



Colorado Willows

Identification of Common Willows in Colorado

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All photos by Stef Ringgenberg unless otherwise noted.

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Acknowledgements

Measurements borrowed from Robert D. Dorn's *Rocky Mountain Region Willow Identification Field Guide*,

Special thanks to Gwen Kittel who taught me the willows. Her vegetative key is the best.

Description

The identification of the many willow shrubs can be difficult and often frustrating. Often positive ID cannot be made without the presence of the pistillate catkins. Leaf length and width can be quite variable depending on the health of the plants and the growing conditions in which they live. Drought conditions can make normally wide leaves quite narrow. Hybridization between species is not uncommon, and there can be significant variation of plants within a species. Identification can be further complicated by injury to the willows caused by the feeding of elk or moose, which can leave an unhealthy plant.

This document was developed to help me remember the factors used to differentiate the willows. I'm an arborist with over forty years' experience. I can identify most trees from my car as I pass them at fifty miles per hour. That's not the case with willow shrubs. They are difficult.

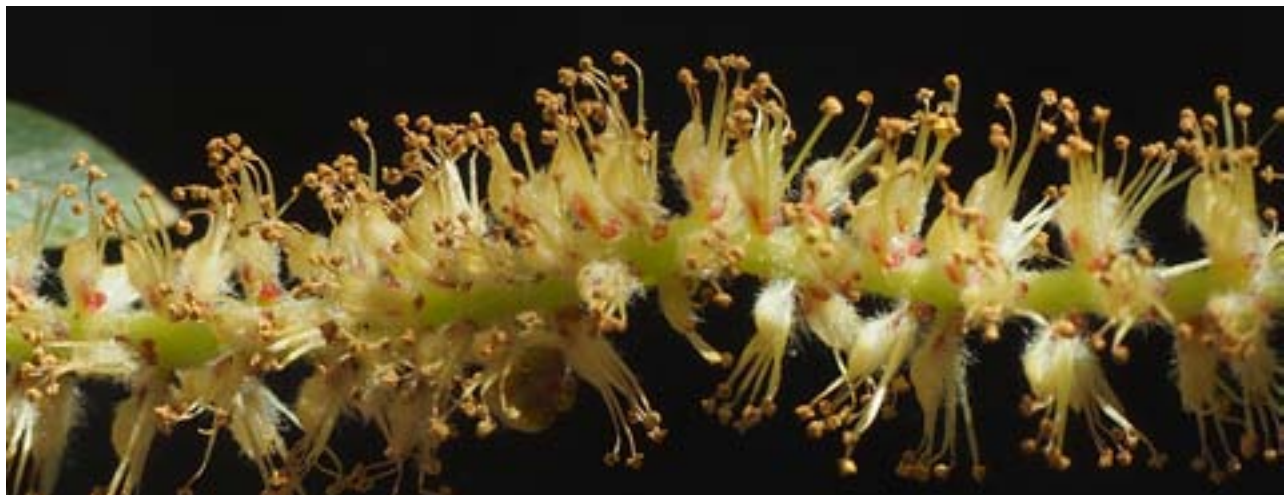
This document tries to separate the willows into easily identified groups that narrow the possibilities for what a plant could be. Is it a tree or is it a shrub? Is a shrub large (over 5 feet tall), small (under 5 feet - usually found at higher altitudes), or is it tiny (under 6 inches high - usually found above timberline)?

Are the twigs pruinose, that is, do the twigs have a white coating that easily rubs off like on a plum? There are only a few species that do. Are the undersides of the leaves glaucous? Again that's a white coating that easily rubs off? On the twigs it's called pruinose, and on the underside of the leaves it's called glaucous. Both characteristics, when present, put the plant into a much smaller group of possible species for identification.

Once a plant is placed into a group, for example, a tall shrub without pruinose twigs and with glaucous leaves, things get more difficult. I usually carry a book of plant identification terminology along with a guide to the willows. There are thousands of terms that are used to describe the subtle differences between the species of willows. I've tried to keep the terminology simple in this document.



Tree Willows



A catkin consists of multiple flowers. Each male flower has multiple stamens. Most Colorado willows have two stamens per flower. The catkin pictured above shows more than two stamens per flower. This is a catkin from the peach leaf willow, *Salix amygdaloides*. The peach leaf willow can have from 3 to 9 stamens per flower. This feature distinguishes the peach leaf willow from the other common tree form willows in Colorado. (Black willow and Goodding willow have more than 2 stamens per flower, but they are rare and only exist near the state's borders.)

Crack Willow (*Salix fragilis*)



Size: Large tree up to 25 meters tall. This is the most common large willow tree along the Front Range.

Leaves: Lanceolated to narrowly elliptic, 3-17 cm long, coarsely serrate, strongly glaucous underneath.

Twigs: Branches ascending, not pendulous. Branchelets very brittle, break easily.

Catkins: 2.5- 8 cm long. 12-20 mm wide. Mostly pistillate catkins. May not find any staminate catkins.

Stamens: 2 per flower.



