

Alaska Department of Fish and Game  
Division of Wildlife Conservation

# Key for Winter Identification of Salix in Interior Alaska



by  
Dorothy T. Simpson

September 1986

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KEY FOR WINTER IDENTIFICATION OF SALIX

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Winter identification of Salix is often very difficult. This key has described 16 species of willows, most of which are fairly common to the Interior of Alaska. Many of the species described are important as moose browse and for this reason, the key was constructed. It is important to realize that willows do hybridize and variation among the same species is great. The key describes the most general characteristics and should be used in the field. It will not work when dried specimens are used.

It is important to view the whole plant, noting its general appearance, such as bushy or tall. Does it have many stems from the ground or only a single or a few stems. Note its habitat and height. Also, look for old leaves on the ground, as many clues to identity can be obtained from the old dead leaves.

Time of year is also important. In late fall some willows will still retain their catkins. Catkin size should also be noted. In late spring many catkins will begin to develop long before the leaves appear.

And last, but not least, if you have any suggestions for improvement or corrections of the key, please contact Dot Simpson, 2130 Nottingham Drive, Fairbanks, AK 99709, phone 479-2832.



KEY FOR WINTER IDENTIFICATION OF SALIX IN INTERIOR ALASKA

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- A. Plants usually less than 2-3 ft. tall
  - B. Young twigs densely pubescent
    - C. Low, sometimes spreading, upright shrub with stout twigs - 1. Barratt Willow (S. barrattiana)
    - CC. Gray, upright shrub with slender twigs, last season's catkins still present - 2. Barren-ground Willow (S. brachycarpa ssp. niphoclada)
  - BB. Young twigs hairy or finely hairy - 3. Low Blueberry Willow (S. myrtillofolia)
- AA. Plants usually greater than 3 ft. tall
  - B. Old stipules obviously present (unless plants heavily browsed by moose)
    - C. Old stipules usually  $\frac{1}{2}$  in. or longer, twigs gray bearded or densely pubescent - 4. Richardson Willow (S. lanata ssp. richardsonii)
    - CC. Old stipules usually less than  $\frac{1}{2}$  in. long, younger twigs yellowish, older twigs reddish-brown and slightly pubescent, old leaves present - 5. Diamondleaf Willow (S. planifolia ssp. pulchra)
  - BB. Old stipules sometimes present but usually absent
    - D. Last season's catkins often still present
      - E. Twigs grayish, lightly pubescent, "knobby" looking, usually at wide angles - 6. Bebb Willow (S. bebbiana)
    - EE. Twigs woolly, especially first year ones, plants with gray appearance - 7. Grayleaf Willow (S. glauca)
  - DD. Last season's catkins absent
    - F. Young twigs yellow to yellowish-brown, woolly or densely pubescent, minimal lateral branching
      - G. Young twigs woolly or with white or bluish white bloom, extensive growth last season - 8. Feltleaf Willow (S. alaxensis)
    - GG. Young twigs bearded pubescent without white or bluish bloom - 9. Pacific Willow (S. lasiandra)
  - FF. Young twigs yellow to reddish-brown, shiny, pubescent, erect shrub - 10. Park Willow (S. monticola)

FFF. Young twigs reddish-brown to brown

H. Young twigs woolly or with dense white hairs

I. Young twigs reddish-brown with dense white hairs, much branched spreading shrub 3-6 ft. tall - 11. Halberd Willow (S. hastata)

II. Young twigs brown with dense white silky hairs, tall erect shrub usually 6-8 ft. tall - 12. Tall Blueberry Willow (S. novae-angliae)

III. Overall silvery appearance with white woolly twigs, upright shrub up to 6 ft. tall - 13. Silver Willow (S. candida)

HH. Young twigs shiny or thinly hairy

J. Young twigs reddish, thin and shiny, or thinly hairy, plant not bushy - 14. Littletree or Red-stemmed Willow (S. arbusculoides)

JJ. Young twigs brown, shiny or thinly hairy, older twigs grayish, upright shrub, found only in early successional stages along Interior river systems - 15. Sandbar Willow (S. interior)

