

## Key to Vegetative Willows of Harney and Malheur Counties, Oregon

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### How to Use This Key

Look over your willow in the field. What is its growth form? What are typical leaves like? If nearby willows look different, are the differences consistent enough that you feel confident they are different species, or are they probably variants of the same species? Be careful of shrubs growing through each other; are the branches you collected really from the same shrub? Avoid sampling “water shoots,” the long branches that may grow up late in the season and often have very odd, large leaves. Key typical branches from typical plants. Unless otherwise specified, use largest leaves from the middle of typical branches (“largest medial leaves”).

If you start with the first lead in the main key, you will probably find an appropriate name for your specimen. If your willow is from the alpine zone of Steens Mountain or has certain distinctive traits, you can shortcut into an appropriate subkey:

- Key A. Willows of the alpine zone on Steens Mountain
- Key B. Trees
- Key C. Petiole with glands at base of leaf blade
- Key D. Leaf blade green below
- Key F. Twigs strongly glaucous
- Key G. Leaf blade with rusty, brownish, or dingy hairs, at least in part

Willows are highly variable and some cannot be keyed using this key. Try George Argus’s interactive key, available at this website: <http://aknhp.uaa.alaska.edu/willow/>. No matter what key you use, a low percentage of the plants may not be identifiable.

The following are the common willows at low to moderate elevations in the southern three quarters of Harney or Malheur Counties:

- |   |                    |
|---|--------------------|
| <i>S. boothii</i>                       | <i>S. lemmonii</i> |
| <i>S. exigua</i> ssp. <i>exigua</i>     | <i>S. lutea</i>    |
| <i>S. geeyeriana</i>                    | <i>S. X rubens</i> |
| <i>S. lasiandra</i> var. <i>caudata</i> |                    |

If you key a low-elevation willow to a species not on that list, you should compare your plant to a description or to the specimens in the BLM herbarium. In fact, that’s good practice the first few times you key any willow, and again when you’re confused – which will happen fairly often if you’re paying attention.

At any one site (below the alpine zone), you will probably have three or four willow species. Take time to learn their variations well at the start of any project, and your field work will go more smoothly.

### Words for Hairs

Students of willows have developed a wonderfully precise vocabulary for describing their hairs. Most of us just find it confusing. The words can be divided into three broad groups:

1. Velvety, pubescent: dense, short, straight hairs that are pleasant to touch.
2. Silky: long, soft, wavy hairs, +/- parallel to the leaf surface.
3. Others (tomentose, villous, pilose, villous, etc.): curly, spreading, wavy, or sometimes a mix of types.

### Sources

This key is derived from the following sources plus our observations. Errors in the keys are my own and should not be blamed on any of the sources listed below.

- Argus, George. 1993. *Salix*, pp. 990 – 999 in J. Hickman, ed., *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley.
- Argus, George. 2007. *Salix*. Draft key for Flora of North America.
- Argus, George. 2007. Interactive Identification of New World *Salix* (Salicaceae) using Intkey. <http://aknhp.uaa.alaska.edu/willow/>
- Lytjen, Danna. 2004. A Key to the *Salix* of the Southern Willamette Valley. *Carex Working Group*, Eugene, Oregon.
- Lytjen, Danna. 1999. Willow Identification Workshop: Deschutes National Forest. *Carex Working Group*, Eugene, Oregon.

### Main Key

1. Plants in the alpine zone of Steens Mountain ..... Key A
- 1' Plants of lower elevations or elsewhere (not above the aspens on Steens Mountain)
  2. Trees, usually 20 – 80 feet tall; leaves usually with “drip tips” (long acuminate) ..... Key B
  - 2' Shrubs 1 – 30 feet tall (small trees also key here); leaves various, sometimes with “drip tips”
    3. Plants clonal by root sprouting; petioles absent or very short; leaf blade linear to narrowly elliptic (length 10 – 23 X width) to lanceolate
      4. Leaves linear, length 10 – 23 times width, hairy; young leaves silky *S. exigua* ssp. *exigua*
      - 4' Leaves narrowly elliptic, length 2.8 – 8.5 times width, becoming glabrous; young leaves long-soft-wavy-hairy, tomentose, or velvety ..... *S. melanopsis*<sup>1</sup>
    - 3' Plants distinct shrubs, not clonal by root sprouting; petioles longer; leaf blades lanceolate to ovate
      5. Bud apex sharply pointed; bud scale margins free and overlapping on the side toward branchlet; trees; northern part of the counties only ..... *S. amygdaloides*
      - 5' Bud apex blunt; bud scale margins fused; shrubs or trees.