Capsule: 4-7 mm long, glabrous, Stipe 1.2-3 mm long, Style about 0.2 mm long. Known to hybridize with *Salix alba*. (Many *Salix fragilis* in Colorado are miss-identified as *Salix alba* var. *vitellina* or as a cross with *Salix alba*. Dorn puts all specimens in *S fragilis*. I believe him to be wrong.)

Habitat: Introduced tree in towns, parks and homesteads. Colonizes waterways quickly. 4500- 6800 feet in elevation.



White Willow (*Salix alba*)



Size: Large tree up to 30 meters tall

Leaves: 8-16 cm long and 1-4 cm wide. Green on top and silvery glaucous on the bottom. The bottom of the leaves are finely and sparsely hairy.

Twigs: Second years growth yellowish and glabrous (no hair). New growth yellow with a reddish tint and fine hairs that are sparse.

Catkins: Mostly staminate catkins and are 7 - 10 cm long. May not find any pistillate catkins.

Stamens: 2 per flower.

Habitat: Introduced by farmers so usually on the plains, though they can be found in the foothills canyons.

Distinguishing Features: The twigs are more yellowish orange than crack willow, particularly in the spring.



Peachleaf Willow (*Salix amygdaloides*)



Size: Large shrub or, more commonly, a small tree up to 12 meters tall

Distinguishing Features: Small multi-stem tree with crooked limbs. Bud scales with free overlapping margins. Leaves glaucous.

Leaves: 6-10 cm long and 1-2 cm wide. The leaves are pale green, and glaucous below. Leaves are elliptical to lanceolate and have entire to serrulate margins with an acuminate tip. The leaves appear to droop as the petioles are weak.

Twigs: New growth yellow to gray and are glabrous.

Catkins: Appear with the leaves in April or May. 2.5-11 cm long.

Stamens: 3 to 9 per flower. Capsules: glabrous 3-5.5 mm long

Styles: 0.3-0.6 mm long Stipes: 1.2-3.2 mm long

Trunk: Bark is dark and furrowed. Often multi-stemmed and is almost never a straight trunked upright tree. The leads are often near horizontal before turning upward.

Habitat: A native willow usually found on the plains or low canyons. Often near streams or other plentiful sources of water.



Weeping Willow (*Salix babylonica*)



Size: Medium sized tree up to 20 meters tall

Leaves: 7-15 cm long and 1-1.5 cm wide.
The leaves are pale green, and glaucous below. Leaves are linear and have finely serrate margins with a long acuminate tip.

Twigs: Branchlets are long and hang downward.

Catkins: 1-2.5 cm long. Mostly staminate catkins.

Stamens: 2 per flower.

Capsules: Glabrous, sessile. Styles lacking or .5mm long.



Trunk: Single stemmed up to three feet in diameter or larger.

Habitat: Introduced horticultural Tree. Usually found only in landscapes.



Globe Willow (*Salix matsudana*)



Size: Medium sized Tree - 10-15 meters tall.

Leaves: 5-10 cm elliptical. Entire to crenate.

Twigs: Green

Catkins: 2 cm long x .7 cm wide, 2 stamens per flower. Bracts: pale and long. Penducles 0.7-1 cm long and leafy

Capsules: glabrous, 3-5 mm long. Appear to be bisected longitudinally

Styles: 0.1- 0.3 mm long



Stipes: 0.2 -0.3 mm long.

Trunk: Single stemmed tree with a trunk that can exceed three feet in diameter.

Habitat: Introduced. Commonly planted on Colorado's Western Slope where it does well. The tree has many more problems on the eastern plains.



Black Willow (*Salix nigra*)

Size: Tree to 20m or more high

Distinguishing Features: Leaves not glaucous. Bud scales with free overlapping margins.

Leaves: Not glaucous on underside. Narrowly lanceolate or elliptic. 5-19 cm x 0.6-2.3 cm serrulate, glabrous to sparsely hairy.

Petioles: 2-15 cm long.

Twigs: Year old reddish-brown or dark yellowish brown.

Catkins: Appear with leaves, 1.7-9 cm long. Peduncles 0.4-4.5 cm long and leafy.



Capsules: Glabrous 3-6 mm long

Stamens: 3-9 per flower

Styles: 0.1- 0.4 mm long

Stipes: 0.5-2 mm long

Habitat: Rare in Colorado. Only found in the southeast most county. Claims of its presence elsewhere in the state have proven erroneous. In other states, it's found on stream banks, shores, and flood plains



Goodding Willow (*Salix gooddingii*)



Size: Tree to 30m high

Distinguishing Features: Leaves not glaucous. Bud scales with free overlapping margins. Similar to black willow but found in different ranges.

Leaves: Not glaucous on underside. Front and back sides of the leaves look nearly the same. Linear or narrowly lance-linear or elliptic. 6-13 cm x 0.8-1.6 cm serrulate or serrate, glabrous. Petioles 3-10 cm long.

Twigs: Year old yellowish or pale yellowish-brown.

Catkins: Appear with leaves, 2.2-8 cm long.