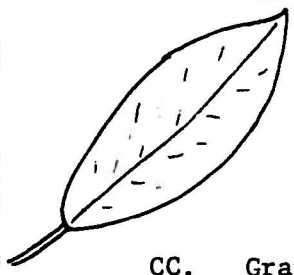
FFFF. Young twigs yellowish to greenish-brown, densely hairy, older twigs gray to black, thick, many sprouts from base - 16. Scouler Willow (S. scouleriana)

FFFFF. Young twigs blackish and densely hairy, buds blackish - 17. Barclay Willow (S. barclayi)

A. Plants usually less than 2-3 ft. tall


B. Young twigs densely pubescent

C. Low, sometimes spreading, upright shrub with stout twigs - 1. Barratt Willow (S. barrattiana)




Conspicuous willow with dense hairs when young, giving it a silvery appearance. Remains hairy for many years. Stout twigs, older ones reddish-brown to dark brown. Forms dense thickets several yards across with upright leaves and twigs. Catkins develop before leaves. Found in wet alpine meadows and above treeline on gravel river bars in the Alaska Range. Rare in the Interior.

CC. Gray, upright shrub with slender twigs, last season's catkins still present - 2. Barren-ground Willow (S. brachycarpa ssp. niphoclada)



Low, grayish, upright shrub, usually 1-3 ft. tall or occasionally up to 6 ft. Youngest twigs thin, grayish-brown to yellowish-brown, densely hairy for first year, becoming hairless and grayish-black with age. Bark scaly. Any old stipules remaining in the winter will still show glandules. Plant usually has some old leaves attached. Winter buds small, reddish-brown with darker base and pubescent at base. Catkins small, developing with the leaves, persisting throughout the summer and usually through the following winter. Petioles on catkins usually longer than  $\frac{1}{2}$  in. Found in the boreal forest on well drained alluvium, talus slopes, tundra, moist meadows and along stream margins.

BB. Young twigs hairy or finely hairy - 3. Low Blueberry Willow (S. myrtillofolia)

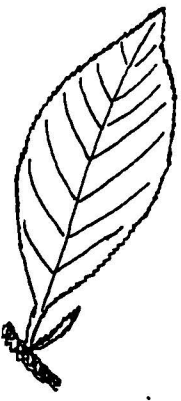


Low shrubs usually less than 2 ft. tall, much branched and often prostrate. Older twigs brown to gray, hairless. Young twigs through first year are finely hairy. Previous season's twigs reddish and still hairy. Many twigs with wide angles. Bark flaky or "stringy." Catkins appear after the leaves have started to develop. Found in black spruce stands and bogs, mostly in eastern central Alaska.

AA. Plants usually greater than 3 ft. tall

B. Old stipules obviously present (unless plants heavily browsed by moose)

C. Old stipules usually  $\frac{1}{2}$  in. or longer, twigs gray bearded or densely pubescent - 4. Richardson Willow (S. lanata ssp. richardsonii)



An erect shrub with many branches often forming dense clumps up to 6 ft. tall or more. Stipules very conspicuous,  $\frac{1}{2}$  in. or longer and narrow with glandular teeth on the edges, persisting for several years, giving the plant a "beardy" appearance. Young twigs stout and densely hairy, dark brown to black or gray; older twigs hairless, reddish-orange to reddish-brown. Leaf scars large. Older bark gray and smooth. Catkins develop early in spring before leaves. Found along stream banks and moist slopes. Usually associated with alders and shrub birch above timberline, but occasionally may be found at lower elevations.



- CC. Old stipules usually less than  $\frac{1}{2}$  in. long, younger twigs yellowish, older twigs reddish-brown, slightly pubescent, old leaves present - 5.  
Diamondleaf Willow (S. planifolia ssp. pulchra)



Upright, much branched shrub 3-6 ft. tall, occasionally taller. Often forms loose thickets in wet habitats. May be prostrate creeping shrub in exposed sites above timberline. Stipules  $\frac{1}{4}$ - $\frac{1}{2}$  in. long, linear, glandular toothed, persisting 2-3 years, unless plant has been heavily browsed by moose. A few brown leaves usually remain on the plant through the following winter and into the next summer. First year twigs yellowish-brown, older twigs stout, shiny dark brown, reddish or purple, hairy when young, becoming hairless in age. Shiny, dark red twigs, persistent stipules and persistent brown leaves are characteristic winter conditions. Glandules still present on teeth of old leaves. Winter buds small, light to medium brown or reddish-brown. Bark on old twigs dark gray to black, smooth. Catkins develop in early spring before leaves. Common in bogs and wet sites in the boreal forest.