<sup>1</sup> Reported from SE Oregon, not confirmed.

- 6. Petiole with glands near base of blade ..... Key C
- 6' Petiole lacking glands near base of blade
  - 7. Leaf blade green below, not glaucous (may be lighter green below than above) ..... Key D
  - 7' Leaf blade glaucous below or surface obscured by hair
    - 8. Lower surface of leaf blade densely pubescent below, the short hairs like crushed velvet, pleasant to touch
    - 9. Twigs strongly glaucous and shiny blackish below the glaucousness ..... *S. drummondiana*
    - 9' Twigs not or slightly glaucous, dull to somewhat shiny green to red-brown or brown
      - 10. Leaves proportionately narrower, 2.5 – 7.3 times as long as wide; 1 – 2 stamens per flower; staminate catkins 1.2 – 1.4 times as long as wide ..... *S. jepsonii*
      - 10' Leaves proportionately wider, 2 – 4 times as long as wide; 1 stamen per flower; staminate catkins 1/6 – 5.6 times as long as wide ..... *S. sitchensis*
  - 8' Lower surface of leaf blade glabrous to densely hairy but hairs not like crushed velvet
    - 11. Twigs not glaucous ..... Key E
    - 11' Twigs +/- strongly glaucous ..... Key F

**Key A. Willows of the alpine zone on Steens Mountain.** Taxonomy of these willows is fascinatingly complex and has not been worked out completely. Particularly difficult problems are *S. commutata/eastwoodiae* (sometimes with *S. boothii* thrown in), and *S. glauca* and/or *S. orestra*. Where, or if, *S. barclayi* fits into all this is questionable. Some plants simply can't be named at this time. More research is needed. Even names of better-known species have shifted recently and may shift again.

- 1. Prostrate, ground-hugging creepers, forming mats
  - 2. Largest medial leaf blades highly glossy on upper surface, leaves 2 – 3 cm long; catkins flowering before leaves emerge; buds dimorphic, some much larger than others ..... *S. planifolia* var. *monica*
  - 2' Largest medial leaf blades dull or shiny on upper surface, but not highly glossy, various sizes; catkins flowering as leaves emerge; buds monomorphic, all about the same size
    - 3. Largest medial leaf blades with veins on upper surface impressed, reticulate; catkins arising from a subterminal bud, tiny (0.7 – 2 cm long) ..... *S. nivalis*
    - 3' Largest medial leaf blades with veins on upper surface not impressed and reticulate; catkins arising from lateral buds, larger (1.5 – 6 cm long) ..... *S. petrophila*
- 1' Shrubs, sometimes very low but not prostrate and forming mats
  - 4. Largest medial leaf blades highly glossy on upper surface, leaves 2 – 3 cm long; catkins flowering before leaves emerge ..... *S. planifolia* var. *monica*
  - 4' Largest medial leaf blades dull or shiny on upper surface, various sizes; catkins flowering as leaves emerge; buds monomorphic, all about the same size; ovaries with wavy hairs