Peduncles 0.4-3 cm long and leafy.

Capsules: Glabrous or hairy 3-7 mm long

Stamens: 3-9 per flower

Styles: 0 - 0.4 mm long

Stipes: 1-3.2 mm long.

Habitat: Rare in Colorado. Only found in the extreme western portion of the state. Stream banks, shores, and flood plains. 4400-5200 feet.

Note: the author has only found one in Colorado so far, and it was crowded in a grove of other trees. The lack of a glaucous coating on the back of the leaf distinguishes this from *Salix amygdaloides*.



Laurel Willow (*Salix pentandra*)

Size: Shrub or Tree to 16m.

Distinguishing Features: Very Shiny dark green leaves. Unique trunk bark.

Leaves: Not glaucous on underside but paler. Broadly lanceolate or elliptic. 5-8 cm x 1.2-2.2 cm (Dormant state leaf can be 13.5 cm long, but this hasn't been observed in Colorado) serrate, glabrous. Petioles 5-10 mm long.

Twigs: Year old twigs are green.

Catkins: Produced after the leaves. 3-5 cm long.



Peduncles 1.2 - 4 cm long and leafy.

Capsules: Glabrous 6-9 mm long. Glabrous

Stamens: 4-10 per flower

Styles: 0.2 - 0.7 mm long

Stipes: 0.2-1.6 mm long.

Habitat: Naturalized from Asia. Rare in Colorado.





From the top Crack, Peachleaf, White, and Coyote willows

Winter Buds

Willow are pretty unique in that they have a single bud scale. Most plants have multiple bud scales. Most willow have the bud scale fused so that there is no seam. Some willow like the Peachleaf will have free overlapping bud scales where one edge of the scale overlaps the other.

Some of the winter buds appear desiccated while others remain turgid. The crack willows, the peachleaf willows, and the bebb willows all appear dried out, while the white willow (*Salix alba*) appears fully hydrated. Weather conditions will have an impact on the appearance of the buds.



Bebb Willow Buds



From the top Monticola, Ligulifolia, Lasiandra, Irrotata, Drummond, Geyer, Serissima, and bebbiana

Salix monticola (mountain willow) has buds that are plump, blunt, fairly large and yellow, though sometimes they can take on a reddish cast. *Salix ligulifolia* has buds that are reddish and rounder and shorter.

Salix lasiandra buds are yellow plump and look similar to the *monticola* buds, but have a turn to the outside at the tip.

Salix irrorata buds look very much like *ligulifolia* buds but the stems have a white pruinose coloration that *ligulifolia* does not. Look under the buds for the pruinose coloration. *Salix drummondiana* buds are yellow and look much like *monticola* buds, but they are more pointed and have a white pruinose coloration on the twigs or just under the buds. *Salix geyeriana* buds are much smaller than all of the above, are oval in shape, and usually are associated with a strong pruinose coloration.

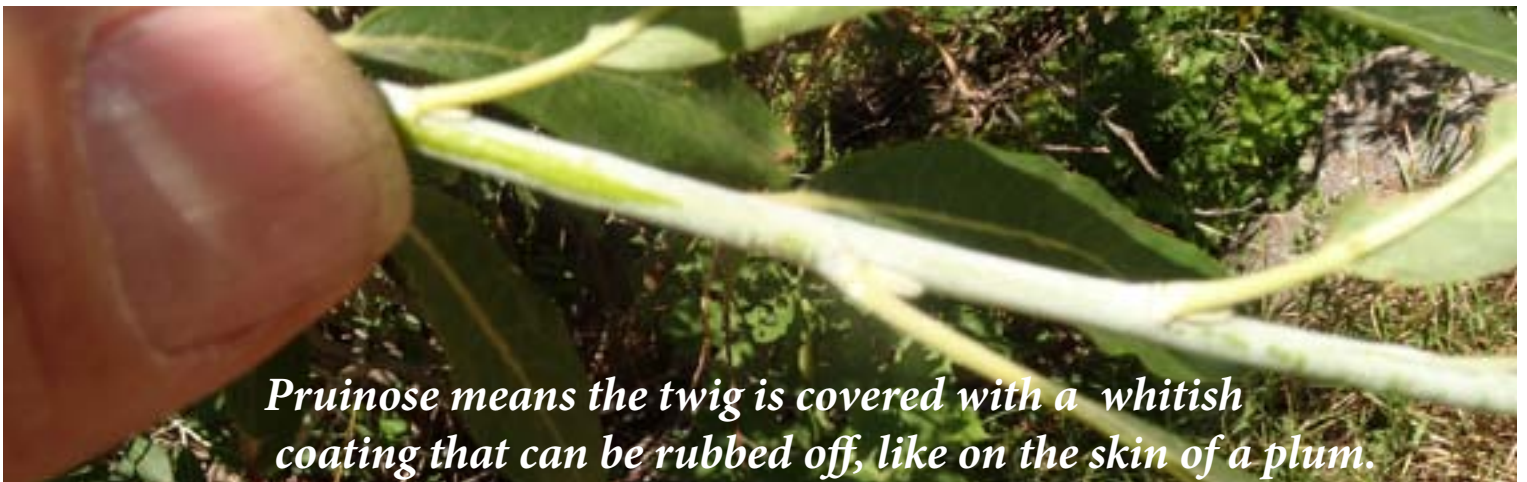
The only *Salix serissima* buds the author has seen are desiccated and are reddish. More observation is needed.

