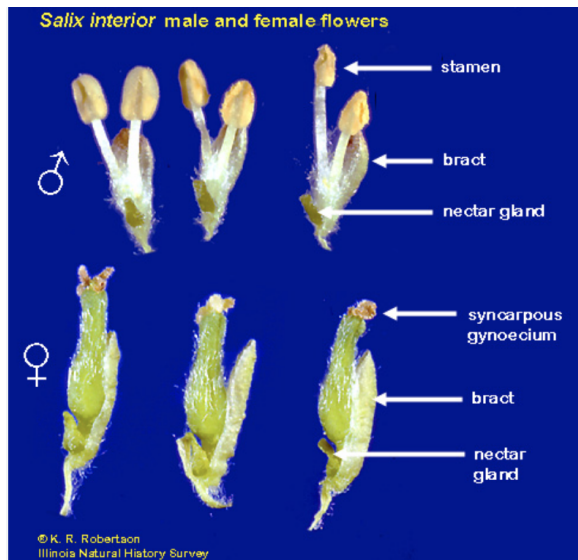
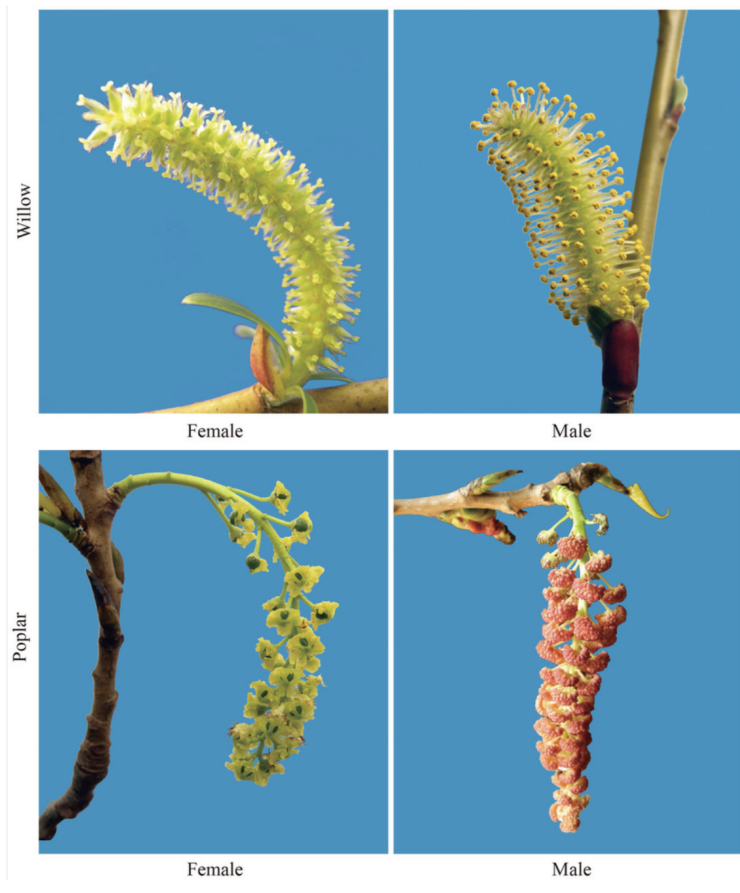