5. Lower surface of leaves green
6. Leaves entire, densely, persistently hairy (long-silky) on both sides, small (rarely more than 4.5 cm long and 1.5 cm wide) ..... *S. wolfii*<sup>1</sup>
- 6' Leaves toothed (or entire), moderately to sparsely hairy (pilose or tomentose) when young but often becoming glabrous at least on top, larger (2.3 – 11 cm long, 0.5 – 4.5 cm wide)
7. Mature leaves becoming glabrous throughout (though young leaves may be hairy) ..... *S. boothii*
- 7' Mature leaves notably hairy on at least one side or on the midrib
8. Leaves entire or toothed with glands mostly forward pointing, becoming glabrate or glabrous at least on the lower side ..... *S. boothii*
- 8' Leaves, at least some, with prominent glands on the lower margins that stand out perpendicular to the leaf margin, usually persistently pubescent on both sides  
..... *S. commutata* / *eastwoodiae*  
Theoretically, plants with hairy ovaries and capsules are *S. eastwoodiae* and those with glabrous capsules are *S. commutata*, but many plants on Steens Mountain have very sparse hairiness or hairs in stripes; these are usually traits of hybrids. What's happening on Steens is a mystery.
- 5' Lower surface of leaves glaucous or obscured by hair
9. Leaves 5 to 9+ cm long, with tapering drawn-out "drip tips"; undersurface of leaves glabrous or sparsely hairy ..... *S. lemmonii*
- 9' Leaves up to about 5 or 6 cm long (or to 10 cm in *S. jepsonii*, which usually has undersurfaces of leaves densely hairy), narrowing more abruptly to relatively short tips or merely acute to rounded
10. Twigs brittle (easily breaking off when bent gently toward the branch tip); largest medial leaf blades narrow, often more than 4 times as long as wide, with veins on upper surface usually impressed; lower leaf surface densely hairy with short silky or velvety hairs (or becoming glabrous) ..... *S. jepsonii*
- 10' Twigs flexible; largest medial leaf blades proportionately wider, less than 4 times as long as wide, with veins on upper surface usually raised or flat (sometimes impressed); lower leaf surface glabrous to moderately densely hairy with diverse hair types, often wavy hairs
11. Shrub shorter with leaves 1 – 4 cm long; pistillate catkins globose to stout, 0.6 – 2 cm long; staminate catkins 0.5 – 2 cm long; petioles short, usually not longer than subtended bud ..... *S. brachycarpa* var. *brachycarpa*
- 11' Shrub often taller with leaves 3 – 8 cm long; pistillate catkins stout to slender, 2 – 5.5 cm long; staminate catkins 1.5 – 5 cm long; petioles often longer than the subtended bud
12. Ovary and capsule hairy ..... *S. orestra* or *S. glauca* var. *villosa*<sup>2</sup>
- 12' Ovary and capsule glabrous ..... *S. barclayi*<sup>3</sup>

<sup>1</sup> Reported from Steens Mountain but not confirmed; a northern species.

<sup>2</sup> Variation on Steens Mt. is unusual, and identity of the shrubs is uncertain at this time.

<sup>3</sup> Reported from Steens Mountain but not confirmed

**Key B. Trees. These are the species that regularly form trees in SE Oregon.**

1. “Weeping” willows with twigs pendent +/- to the ground; rarely found away from home sites
  2. Twigs yellow..... *S. X sepulcralis*
  2. Twigs darker ..... *S. X pendulina*<sup>1</sup>
- 1’ Twigs erect to spreading, the tips sometimes pendent but not to the ground
  3. Leaves usually oblanceolate to obovate, widest in upper third; leaf apex convex or rounded to short-acuminate; plants of mesic to dry uplands .....*S. scouleriana*
  - 3’ Leaves more or less elliptic to lanceolate, usually widest near base or in middle, apex usually acuminate (with a “drip tip”); plants of moist areas
    3. Bud scale margins overlapping; buds sharply pointed; growing only in the northern part of the counties ..... *S. amygdaloides*
    - 3’ Bud scale margins fused; buds blunt (sometimes elongated but with a rounded tip)
      4. Leaf more finely serrate, with 6 – 14 teeth/cm; stipules with rounded apex, foliaceous to minute; leaves often widest in lower third ..... *S. lasiandra*
      5. Lower leaf surface green; common east of the Cascades ... *S. lasiandra* var. *caudata*
      - 5’ Lower leaf surface glaucous; common west of the Cascades, but occurring on both sides ..... *S. lasiandra* var. *lasiandra*<sup>2</sup>
    4. Leaf more coarsely serrate, with 4 – 8 teeth/cm; stipules with distinctly pointed apex; leaves often widest near middle
      6. Leaves glabrous below ..... *S. X rubens*<sup>3</sup>
      6. Leaves with white hairs below ..... *S. alba*<sup>4</sup>