Salix bebbiana buds are small and have a desiccated appearance.

Larger Shrub Willows



Shrub Willows with Pruinose twigs



Pruinose means the twig is covered with a whitish coating that can be rubbed off, like on the skin of a plum.

Geyer Willow (*Salix geyeriana*)



Size: Medium Sized Shrub to 7 m.

Distinguishing Features: pruinose twigs, narrow leaves, small catkins.

Leaves: Average leaf blades never more than 13 mm wide. Light to pale yellowish green leaves. Glaucous on underside, sometimes only slightly so. 2-8 cm long x 0.6 - 1.3 cm wide. Usually hairy on both sides but especially below.

Twigs: Pruinoso, Glabrous. Small twigs reddish when the pruinose covering is rubbed off, but twig color can be mixed with green and dark tan. Older branches are green.

Catkins: 0.6 - 2 cm long, 2 stamens per flower. (Distinguished from Drummond willow which has much longer catkins)

Capsules: hairy, 3-6 mm long.

Styles: 0.1- 0.8 mm long

Stipes: 1-3 mm long.

Habitat: Edges of swamps and low gradient stream banks that are not steep.



Drummond Willow (*Salix drummondiana*)



Size: Medium Sized Shrub to 6 m.

Distinguishing Features: pruinose twigs, leaves wider than 13 mm. Catkins longer than Geyer.

Leaves: Average leaf blades greater than 13 mm wide. Dark Green leaves. Glaucous on underside but usually obscured by dense hairs. Upperside of leaves glabrous or sparsely hairy. 4-11 cm long x 1.3 - 2.6 cm wide. Leaves margins entire or rarely crenate.

Twigs: Pruinoses, glabrous. Small twigs green when the pruinose covering is rubbed off.

Catkins: 1.5 - 6 cm long, 4-5 cm long on average. 2 stamens per flower. (Distinguished from Geyer willow which has much shorter catkins). Appear before the leaves. Peduncles lacking (sessile) or nearly so.

Capsules: hairy, 3-5.6 mm long.

Styles: 0.4- 1.8 mm long

Stipes: 0.1-2 mm long.

Habitat: Swamps and stream banks that can be steep. 6000-11000 feet.



Bluestem Willow (*Salix irrorata*)



Size: Medium Sized Shrub to 7 m.

Distinguishing Features: Twigs pruinose usually only on the previous years growth, not on the current year's twig.. Grows at lower altitude than Geyer or Drummond.

Leaves: Long and linear. Dark green. Glaucous on the underside. Glabrous or sparsely hairy. 4.7-11.5 cm long x 0.8-2.2 cm wide. Entire or slightly serrate.

Twigs: Pruinoses on 2nd year's growth but not on the current year's twig. , Glabrous.

Catkins: 1.8 - 4.2 cm long. 2 stamens per flower. Appear before the leaves.



Peduncles: 0-0.5 cm long, leaf when present.

Capsules: Glabrous, 3-5 mm long.

Styles: 0.2- 0.9 mm long

Stipes: 0.3-1.2 mm long.

Habitat: Grows only along stream banks in the foothills and plains along the Front Range in Colorado and Wyoming. (The exception is one county on southern colorado border) 5400-7700 feet.



Larger Shrub Willows



*Shrub Willows with
Narrow leaves
more than six times as long as wide*

Coyote Willow (*Salix exigua*)



Size: Multi-stem thickets, not clumps like most willows. 2-3 m tall. Rarely up to 8 meters. Not usually forming a distinct basal area.

Leaves: Long slender leaves. Linear, more than six times longer than wide. Usually Entire, occasionally serrulate. Usually hairy with densely white sericeous (small silky hairs). Occasionally glabrate. Silver colored at higher elevations and green at lower elevations. Color isn't the same on both sides of a leaf.

Twigs: New twigs white with hair. 2nd Year twigs reddish to pinkish, especially older twigs, often with flaking semi-transparent epidermis.

Catkins: 1.5 -10 cm long, 3-11 mm wide. Peduncles 0.5-18 cm long and leafy.

Capsules: 4-13 mm long mostly glabrous but can be very lightly hairy. **Styles:** 0-0.2 mm long. **Stipes:** 0-2mm long.

Habitat: Sand and cobble bars within the active channel, overflow channels, ditched, and seeps. *S. exigua* var. *exigua* 3500-9200 feet in elevation. *S. exigua* ssp *interior* 3500 – 5800 feet in elevation. Very common along the Front Range in Colorado.



Dusky Willow (*Salix melanopsis*)



Size: Medium sized shrub up to 15 feet tall

Distinguishing Features: Long narrow leaves that are not hairy. S. Exigua leaves are hairy. Short petioles 0.5 -6 mm long.