- BB. Old stipules sometimes present but usually absent

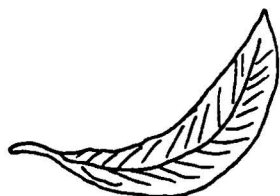
- D. Last season's catkins often still present

- E. Twigs pubescent, "knobby" looking, usually at wide angles - 6. Bebb Willow (S. bebbiana)

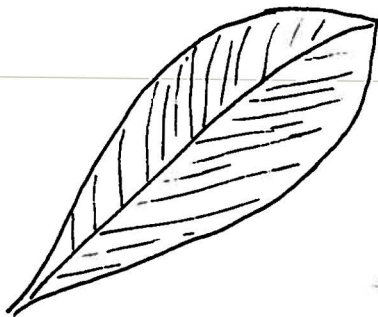


Large shrub or small bushy tree up to 25 ft. tall. Twigs slender, branching at wide angles, usually  $90^{\circ}$ , although younger shrubs may not have developed the wide angles. Twigs yellowish to reddish-brown. Twigs from previous season's growth still gray hairy, becoming gray and hairless with age. Bud scales only slightly pubescent. Trunk bark gray to dark gray, becoming rough and furrowed. A few old catkins and leaves may remain on plant all winter. Old catkins have gray, somewhat "beardy" appearance. The dead brown leaves will still show the rough network of veins on the underside. Diamond-shaped patterns on older trunks are good clue to identity. Large leaf scars give the branches of the plant a "knobby" appearance. Catkins develop before or with the leaves. Occurs in most forest types and in thickets adjacent to streams, swamps, lakes, and in open fields and meadows. Insect galls or "willow roses" frequently occur on this species.

- EE. Twigs woolly, especially first year twigs, plants with gray appearance - 7. Grayleaf Willow (S. glauca)



Erect to spreading shrub with dull gray appearance, 3-4 ft. tall, but may be up to 20 ft. in favorable sites. Twigs reddish-brown to grayish, hairy or hairless, with dense white hairs when young. Old glandular stipules may be present. Last season's twigs very pubescent and reddish-brown. Also, old leaves reddish-brown and still very pubescent. Winter buds usually reddish-brown with a few scattered hairs. Older bark gray, smooth, becoming rough and furrowed when mature. Bark is slightly scaly on younger growth. In early fall, styles on catkins black and very obvious. Catkin scales very pubescent. In early fall and through winter leaf buds

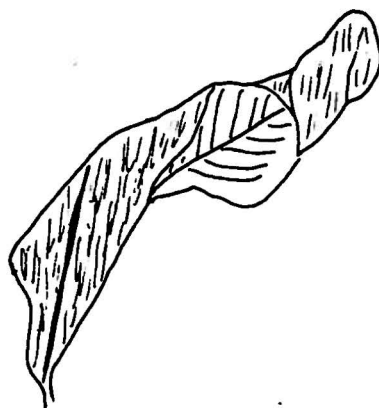


on younger twigs densely pubescent. Dead leaves still retain heavy pubescence on underneath side throughout the winter and commonly curl "end to end." Leaf scars large. Catkins develop with the leaves, persisting through the summer and usually through the following winter. Found along rivers, roads, fields, in thickets with other willows and in the boreal forest as an individual open shrub.

DD. Last season's catkins absent

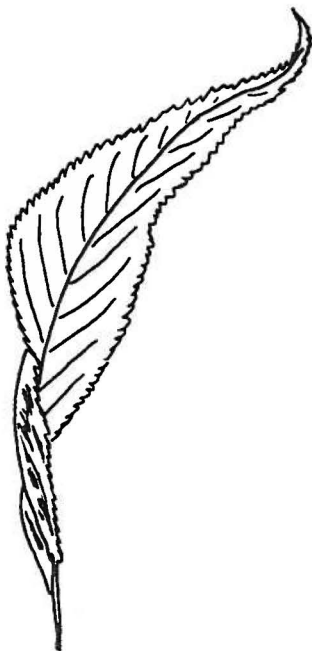
F. Young twigs yellow to yellowish-brown, woolly or densely pubescent, minimal lateral branching