## Keying Resources



Salix male and female flower close up

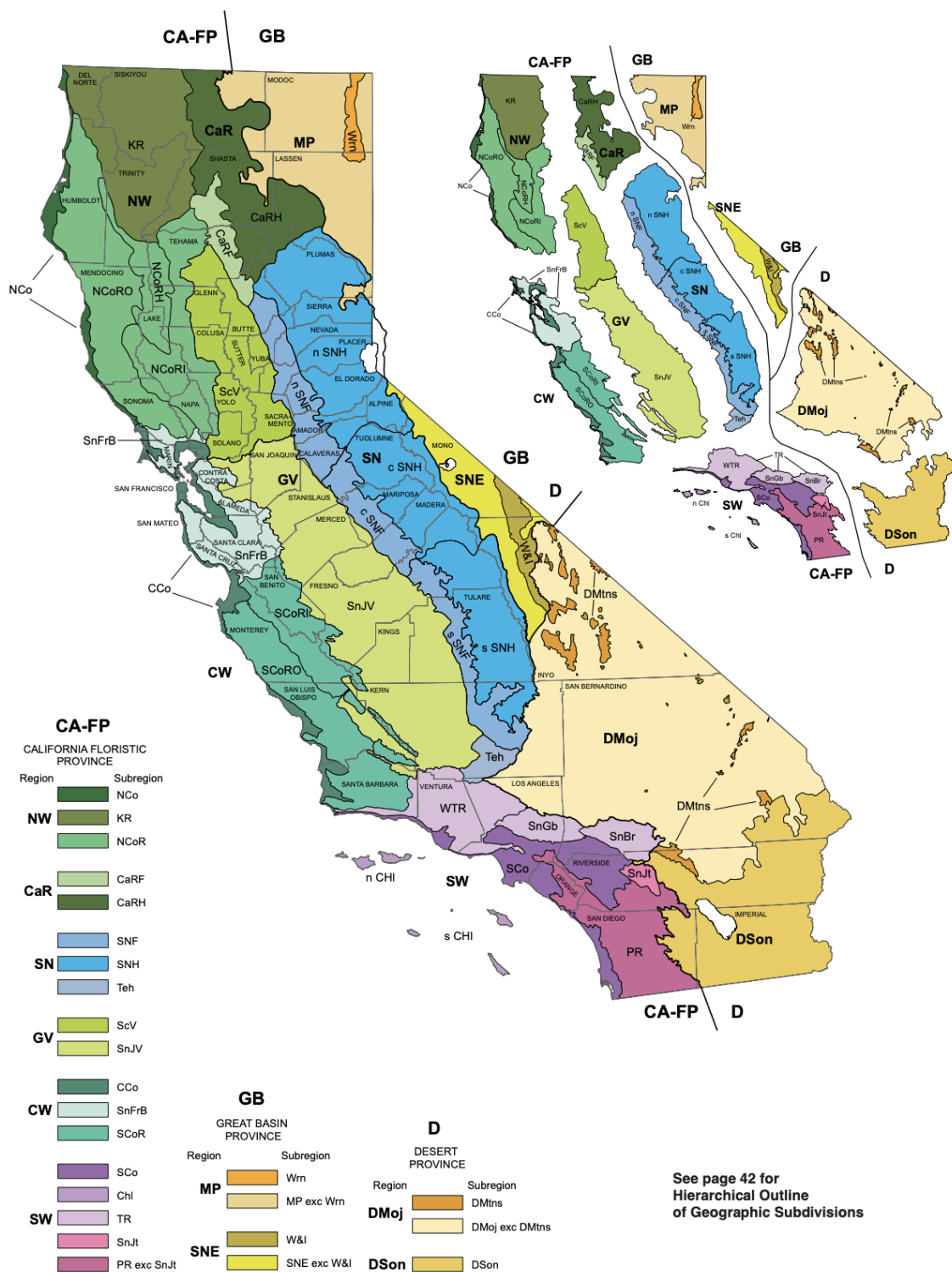
<https://www.life.illinois.edu/help/digitalflowers/Salicaceae/6.htm>



Male and Female Inflorescences of Trees in Salicaceae

[https://www.researchgate.net/figure/Flowers-of-the-female-and-male-trees-in-Salicaceae-species-On-willow-and-poplar-the\\_fig4\\_273576556](https://www.researchgate.net/figure/Flowers-of-the-female-and-male-trees-in-Salicaceae-species-On-willow-and-poplar-the_fig4_273576556)  
[https://www.researchgate.net/figure/Flowers-of-the-female-and-male-trees-in-Salicaceae-species-On-willow-and-poplar-the\\_fig4\\_273576556](https://www.researchgate.net/figure/Flowers-of-the-female-and-male-trees-in-Salicaceae-species-On-willow-and-poplar-the_fig4_273576556)

## Geographic Subdivisions of California



Jepson Manual CA Map - Our region includes SNE (east of Sierra Nevada), and W&I (White & Inyo Mountains)

## ABBREVIATIONS AND SYMBOLS

### Abbreviations

The abbreviations below were selected because they save considerable space, are relatively unambiguous, and are easily remembered. They are used throughout this book, with the exception of introductory material. Words not appearing below are not abbreviated, except that the official, two-letter, postal abbreviations for states in the United States are used. Abbreviations that appear in both lower-case and capital letters are indicated. Periods are used only where their absence could cause confusion. Entries referring to parts of California are marked with asterisks and discussed more fully under Geographic Subdivisions of California (p. 35).