Leaves: Long slender leaves. Linear. 3-12 cm long x 0.2- 1.5 cm wide. Usually about 7 cm x 7mm. Not glaucous on the underside or hairy. Serrate edges with an acute tip. Both sides of the leaf look very much alike.

Twigs: Not prunose or hairy. Reddish green younger twigs with reddish tan older trunks.

Catkins: 1.5 -6.5 cm long, often about 3 cm. Appear with or after the leaves.

Capsules: 3-7 mm. Glabrous. Peduncles 0.3 -7cm long and leafy. Styles less than 0.5 mm. Stipes less than 0.8 mm. Flower bracts pale and deciduous.

Habitat: Stream banks and flood plains. 5600 - 9900 feet of elevation. Not found on the Colorado front range or eastern plains but is found in the mountains and on the western slope.



Larger Shrub Willows



Shrub Willows with Glaucous Leaves



Glaucous means the leaf has a coating of a whitish or bluish coating that can easily be rubbed off.

The line points to where the coating has been rubbed off.

Mountain Willow (*Salix monticola*)



Size: Medium Sized Shrub to 6 m.

Distinguishing Features: Very long styles. Leaves glaucous and glabrous. Capsules glabrous. Leaves distinctly wider in the middle.

Leaves: Glaucous on underside. 3-8 cm long x 1.5-3.5 cm wide. Oval, Elliptical or wider at either end. Glabrous. Crenate, serrate, or serrulate. Petioles 5-14 mm long.

Twigs: Yellow green, Bright yellow in the winter. Sparsely pubescent.

Catkins: Long and Narrow 2-6 cm long x 1-1.4 cm long. 2 stamens per flower. Appear before or with the leaves. Peduncles: 0-0.8 cm long, leafy when present.

Capsules: Glabrous, 3-6 mm long.

Styles: 0.7-1.5 mm long. Usually over 1 mm long - much longer than ligulifolia.

Stipes: 0.3-1.5 mm long.

Habitat: Montane stream banks and wet places. 5700-11500 feet.



Strapleaf Willow (*Salix eriocephala* var. *ligulifolia*)



Size: Medium Sized Shrub to 6 m.

Distinguishing Features: Year old branchlets predominantly reddish-brown.

Leaves: Glaucous. Lancelate to elliptic. 5 -10 cm long x 1-2.5 cm wide. Leaf edges tend to be parallel rather than wider in the middle. Serrulate to entire. Glabrous. Petioles 3-12 mm long.

Twigs: Not Pruinose, Glabrous except new twigs. Year old twigs predominantly reddish brown. Older branches greenish tan.

Catkins: 2 - 6 cm long 2 stamens per flower. Appear with the leaves. Peduncles 0 - 0.9 mm. Leafy when present.

Capsules: Glabrous 3-5.6 mm long.

Styles: 0.1- 0.7 mm long

Stipes: 0.5-2 mm long.

Habitat: Stream banks, swamps, shores.



Bebb Willow (*Salix bebbiana*)



Size: Shrub or multi-stemmed tree to 10 m. Can have thicker trunks than most shrub willows - to 8 inches in diameter.

Distinguishing Features: Very long stipes, often long than the capsules. Leaves leathery and textured with the veins impressed into the leaf's upper surface.

Leaves: Small 1-4 (7) cm long. Glaucous on the underside. Leaves variable - can be entire, serrate, or crenate. Hairy or glabrate.

Twigs: reddish-purple or reddish brown on first year twigs. Older twigs and main stems are gray.

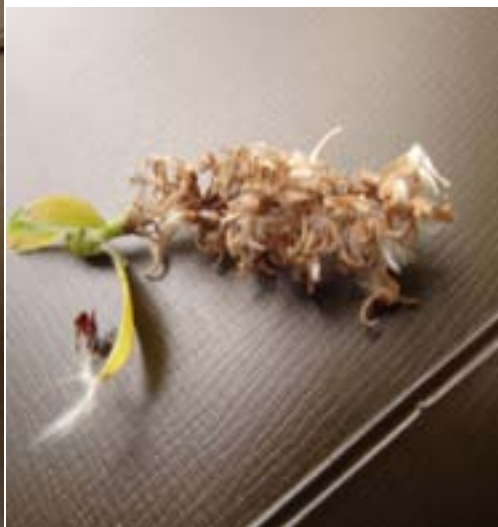
Catkins: 0.6 - 6 cm long. The tips of the capsules when mature curl back and touch the base of the capsule. 2 stamens per flower. Appear with or slightly before the leaves. Peduncles: 0.1-6 cm long and leafy.

Capsules: Hairy, 5 -9 mm long.

Styles: 0.1- 0.4 mm long

Stipes: 2-5 mm long, often longer than the capsule.

Habitat: Edge of wet areas such as swamps, wet woods, stream bands. 3400-10800 feet.



Scouler Willow (*Salix scouleriana*)



Size: Large shrub or tree to 20 m.