**Key C. Petiole with glands at base of blade.**

2. Tree ..... Key B
- 2’ Shrub
  3. Leaves green below
    4. Leaf tips +/- acute; leaves 2.7 – 10 cm long, proportionately wider; high elevations on Steens Mountain ..... *S. eastwoodiae*
    - 4’ Leaf tips generally acuminate; leaves 5.4 – 17 cm long; proportionately narrower; widespread at low to moderate elevations ..... *Salix lasiandra* var. *caudata*
  3. Leaves glaucous below
    5. Bud scale margins overlapping; buds sharply pointed; growing only in the northern part of the counties ..... *S. amygdaloides*
    - 5’ Bud scale margins fused; buds blunt (sometimes elongated but with a rounded tip)
      6. Petiole glands minute; stipules none or vestigial on early leaves, leaf-like on later leaves; catkins subglobose, very short (0.8 – 2.1 cm long); 1400 – 3600 m elevation .....*S. geyeriana*

<sup>1</sup> Possible in SE Oregon, not confirmed.

<sup>2</sup> More common west of the Cascades. Perhaps in SE Oregon, but if so only rarely.

<sup>3</sup> Commonly planted at home sites, along roads, and in wetlands restoration projects. Probably does not reproduce by seed, but the brittle branches break off and root where they are transported downstream.

<sup>4</sup> Reports of *S. alba* in this area are probably *S. X rubens*, which is a *S. alba* X *S. fragilis* hybrid.

- 6' Petiole glands distinct, sometimes raised and wart-like; stipules usually leaf-like (sometimes vestigial); catkins cylindrical, longer (1.9 – 10.3 cm long); 0 – 2500 m elevation
- 7. Leaf more finely serrate, with 6 – 14 teeth/cm; stipules with rounded apex, foliaceous to minute; leaves often widest in lower third; stomata usually absent from upper surface of leaf ..... *S. lasiandra* var. *lasiandra*<sup>1</sup>
- 7' Leaf more coarsely serrate, with 4 – 8 teeth/cm; stipules with distinctly pointed apex; leaves often widest near middle; stomata present on upper surface of leaf
- 8. Leaves glabrous below ..... *S. X rubens*<sup>2</sup>
- 8' Leaves with white hairs below ..... *S. alba*<sup>3</sup>

#### Key D. Leaf blade green below, not glaucous

- 1. Petioles with glands at base of blade
  - 2. A “weeping” tree with pendent branches ..... *S. X sepulcralis*
  - 2' A tree or shrub with branches ascending, spreading, or sometimes angled down, but not consistently hanging down ..... *S. lasiandra* var. *caudata*
- 1' Petioles lacking glands
  - 3. Leaf blade margins entire or sparsely fine-dentate with well separated teeth; leaves linear to narrowly elliptic; plants clonal by root-sprouting; petiole 2 – 6 mm long
    - 4. Leaves linear, length 10 – 23 times width, hairy; young leaves silky *S. exigua* ssp. *exigua*
    - 4' Leaves narrowly elliptic, length 2.8 – 8.5 times width, becoming glabrous; young leaves long-soft-wavy-hairy, tomentose, or velvety ..... *S. melanopsis*<sup>4</sup>
  - 3' Leaf blade margins entire to finely serrate; plants not clonal; petiole 3 – 17 mm long
    - 5. Leaves very densely, persistently hairy on both sides, entire, small (rarely more than 4.5 cm long and 1.5 cm wide); high elevation ..... *S. wolfii*<sup>5</sup>
    - 5' Leaves moderately to sparsely hairy when young but sometimes becoming glabrous at least on top, entire to serrate, larger (2.3 – 11 cm long, 0.5 – 4.5 cm wide)
  - 6. Mature leaves becoming glabrous throughout (though young leaves may be hairy) ..... *S. boothii*
    - 6.5. Leaves thick; young leaves pilose or villous; leaf length/width ratio 2 – 5.2; male catkins with flowering rachis 6 – 26 mm long ..... *S. boothii*
    - 6.5' Leaves thin; young leaves glabrous or short- or long-silky; leaf length/width ratio 1.8 – 3.9; male catkins with flowering rachis 21 – 52 mm long *S. monochroma*
  - 6' Mature leaves notably hairy on at least one side or on the midrib
    - 7. Leaves entire or toothed with marginal glands mostly forward pointing, glabrate or glabrous at least on the lower side; low to moderate elevations *S. boothii*