G. Young twigs woolly or with white or bluish-white bloom, extensive growth last season - 8. Feltleaf Willow (S. alaxensis)



Shrub or small tree up to 30 ft. tall. Very little lateral branching. As much as 5 ft. length on fast-growing shoots. One- and 2-yr. old twigs stoutish and white woolly, or may be covered with a bluish-white bloom. Old stipules are glandular. Also, old stipules seem to be frequently present on plants with the bluish bloom. Older bark gray, smooth, becoming rough and furrowed into scaly plates. Young twigs are bright yellowish, but after about the third year they are yellowish-brown. Twigs of older branches may be at wider angles. A few old leaves may remain all winter. Leaves tend to dry in a twisted shape. The felt-like woolly pubescence remains on the underneath side of the leaves long after they have fallen and throughout the winter, a good clue to winter identification. Bluish bloom seems to be more common on the redder stems. Leaf buds densely pubescent with long white hairs. Catkins appear before the leaves. Common along creeks, rivers, and roadsides.

GG. Young twigs "beardy" pubescent without white or bluish bloom - 9. Pacific Willow (S. lasiandra)



Tall shrub or small tree to 20 ft. tall. Twigs stoutish and hairy and almost beardy when young, chestnut to gray, shiny and hairless with age. Leaf scars large. Younger plants with little branching. Looks a lot like interior except young twigs on interior are reddish-brown and leaf scars are smaller. Buds very hairy. Bark gray, smooth, becoming rough and deeply furrowed. Old leaves on the ground will vary in size and shape but usually large and distinctly shallow toothed with glands. Dead leaves often have black dots. Catkins appear with leaves. Found along sand and silt bars of the Interior river system and occasionally along roadsides in wetter habitats.



- FF. Young twigs yellow to reddish-brown, shiny, pubescent, erect shrub -  
10. Park Willow (S. monticola)

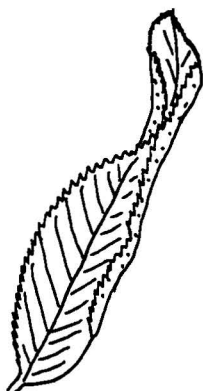


An erect shrub 3-12 ft. tall. Shrubs contain both yellow and reddish-brown, shiny twigs that are hairy when young. Older twigs hairless. Twigs have "waxy" appearance and somewhat scaly. A few old leaves that are grayish-black may remain on plant through the winter. They will still show the glandular teeth and leaves will likely be curled. Leaf buds small, shiny, reddish-brown. Older bark gray, smooth. Catkins appear before leaves. Common along rivers and wet areas, forming thickets with other willows. Occasionally found in poplar and spruce stands and in disturbed areas along roadsides.

- FFF. Twigs reddish-brown to brown

- H. Young twigs woolly or with dense white hairs

- I. Young twigs reddish-brown with dense white hairs, much branched spreading shrub 3-6 ft. tall - 11. Halberd Willow (S. hastata)



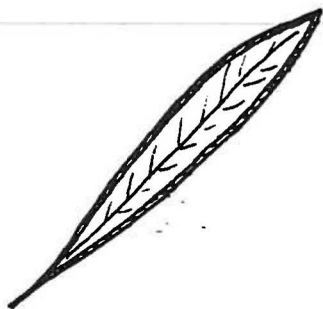
Younger twigs reddish-brown to brown with dense white hairs, older main stem blackish to gray, glabrescent in age. Second year twigs almost bearded with grayish to blackish hairs. Younger stems are reddish like arbusculoides, but thicker. A few old toothed leaves may remain on plant all winter. Dead leaves often dry "twisted." Old leaves are good clue. They will be stiff, grayish-brown to blackish and often with black dots. Leaf buds pubescent. Catkins appear with leaves. Occurs occasionally in boreal forest but primarily in willow thickets along streams and roadsides and on riverbars.

- II. Young twigs brown with dense white silky hairs, tall erect shrub usually 6-8 ft. tall - 12. Tall Blueberry Willow (S. novae-angliae)



Young twigs brown, usually straight and coarse, with dense white silky hairs when young. Older twigs retain some hairiness. Leaf scars small but numerous, giving the plant a "rough" look, somewhat like bebbiana, but twig angles more narrow. Look for old leaves on the ground. They will be prominently net veined and finely toothed. Catkins appear after leaves have started to develop. Common along silt and sandbars, in willow thickets and along small streams and roadsides.