Distinguishing Features: The only large willow shrub that grows away from water. Leaves broadest beyond the midpoint.

Leaves: Glaucous on the underside. Elliptic to obovate 3-8 (10) cm long x 2-3 cm wide. Entire to irregularly serrulate or somewhat crenate. Hairy at least along the midrib on the underside. Petioles 3-10 mm long.

Twigs: Appear white from a velvety pubescence.

Catkins: 1.5 - 5 cm long . Appear before the leaves. Peduncles: 0 - 1.3 cm cm long and leafy when present.

Capsules: Hairy, 4.5 -11 mm long. Flower bracts: dark

Styles: 0.2- 1.1 mm long

Stipes: 0.8- 2.8 mm long.

Habitat: woods, slopes, well drained meadows.



Pussy Willow (*Salix discolor*)



Size: Shrub to 11 m high

Distinguishing Features: Leaves glaucous. Capsules hairy. Leaf margins coarsely crenate or serrate.

Leaves: Glauces on underside. Lanceolate to oblanceolate. 3-12 cm x 2-3 cm crenate or undulate to coarsely serrate, glabrous or nearly.

Petioles 6-17 mm long.

Catkins: Appear before the leaves, 2-8 cm long. Peduncles 0-2 cm long and leafy when present. The white fuzzy globes, for which pussy willow's are named, are the immature catkins.

Capsules: Hairy 5-11 mm long

Stamens: 2 per flower

Styles: 0.3- 2 mm long

Stipes: 1-3 mm long.

Habitat: Native pussy willows are rare in Colorado. Only found in extreme northern Larimer County. Of course, pussy willows are common in spring flower shops, and have been introduced into gardens. However, most pussy willows found in Colorado gardens are NOT *Salix discolor*. They are an introduced species, either *Salix caprea* or *Salix cinerea*.



Meadow Willow (*Salix petiolaris*)



Size: Shrub to 7 m high

Distinguishing Features: Leaves narrow and glaucous. Capsules hairy. Bebb willow has wider leaves, longer catkins, and a central trunk. Meadow willow has multiple smaller grayish stems. Geyer willow has pruinose twigs - Meadow willow does not. Meadow willow leaves are sharply serrate, while Geyer's leaves usually entire.

Leaves: Glaucous on underside. Narrowly lanceolate or elliptic, or sometimes oblanceolate. 2-15 cm x 0.8-2 cm Serrate, often sharply serrate, to subentire, glabrous or nearly.

Petioles 3-15 mm long.

Catkins: Appear with or slightly before the leaves, 1-3.5 cm long. Peduncles 0.2-2 cm long and leafy.

Capsules: Hairy 6-8 mm long

Stamens: 2 per flower

Styles: 0.1- 0.4 mm long

Stipes: 1-5 mm long.

Bracts: Pale and persistent in fruit

Habitat: Wet meadows, shores, and stream banks
2500 - 9000 feet.



Larger Shrub Willows



*Shrub Willows with
leaves not glaucous*

Whiplash Willow (*Salix lasiandra*)



Size: Tall shrub to 15m high, often taller than the surrounding willow species.

Distinguishing Features: Shrub is often taller than the surrounding willow species. Shiny leaves with a long pointed tip.

Two Varieties: var. *lasiandra* leaves glaucous underneath; var. *caudata* leaves not glaucous underneath.

Leaves: Lanceolate 3-20 cm long x 1-4.3 cm wide. Not glaucous on the underside. Serrate or serrulate. Usually glabrous. Long acuminate tip. Petioles 13-30 mm long.

Twigs: Appear white from a velvety pubescence.

Catkins: 2-7 cm long . Appear with the leaves. Peduncles: 0.8 - 6.5 cm long and leafy.

Capsules: Glabrous 4 -7 mm long. Flower bracts: dark

Styles: 0.2- 1 mm long

Stipes: 0.5- 4 mm long.

Habitat: Stream banks, shores, wet meadows, and seeps
4100-10000 feet.



Booth Willow (*Salix boothii*)



Size: Shrub to 6 m high.

Distinguishing Features: Leaves not glaucous. Capsules glabrous. Leaves not shiny.

Leaves: Lanceolate to elliptic or oblanceolate. 2-8 cm long x 0.8-2.5 cm wide. Not glaucous on the underside. Serrulate to entire. Hairy or glabrous.

Petioles 3-17 mm long.

Twigs: Not Hairy. green to tannish green.

Catkins: 1-5 cm long. Appear with or slightly before the leaves. Peduncles: 0.1 - 1 cm long and leafy.

Capsules: Glabrous 3 -6 mm long. Flower bracts: mostly dark

Styles: 0.2- 1.2 mm long

Stipes: 0.5- 2 mm long.

Habitat: Stream banks, swamps, wet meadows, and seeps 5000-10300 feet.



Autumn Willow (Salix serissima)



Size: Shrub to 5m high.

Distinguishing Features: Catkins maturing in late summer. Leaves glabrous. Glands on petiole near base of leaf.