<sup>1</sup> More common west of the Cascades. Perhaps in SE Oregon, but if so only rarely.

<sup>2</sup> Commonly planted at home sites, along roads, and in wetlands restoration projects. Probably does not reproduce by seed, but the brittle branches break off and root where they are transported downstream.

<sup>3</sup> Reports of *S. alba* in this area are probably *S. X rubens*, which is a *S. alba* X *S. fragilis* hybrid.

<sup>4</sup> Reported in this area, not confirmed.

<sup>5</sup> Reported from Steens Mountain but not confirmed; a northern species.

- 7' Leaves, at least some, with prominent glands on the lower margins that stand out perpendicular to the leaf margin, usually persistently pubescent on both sides; high elevation ..... *S. commutata* &/or *S. eastwoodiae*  
Theoretically, plants with hairy ovaries and capsules are *S. eastwoodiae* and those with glabrous capsules are *S. commutata*, but many plants on Steens Mountain have very sparse hairiness or hairs in stripes; these are usually traits of hybrids. What's happening on Steens is a mystery.

**Key E. Lower surface of leaf blade glaucous or obscured by hairs; plants not alpine and lacking other distinctive traits like strongly glaucous buds or petioles with glands.**

1. Plants of the alpine zone on Steens Mountain ..... Key A
- 1' Plants of lower elevations or elsewhere (not above about 8000 feet on Steens Mountain)
  2. Leaf blade with both white hairs and rusty, brownish, or dingy hairs, or only rusty hairs ..... Key G
  - 2' Leaf blade with white hairs only, or glabrous
  3. Leaves linear to narrowly elliptic, entire to spinulose-serrulate; plants often producing catkins all summer long; clonal by root sprouts but older plants sometimes looking like non-clonal shrubs
  4. Leaves linear, length 10 – 23 times width, hairy; young leaves silky *S. exigua* ssp. *exigua*
  - 4' Leaves narrowly elliptic, length 2.8 – 8.5 times width, becoming glabrous; young leaves long-soft-wavy-hairy, tomentose, or velvety ..... *S. melanopsis*<sup>1</sup>
  - 3' Leaves narrowly elliptic to very broad, entire to serrulate but not spinulose; producing catkins at a defined time early in the season only; not clonal from root sprouts, though the spreading lower branches may root by layering
  5. Leaf margins entire to crenate
    6. Leaves +/- spatulate<sup>2</sup> AND with margins definitely rolled under to form a rim; leaf tips usually rounded to acute; habitat typically dry ..... *S. scouleriana*
    - 6' Leaves elliptic (sometimes obovate in *S. lasiolepis*), with margins not or only slightly rolled under (to strongly rolled under in *S. jepsonii*), leaf tips acute to acuminate (sometimes rounded in *S. lasiandra*); habitat wet
    7. Young leaves only sparsely to moderately hairy; leaf blades usually with ridge-like, netted veins on lower surface; capsules on stalks 2 – 6 mm long; northern part of the counties only ..... *S. bebbiana*
    - 7' Young leaves densely hairy; leaf blades with veins flat or slightly protruding; capsules on stalks 0.5 – 2.8 mm long
    8. Upper surface of leaves dull (or shiny); lower surface of leaf +/- densely pubescent, the short, straight hairs obscuring the surface when the leaf is young, though often thinning enough to see the veins later in the season
    9. Leaves proportionately narrower, 2.5 – 7.3 times as long as wide; 1 – 2 stamens per flower; staminate catkins 1.2 – 1.4 times as long as wide *S. jepsonii*

<sup>1</sup> Reported from this area, not confirmed.