AB = Alberta, Canada  
Afr = Africa  
Am = Americas (w hemisphere), America(n)  
ambig. (or nom. ambig.) = nomen ambiguum, ambiguous  
name; name commonly used by mistake for more than  
one taxon  
ann = annual

b = born  
Baja CA = Baja California  
BC = British Columbia, Canada  
bien = biennial

c = central  
CA-FP = California Floristic Province\*  
C.Am = Central America(n)  
Can = Canada  
CaR = Cascade Range\*  
CaRF = Cascade Range Foothills\*  
CaRH = High Cascade Range\*  
CCo = Central Coast\*  
ChI = Channel Islands\*  
cm = centimeter, 0.01 meter  
Co. = County  
cos. = counties  
cult = cultivated, cultivation  
cv. = cultivar, cultivated variety  
CW = Central Western California\*

D = Desert Province\*  
diam = diameter  
dm = decimeter, 0.1 meter  
DMoj = Mojave Desert\*  
DMtns = Desert Mountains\*  
DSon = Sonoran (Colorado) Desert\*

e = east(ern)  
e-c = east-central  
esp = especially  
Eur = Europe  
exc = except, excluded, excludes, excluding

f. = form, forma; son of (L.f. means son of Linnaeus, see  
Authors of Plant Names)  
fl, fls (FL, FLS) = flower(s), floral, flowering  
fld = flowered  
FNANM = Flora of North America North of Mexico  
fr (FR) = fruit

GB = Great Basin Province\*  
gen = generally, mostly, usually, over half (e.g., petals gen  
red in genus description means over half of subordinate  
taxa have red corollas, with the rest requiring that petal  
color be addressed)  
geog = geographic(al, ally), geography  
GV = Great Central Valley\*

illeg. (or nom. illeg.) = nomen illegitimum, illegitimate  
name; name validly published but otherwise not  
conforming to the rules  
incl = included, includes, including  
ined. (or nom. ined.) = nomen ineditum, unpublished name;  
name not published or not validly published  
infl, infls (INFL, INFLS) = inflorescence(s)  
inval. (or nom. inval.) = nomen invalidum, invalid name;  
name not validly published according to the rules

KR = Klamath Ranges\*

lf (LF) = leaf  
lfless = leafless

14 Abbreviations and Symbols

lflet = leaflet  
lfy = leafy  
lvs (LVS) = leaves  
lvd = leaved

m = meter  
MB = Manitoba, Canada  
MP = Modoc Plateau\*  
Medit = Mediterranean  
Mex = Mexico  
misappl. = misapplied; name used incorrectly for a CA plant, through misidentification and other means  
mm = millimeter, 0.001 meter (µm, a micrometer, is 0.0001 meter, previously also called a micron)  
(M)mtn(s) = (M)mountain(s)

n = north(ern)  
n-c = north-central  
N.Am = North America(n)  
NB = New Brunswick, Canada  
NCo = North Coast\*  
NCoR = North Coast Ranges\*  
NCoRH = High North Coast Ranges\*  
NCoRI = Inner North Coast Ranges\*  
NCoRO = Outer North Coast Ranges\*  
ne = northeast(ern)  
NL = Newfoundland and Labrador, Canada  
notho- = prefix indicating that a taxon is the result of hybridization, when at least one of the parental taxa involved is known or can be postulated, affixed to the term denoting the rank at which that taxon is recognized; e.g., nothosubspecies  
NS = Nova Scotia, Canada  
NT = Northwest Territories, Canada  
nud. (or nom. nud.) = nomen nudum, naked name; name naked usually in the sense of lacking a description with its publication

NW = Northwestern California\*  
nw = northwest(ern)

occ = occasionally  
ON = Ontario, Canada  
orn = ornamental  
orth. var. = orthographic variant; variant spelling of a name