Leaves: Lanceolate to elliptic. 4-10 cm long x 1.5-3.5 cm wide. Shiny. Not Glaucous or slightly glaucous on the underside. Serulate. Glabrous. Short acuminate tip. (Not as long as lasianandra's tip). Petioles 4-11 mm long.

Twigs: Not Hairy. New twigs green, older twigs tan. Old branches are gray.

Catkins: 1-5 cm long. Appear after the leaves. Peduncles: 1-5 cm long and leafy. Flower Bracts: pale and deciduous.



Capsules: Glabrous 3 -6 mm long. Flower bracts: mostly dark. Stamens 3-9 per flower.

Styles: 0.1- 0.8 mm long

Stipes: 0.8- 2 mm long.

Habitat: Cold Swamps and Bogs. 5600-9700 feet.



Smaller Shrub Willows



Usually under 5 feet high.

Planeleaf Willow (*Salix planifolia*)



Size: Shrub. Short at high altitude but can be larger at lower elevations to 5 m.

Distinguishing Features: Red twigs, capsules sessile. Prefers wet feet.

Leaves: 3.5-5 cm long x 0.9-1.5 cm wide. Glaucous underneath. Leaves glabrous to sparsely hairy with some reddish hairs on underside, shiny, entire. Petioles 3-13 mm long.

Twigs: Red to Dark Red, Pruinose coating may be

restricted to previous year's growth and does not obscure the twig's color.

Catkins: 1.5-6 cm long. Hairy. Stamens: 2 per flower. Bracts: dark and persistent.

Peduncles: Lacking. Sessile (no stalk, like a leaf with no petiole).

Styles: 0.4 -1.8 mm long

Stipes: 0-1 mm long

Habitat: Montane and subalpine elevations. Wet meadows, bogs, swamps. 5000-12400 feet.



Short Fruit Willow (*Salix brachycarpa*)



Size: Short shrub. 0.4-1.5 m tall

Leaves: Densely hairy on both sides. Elliptic to elliptic-ovovate shape. Entire. Grayish green color. Petioles 1-3 mm long. Leaves 2-4 cm long. Glaucous underneath.

Twigs: Current year twigs tomentose (Hairs that are flattened and matted).

Catkins: 0.5 – 2 cm long, hairy. Peduncle is prominent with leaves as big as other leaves.

Stamens: 2 per flower.

Capsules 4.5-7 mm long, densely pubescent. Stipes up to .5 mm long, Styles 0.5-1.5 mm long

Habitat: Subalpine valley bottoms, hillsides, dry rocky and talus slopes. 7500-12,000 feet in elevation.



Gray Willow (*Salix glauca*)



Size: Small shrub usually under 5 feet high.

Distinguishing Features: Similar to *S. brachycarpa* but petioles are longer, greater than 3 mm.

Leaves: Glaucous on underside. Elliptical to oblanceolate. 3- 8 cm long x 0.7 - 3.5 cm wide. Entire or sometimes serrulate towards the base.

Petioles: 3 - 10 mm long

Catkins: 2-5 cm long . Appear with the leaves. Peduncles: 0.5 - 3.5 cm. Long and leafy. Stamens: 2 per flower.

Capsules: Hairy 4-8 mm long. Flower bracts: Usually pale but sometimes dark. Persistent.

Styles: 0.3- 1.5 mm long

Stipes: 0- 2.5 mm long.

Habitat: Alpine and subalpine meadows and slopes. 8500-12500 feet.



Wolf Willow (*Salix wolfii*)



Size: Small shrub usually under 6 feet high.

Distinguishing Features: Leaves not glaucous, entire. Small short catkins. Capsules glabrous.

Leaves: 2-6 cm long x 0.5-1.5 cm wide. Not glaucous. Hairy on both sides but not densely hairy. Elliptic to oblanceolate. Light green to olive colored. Acute tip.

Petioles: 2 - 10 mm long

Twigs: Not prunose not hairy except when young. Older twigs are yellow in color. Trunk

bark is greyish brown.

Catkins: Very small 0.8-2 cm long. Appear with the leaves. Peduncles: 0 - 1.2 cm. Leafy when present. Stamens: 2 per flower.

Capsules: Glabrous 3.5-5 mm long. Flower bracts: mostly dark. Persistent.

Styles: 0.2- 1.3 mm long

Stipes: 0- 0.8 mm long.

Habitat: Wet mountain meadows 6600-11000 feet. Usually subalpine.



Silver (or Hoary) Willow (*Salix candida*)



Size: Small shrub usually under 3 feet high.

Distinguishing Features: Bright white underside of leaves is visible from a distance. Sparse branching.

Leaves: 5-9 cm long x 0.8-1.8 cm wide. Glaucous on the underside but hard to see because of dense silver-white hairs. Entire margins. Top of leaf dark green.

Petioles: 3 - 12 mm long

Twigs: Not prunose but very hairy and silver pink in color. Intermediate aged twigs are tan

but the older twigs are white with hairs.

Catkins: 1-3 cm long . Appear with or slightly before the leaves. Peduncles: 0.2 - 1 cm. Long and leafy. Stamens: 2 per flower.