<sup>2</sup> Rounded at the tip and widest in upper third, tapering to the base

- 9' Leaves proportionately wider, 2 – 4 times as long as wide; 1 stamen per flower; staminate catkins 1/6 – 5.6 times as long as wide ..... *S. sitchensis*
- 8' Upper surface of leaves shiny; lower surface of leaf thinly pubescent to +/- glabrous ..... skip ahead to lead 11
- 5' Leaf margins finely (sometimes very finely!) serrate
10. Leaf bases acute to wedge-shaped
11. Ovaries and capsules glabrous; young leaves usually tomentose or woolly (sometimes with silky hairs); low elevation shrub (sometimes quite large and tree-like) with leaves variable, leaf shape varying from elliptic to obovate, with leaf margins varying from entire to definitely but irregularly toothed ..... *S. lasiolepis*
- 11' Ovaries and capsules pubescent; young leaves with silky hairs; shrub from low to high elevations, with elliptic leaves widest in the middle third, with leaf margins entire to regularly, finely toothed
12. Stipules foliaceous, absent, or vestigial; leaf veins “like a road map of Nebraska” – only larger veins visible, so bigger green areas between the veins; catkins cylindrical, 1.6 – 4.5 cm long ..... *S. lemmonii*
- 12' Stipules absent or vestigial; leaf veins “like a road map of Georgia” – even the smaller veins visible; catkins subglobose, 0.8 – 2.1 cm long *S. geyeriana*
- 10' Leaf base rounded, +/- cordate, +/- squared off, or sometimes acute (leaves +/- apple-like)
13. 2 – 5 year old twigs pale gray and smooth (occasionally yellowish) ..... *S. lutea*
- 13' 2 – 5 year old twigs usually red-brown, peeling
14. Leaf blade lanceolate to elliptic (length 2.9 – 6.4 X width), base acute to rounded (rarely cordate); stipule tip acute ..... *S. ligulifolia*<sup>1</sup>
- 14' Leaf blade lanceolate to ovate (length 2.4 – 4.5 X width), base generally cordate; stipule tip rounded; northern part of the counties only ..... *S. proluxa*

**Key F. Twigs +/- strongly glaucous.**

1. Leaf bases rounded or subcordate ..... *S. boothii*
- 1' Leaf bases wedge-shaped or convex
2. Twigs blackish and glossy under the glaucous covering; plants at Jackman Park and possibly other moderately high elevations on Steens Mountain ..... *S. drummondiana*
2. Twigs greenish, red-brown, or yellowish, dull to glossy
3. Lower surface of leaf obscured by hairs; twigs rather weakly glaucous
4. Leaves proportionately narrower, 2.5 – 7.3 times as long as wide; 1 – 2 stamens per flower; staminate catkins 1.2 – 1.4 times as long as wide ..... *S. jepsonii*
- 4' Leaves proportionately wider, 2 – 4 times as long as wide; 1 stamen per flower; staminate catkins 1/6 – 5.6 times as long as wide ..... *S. sitchensis*
- 3' Lower surface of leaf glaucous, sometimes with sparse hairs
5. Plants of low to high elevations, but not in the alpine zone on Steens Mountain except immediately adjacent to the road

<sup>1</sup> Reported from Steens Mountain, not confirmed

- 6. Stipules foliaceous, absent, or vestigial; leaf veins “like a road map of Nebraska” – only larger veins visible, so bigger green areas between the veins; catkins cylindrical, 1.6 – 4.5 cm long ..... *S. lemmonii*
- 6’ Stipules absent or vestigial; leaf veins “like a road map of Georgia” – even the smaller veins visible; catkins subglobose, 0.8 – 2.1 cm long ..... *S. geyeriana*
- 5’ Plants of the alpine zone on Steens Mountain and not in the ditch adjacent to the road
  - 7. Twigs brittle; largest medial leaf blades often more than 4 times as long as wide, with veins on upper surface impressed; lower leaf surface densely hairy with short silky or velvety hairs (or becoming glabrous); plants of more sheltered sites, mostly along creeks ..... *S. jepsonii*
  - 7’ Twigs flexible; largest medial leaf blades less than 4 times as long as wide; lower leaf surface glabrous to moderately densely hairy with diverse hair types, often wavy hairs ..... *S. orestra* &/or *S. glauca* var. *villosa*