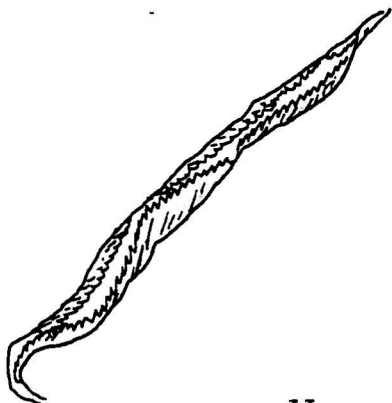
- III. Overall silvery appearance with white woolly twigs, upright shrub up to 6 ft. tall - 13. Silver willow (S. candida)



Twigs covered with white woolly hairs when young but glabrescent and reddish with age. Alaxensis is the only other willow with which this might be confused. Look for old leaves on the ground. They will be narrow without teeth and with edges rolled toward lower surface. Catkins appear in early spring before the leaves. Found in wet meadows and muskeg along Yukon and Tanana Rivers in eastern central Alaska. Not common.

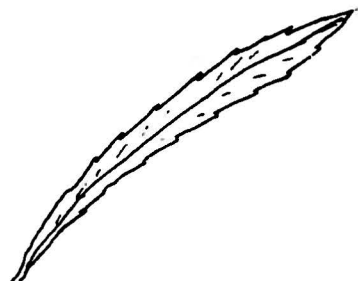
HH. Young twigs shiny or thinly hairy

J. Young twigs reddish, thin and shiny or thinly hairy; plant not bushy - 14. Littletree or Red-stemmed Willow (S. arbusculoides)



Erect shrub 10-15 ft. tall. Twigs slender, much branched, youngest twigs reddish, but 2nd year twigs greenish-yellow to yellowish-brown. Older twigs reddish-brown, hairless and shiny. Bark gray to reddish-brown and smooth. Buds dark brown. Old leaves usually revolute or rolled tightly. Catkins appear slightly before or with the leaves. Some plants still retain old catkins and leaves through the winter. Found along streams and rivers where it often forms thickets and in open black spruce stands.

JJ. Young twigs brown, shiny or thinly hairy; older twigs grayish, upright shrub found only in early successional stages along Interior river systems - 15. Sandbar Willow (S. interior)



Upright shrub 8-12 ft. tall. Twigs long, thin, unbranched, brown and smooth. Young twigs may be thinly hairy. Older twigs gray. Old leaves on the ground will have widely spaced teeth. Pedicels on old catkins are long and arched. Old catkins are brown with very revolute bracts. Found on sand and silt bars along Interior rivers and is often the first willow to invade newly exposed sand bars. Unable to compete with other willows and is seldom found in older successional stages.

FFFF. Young twigs yellowish to greenish-brown, densely hairy, older twigs gray to black, thick, many sprouts from base

K. Buds dark red, young twigs very pubescent, stout, with large leaf scars - 16. Scouler Willow (S. scouleriana)



Shrub or tree with compact rounded crown up to 15 ft. or taller and treelike. Twigs stoutish with large leaf scars and angles often wide like bebbiana. Younger twigs greenish-brown and densely hairy. Older twigs reddish to dark brown and nearly hairless. Buds dark red. Bark gray, smooth, thin, becoming dark brown with age, divided into broad flat ridges. Wood light brown and tinged with red. Catkins develop early as pussy willows before snow has melted. The pussy willows

are very large and the catkin scales are very pubescent.  
Occurs in open spruce, birch, and aspen stands, open fields,  
along roadsides, but most common in burned areas.

FFFFF. Young twigs and buds blackish, young twigs densely hairy - 17.  
Barclay Willow (S. barclayi)



Spreading much branched shrub forming dense thickets 3-10 ft. high, occasionally to 20 ft. and treelike. Variable in growth form, color, and habitat. Dry leaves usually black. Twigs blackish and densely hairy when young, becoming reddish-brown and hairless with blackish buds. Bark gray or greenish-brown, smooth. Twigs often end in rounded galls or "willow roses," an aid in identification. Catkins appear with leaves. Forms thickets along small streams but is uncommon north of Alaska Range and Interior lowlands.