PE = Prince Edward Island, Canada  
per = perennial herb  
pl(s) (PL) = plant(s)  
PR = Peninsular Ranges\*

QC = Quebec, Canada

rej. (or nom. rej.) = nomen rejiciendum, rejected name; name prohibited by legislation

s = south(ern)  
s-c = south-central

S.Am = South America(n)  
SCo = South Coast\*  
SCoR = South Coast Ranges\*  
SCoRI = Inner South Coast Ranges\*  
SCoRO = Outer South Coast Ranges\*  
ScV = Sacramento Valley\*  
se = southeast(ern)  
sect(s). = section(s) (abbreviated only as taxonomic rank)  
SK = Saskatchewan, Canada  
s.l. = sensu lato, in the broad sense; broad circumscription of a taxon  
SON = Sonora, Mexico  
SN = Sierra Nevada\*  
SNE = East of Sierra Nevada\*  
SNF = Sierra Nevada Foothills\*  
SNH = High Sierra Nevada\*  
SnBr = San Bernardino Mountains\*  
SnFrB = San Francisco Bay Area\*  
SnGb = San Gabriel Mountains\*  
SnJt = San Jacinto Mountains\*  
SnJV = San Joaquin Valley\*  
sp. = species (singular)  
spp. = species (plural)  
s.s. = sensu stricto, in the narrow sense; narrow circumscription of a taxon  
st(s) (ST(S)) = stem(s)  
subg. = subgenus, subgenera  
subject(s). = subsection(s)  
subsp. = subspecies (singular)  
subspp. = subspecies (plural)  
superfl. (or nom. superfl.) = nomen superfluum, superfluous name; name for a taxon that has an earlier, legitimate name  
SW = Southwestern California\*  
sw = southwest(ern)

Teh = Tehachapi Mountain Area\*  
temp = temperate(s), temperate zone(s)  
*TJM* (1993) = *The Jepson Manual*, 1993 edition  
TR = Transverse Ranges\*  
trop = tropical, tropic(s), tropical zone(s)

US = United States

var. = variety  
vars. = varieties  
vs = versus

w = west(ern)  
w-c = west-central  
W&I = White and Inyo Mountains\*  
WTR = Western Transverse Ranges\*  
Wrn = Warner Mountains\*

yr(s) = year(s)  
YT = Yukon, Canada (Yukon Territory)



## ***Salix exigua* (Coyote Willow)**

**Drainage:** Pine Creek

**Site:** Pine Creek Canyon (a.k.a Pratt's Crack Canyon)

**Collection Site/Date:** 06/15/23

Growing at the parking lot at the trailhead

**Salicylate Level/Taste:** mild/moderately bitter

**Elevation/range:** <2800 m (9,186 ft) Common. Shores, bars, silt, sand, gravel.

### **Staminate Catkins:**

- 2 stamens per flower
- adaxial and abaxial nectar glands (front and rear of male flower)
- shrub, > 0.2 m (0.656168 feet)
- catkins blooming with or after leaves, on leafy shoots
- clonal by root-sprouting, riparian
- Lf blade linear, length 10–23 × width; twigs ± tan; young lvs short- and long-silky; petiole hairy

. . . . *S. exigua* var. *exigua*



Left: 2 male *S. exigua* flowers showing abaxial and adaxial nectar glands. Right: *S. exigua* twig showing the trait of catkins blooming with or after leaves (catkins on leafy shoots). Photos AB.

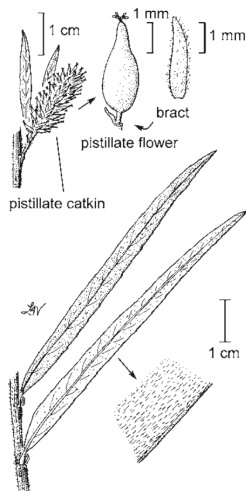
***S. exigua*** Nutt. Shrub or tree < 5 m, clonal by root-shoots. **ST**: twigs yellow- to red-brown. **LF**: later stipules lf-like; petiole 1–7 mm; mature blade 30–147 mm, linear or strap-shaped, acuminate (base wedge-shaped), entire or ± sparsely short-slender-serrate. **INFL**: blooming with or after lvs, branched or not, pistillate 22–70 mm, on lfy shoots 2–70 (400) mm; fl bract ± tan; pistillate bracts deciduous. **STAMINATE FL**: stamens 2; nectaries adaxial, abaxial. **PISTILLATE FL**: ovary stalk 0.2–0.9 mm, stigma deciduous.