**Key G. Leaf blade with rusty, brownish, or dingy hairs, at least in part.**

- 1. Twigs glaucous ..... Key F
- 1. Twigs not glaucous
  - 2. Petiole with glands near base of blade ..... Key C
  - 2. Petiole lacking glands near base of blade
    - 3. Leaves usually oblanceolate to obovate, broadest in the distal third
      - 4. Leaf margins rolled under or thickened, at least at the base; habitat often mesic to dry uplands ..... *S. scouleriana*
      - 4. Leaf margins not rolled under (or only slightly so), not thickened (or only slightly so), habitat wetlands and stream banks ..... *S. lasiolepis*
    - 3. Leaves usually linear to elliptic, widest in the lower or middle third
      - 5. Leaf bases rounded or subcordate ..... *S. boothii*
      - 5’ Leaf bases wedge-shaped or convex
        - 6. Ovaries and capsules glabrous; young leaves usually tomentose or woolly (sometimes with silky hairs); low elevation shrub or tree; leaves variable, elliptic to obovate, with margins entire to definitely but irregularly toothed ..... *S. lasiolepis*
        - 6’ Ovaries and capsules pubescent; young leaves with silky hairs; shrub from low to high elevations, with elliptic leaves widest in the middle third, with leaf margins entire to regularly, finely toothed
          - 7. Stipules foliaceous, absent, or vestigial; leaf veins “like a road map of Nebraska” – only larger veins visible, so bigger green areas between the veins; catkins cylindrical, 1.6 – 4.5 cm long ..... *S. lemmonii*
          - 7’ Stipules absent or vestigial; leaf veins “like a road map of Georgia” – even the smaller veins visible; catkins subglobose, 0.8 – 2.1 cm long ..... *S. geyeriana*

## Willows of Harney and Malheur Counties, Oregon

### Low elevations to subalpine

*Salix boothii* – Common; shrub with green leaves (both sides), yellow twigs, large buds, and conspicuous stipules

*Salix drummondiana* – Rare, Jackman Park and possibly other locations at moderately high elevations on Steens Mountain. Twigs glossy blackish and strongly glaucous.

*Salix exigua ssp. exigua* – Abundant at low elevations; clonal by root sprouts; many shoots that usually arise vertically (not spreading from one point); leaves linear to lanceolate; may bloom all summer long

*Salix geyeriana* – Common; shrub with glaucous undersurface of leaves and (usually) glaucous twigs. Like *S. lemmonii* but catkins subglobose, leaves shorter and thinner with even tiny veins visible.

*Salix jepsonii* – Rare; Shrub with impressed veins; under surface of leaves with shiny, short, thick, velvety white hairs. One or two stamens per flower often mixed in the same catkin. Creeks and other moist spots at moderate to very high elevations.

*Salix lasiolepis* – Shrub. Uncommon. Habitat: Hot, low elevation canyons. Leaf shape and toothing are highly variable.

*Salix lemmonii* – Very common; shrub with glaucous lower leaf surface and (usually) glaucous twigs. Like *S. geyeri* but catkins longer and more cylindrical, leaves longer and thicker with tiniest veins not visible.

*Salix lasiandra ssp. caudata* – Common; shrub with both sides of leaf green; leaf with “drip tip,” usually widest in lower third. Tiny whitish or grayish stomata pepper upper surface of leaves.

*Salix lutea* – Common. Shrub. Leaves glaucous below but not conspicuously so – shrubs look green from a distance. Older branches pale gray, skeletal. Stipules obvious.

*Salix X rubens* – Uncommon; Tree with open crown; glands on petiole near base of leaves; twigs brittle, usually yellow. Planted near home sites and roads, not producing seed but spreading downstream from twigs that break off established trees.