Capsules: Hairy 5-10 mm long. Flower bracts: Usually pale. Persistent.

Styles: 0.2- 1.7 mm long

Stipes: 0.1- 1.2 mm long.

Habitat: Cold bogs or fens. 6600-9200 feet.



Blueberry Willow (*Salix myrtilifolia*)



Size: Small shrub usually under 3 feet high.

Distinguishing Features: Appears as many individual stems.

Leaves: 1.5- 5 cm long x 0.5-3 cm wide. Not glaucous on the underside. Shape varies from obovate to elliptical to lanceolate. Petioles: 3 - 12 mm long. Crenate-serrate. Glabrous. Petioles: 1.5-8 mm long

Twigs: Reddish brown.

Catkins: 2-5 cm long . Appear with the leaves. Peduncles: 0.2 - 1 cm. Long and leafy. Stamens: 2 per flower.

Peduncles: 0.2-1 cm long and leafy.

Stamens: 2 per flower.

Capsules: Glabrous. 3-6 mm long. Flower bracts: pale to dark. Persistent with curly hairs.

Styles: 0.1- 1 mm long

Stipes: 0.5- 1.5 mm long.

Habitat: Cold bogs or fens. 6600-9200 feet.



Alpine Willows



Usually less than 5 cm tall

Snow Willow (*Salix reticulata*)



Size: Tiny creeping alpine shrub.

Distinguishing features: leaves leathery with tips usually rounded. Catkins small and usually red, and usually do not grow above the leaves. Grows very low to the ground with stems often underground.

Leaves: Glaucous on the underside. Oval to sometimes elliptic. 0.5-3.6 cm long - 0.3-3 cm. Entire or nearly so. Glabrous or sparsely hairy. Petioles 1-15 mm long.

Catkins: 0.5-2 cm long. Appear after the leaves.

Peduncles: 0.2-2 cm long. Lacking leaves.

Stamens : 2 per flower

Capsules: Hairy, 3.5-5 mm long

Styles: 0.2-0.4 mm long

Stipes: 0-0.8 mm long

Flower Bracts: Pales and persistent.

Habitat: Alpine and subalpine slopes and meadows.

Usually on sedimentary formations.

Elevation: 8100-13200 feet.



Arctic or Alpine Willow (*Salix arctica*)



Size: Small creeping shrub with nearly no above ground twigs. Less than 5 cm tall.

Distinguishing Features: Leaves more pointed than *reticulata*. Catkins larger and more upright than *reticulata*.

Leaves small (1.5 cm - 4 cm long x 0.4-1.5 cm wide). Glauous on the underside. Entire. Sometimes glands near the base.

Twigs: None above ground.

Catkins: 1-5 cm long. Appear with the leaves. Catkins stand up above the leaves. Catkins can

be red, yellow, or green.

Peduncles: 1 to 3 mm long.

Capsules: Hairy. 3-6 mm long

Styles: 0.5-2 mm long

Stipes: 0-0.5 mm long

Habitat: Grows at or above timberline. 8100 -13000 feet. Meadows or slopes. Does not require a wet environment.



Cascade Willow (*Salix cascadensis*)



Size: Tiny creeping shrub. Less than 5 cm tall.

Distinguishing Features: Smallest willow shrub with tiny leaves usually not more than 1.5cm long and 0.5 cm wide.

Leaves small (0.3 cm - 2.5 cm long x 0.2-0.6 cm wide). Not glaucous on the underside. Narrowly elliptic to elliptic. Pointed tips. Entire. Glabrous or hairy esp. along the margins Petioles 1-3 mm long.

Twigs: Tiny but above ground.

Catkins: 0.6-2.5 cm long. Appear with the

leaves. Catkins stand up above the leaves.

Peduncles: 0.2 to 2cm long and leafy.

Stamens: 2 per flower

Capsules: Hairy. 3-5 mm long

Styles: 0.3-1.2 mm long

Stipes: 0-0.5 mm long

Habitat: Alpine and subalpine. 8100 -11900 feet.



Limestone Willow (*Salix calcicola*)



Size: Small shrub with longer above ground twigs than other alpine willows. Mostly less than 0.5 m tall. Sessile - catkins lacks peduncles.

Distinguishing Features: Less than 2 feet tall. Glaucous leaves. Short petioles. Only found in alpine limestone.

Leaves: 2-4.5 cm long x 1.5-4 cm wide). Glaucous on the underside. Elliptic, Oval or Ovate. Entire to serrulate. Glabrate or sparsely hairy. Petioles 2-9 mm long. Buds are fat and hairy.

Twigs: Above ground and longer than other alpine willows. Rust brown to whitish gray. Not pruinose.

Catkins: 3-6 cm long. Appear before the leaves.

Peduncles: None.

Stamens: 2 per flower

Capsules: Glabrous. 7-9 mm long

Styles: 2-2.5 mm long

Stipes: 0.2-0.5 mm long

Habitat: Limestone barrens above timberline. 12200 feet