1. Twig, lf hairs ± appressed; ovary glabrous (hairy on beak or not), stalk 0.2–0.9 mm; style < 0.2 mm or gen 0; fl bract tip rounded, staminate 1.2–1.6 mm; young lvs short-silky . . . . . var. *exigua*

- 1' Twig, lf hairs ± spreading, fewer ± appressed; ovary hairy (at least when young), stalk 0–0.2 mm; style 0.1–0.4 mm; fl bract tip acute to convex, staminate 1.4–2.6 mm; young lvs long-silky . . . . . var. *hindsiana*

var. *exigua* (p. 1229) NARROW-LEAVED WILLOW, COYOTE WILLOW **LF**: petiole densely short-soft-spreading-hairy; mature blade abaxial hairs gen densely long-soft-fine-silky, straight or wavy. **PISTILLATE FL**: stigmas flat or wide-cylindric, 0.25–0.5 mm. **FR**: 4–8 mm.  $2n=38$ . Common. Shores, bars, silt, sand, gravel; < 2800 m. SN, MP, D; to BC, SK, SD, TX, Mex. Hybridizes with *S. exigua* var. *hindsiana*, *S. sessilifolia* (latter exc from CA since TJM (1993)). Mar–Jun

var. *hindsiana* (Benth.) Dorn HINDS' WILLOW **LF**: petiole puberulent, long-soft-wavy-hairy or -silky; mature blade abaxial hairs gen densely long-soft-fine-silky, straight, to 0. **PISTILLATE FL**: stigmas flat or slender-cylindrical, 0.3–1 mm. **FR**: 3–4.5 mm. Common. Floodplains, sandy gravel; < 640 m. NW, GV, CW, SW; sw OR. Hybridizes with *S. exigua* var. *e*. Apr–May



*Salix exigua* var. *exigua*

***Salix lutea* (Yellow Willow)**

**Drainage:** Bishop Creek

**Site:** La Hupp

**Collection Site/Date:** 06/18/23

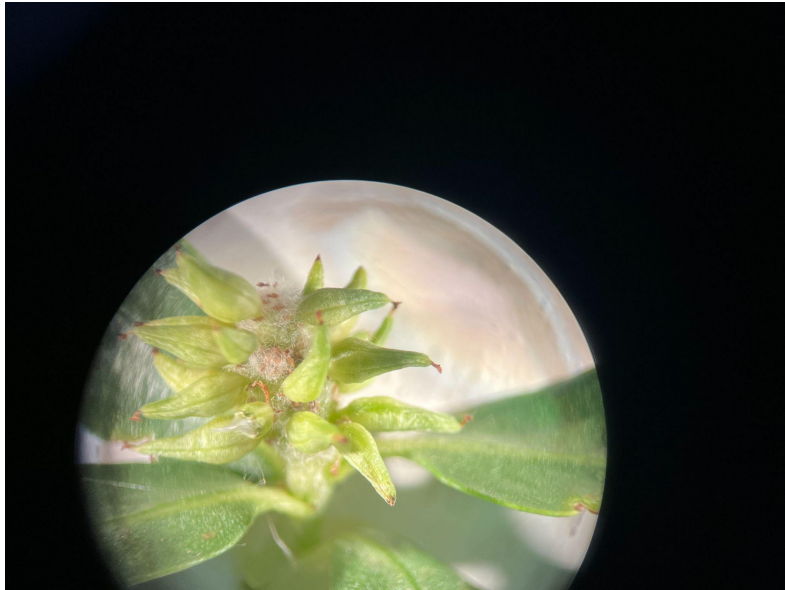
Stopped at lower elevation Fork Campground on the way up to La Hupp, saw *Salix lutea* there.