*Salix scouleriana* – Uncommon; Shrub on dry sites or sometimes in wetlands; leaves obovate (spoon-like); hairs usually a mix of white and rusty, so undersurface of leaf looks dingy.

### Low to moderate elevations, reported but not confirmed in Harney and Malheur Counties

*Salix alba* – Tree much like *S. X rubens* but with hairy leaves. Reports from SE Oregon are probably *S. X rubens*, which is a hybrid of *S. alba* and *S. fragilis*.

*Salix lasiandra ssp. lasiandra* – Large shrub or tree. Leaf with “drip tip,” usually widest in lower third, like *S. lasiandra ssp. caudata*, but leaves +/- glaucous below and stomata absent on upper leaf surface.

*Salix ligulifolia* – Shrub, kind of like *S. lutea* with brown twigs and acute stipule tips.

*Salix melanopsis* – Like *S. exigua* but with somewhat wider leaves that become glabrous, and longer petioles.

*Salix sitchensis* – Shrub like *S. jepsonii* but with wider leaves and consistently one stamen per male flower. Perhaps all reports of *S. sitchensis* are really *S. jepsonii*.

**Alpine**

*Salix boothii* – Common. Shrub; leaves green on both sides; buds large, yellow or red.

*Salix brachycarpa* var. *brachycarpa* – Uncommon. Low shrub; leaves very small; catkins subglobose.

*Salix commutata* and *S. eastwoodiae* – Uncommon. Leaves green below like *S. boothii*, but with more hairs, and with glands that stick out perpendicularly from the margin of the leaves so that the toothing is more obvious. In theory, *S. commutata* has glabrous ovaries and capsules and *S. eastwoodiae* has pubescent ovaries and capsules, but many plants of the Steens have capsules with sparse hairs in lines, a trait sometimes seen on hybrids. The plants on Steens Mountain need more study to understand their taxonomic status.

*Salix glauca* var. *villosa* – Uncommon on Steens Mountain, not documented elsewhere in Oregon. Shrub; leaves glaucous below. Confused with *S. orestera*. Hybridizing with *S. brachycarpa*? Taxonomic status of Steens Mountain plants not well understood.

*Salix jepsonii* – Rare on Steens Mountain, status unknown elsewhere in Oregon. Shrub with impressed veins; shiny, short, thick, velvety white hairs on undersurfaces of narrow leaves. One or two stamens per flower. Mostly creeks, sometimes in other wet spots, at moderate to very high elevations.

*Salix nivalis* – Uncommon. Creeping plant with tiny catkins.

*Salix orestera* – Presence on Steens Mountain uncertain, rare if present. Shrub; leaves glaucous below. Confused with *S. glauca* var. *villosa*. Taxonomic status of Steens Mountain plants not well understood.

*Salix lemmonii* – Uncommon. Shrub with glaucous lower surface of leaves and (usually) glaucous twigs.

*Salix petrophila* – Rare. Creeping plant with relatively large catkins.

*Salix planifolia* var. *monica* – Uncommon. Low shrub (sometimes creeping) with glossy leaves and spreading, widely angled branches.

**Reported but not confirmed in the alpine zone of Harney County**

*Salix barclayi* – like *S. glauca* and *S. orestera*, but with glabrous ovaries. A northern species.

*Salix sitchensis* – Shrub like *S. jepsonii* but with wider leaves and consistently one stamen per male flower. Perhaps all reports of *S. sitchensis* are really *S. jepsonii*.

*Salix wolfii* – Small alpine willow with both sides of the leaves densely, persistently hairy. A northern species.

**Northern part of Harney and Malheur Counties, low to moderate elevations**

*Salix amygdaloides* – Tree; bud margins overlapping and bud tips sharply pointed; leaves tend to droop.

*Salix bebbiana* – Shrub (occasionally tree); veins impressed on upper leaf surface, forming a network; capsules on relatively long stipes, with long beaks.

*Salix prolixa* – Leaves glaucous below, stipules foliaceous, buds large.