa pine**

- 1c. Needles in groups of 5
 - i. Needles dotted with resin- **bristlecone pine**
 - ii. Needles soft and flexible, cone much longer than wide- **eastern white pine**
 - ii. Needles stiffer, twigs very flexible- **limber pine**

2. Needle-like leaf and singular

- 2a. Needles singular, square in cross section, born on woody pegs, cones papery and pendulous- **spruces (*Picea sp.*)**



Spruce needle



Woody pegs at base of spruce needles

- 2a. Needles singular, flat, flexible, and sessile (no petiole). Leaf scar circular, buds often more rounded, cones erect and deciduous (fall apart in the fall)- **true firs (*Abies sp.*)**



Circular leaf scar of true firs

- 3a. Needles singular, flat, and attached by petiole to twig. Leaf scar oval, buds pointed, cones pendulous with 'rat tail'. like bracts. **Douglas-fir (*Pseudotsuga menziesii*)**