**Salicylate Level/Taste:** low salicylate level and a mild and cottony taste.

**Elevation/range:** River, creek margins, wet meadows; 640–3100 m. (2099 - 10170 ft), c&s SNH (esp e slope)

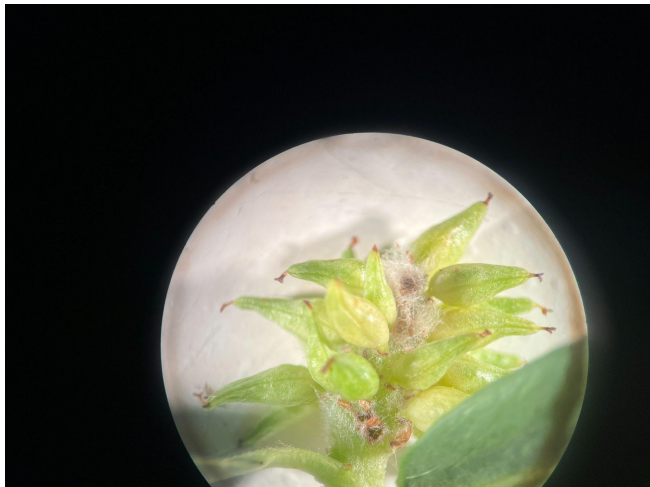
**Pistillate Catkins:**

- Ovary glabrous (hairless)



*S. lutea* female catkin showing glabrous ovaries. Photo AB

-Flower bracts generally persistent, tan to black, tips entire



*S. lutea* catkin showing persistent bracts subtending female flowers. Photo AB

-Shrub to tree, twigs erect, nectary < ovary stalk



Female *S. lutea* flower showing the nectary as shorter than the ovary stalk. The nectary is to the left and the flower bract is to the right of the ovary stalk in this photo. Photo AB.

-Young leaves white-hairy



Young *S. lutea* leaf present at shoot tip covered in white hairs. Photo AB.



-Leaf blade glaucous abaxially (Covered with a generally whitish or bluish, waxy or powdery film that is sometimes easily rubbed off).



*S. lutea* leaves showing glaucousness on underside of leaves, rubbed off in portions of the leaves. Photo AB.

-Stipules prominent on all leaves, especially young leaves.



*S. lutea* shoot showing stipules subtending the young leaves. Photo AB.

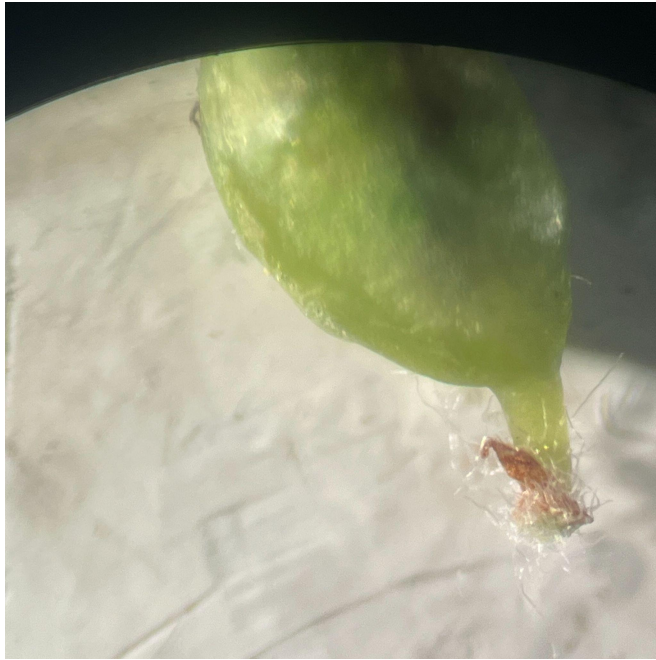


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<https://www.uwgb.edu/biodiversity-old/herbarium/trees/salnig01.htm>



-flower bract hairs generally curly, rarely straight or wavy



Closeup of *S. lutea* flower showing curly bract hairs. Photo AB.

- Twigs yellow-gray or yellow- or gray-brown, not peeling, glabrous or sparsely soft-shaggy-hairy . . . . . *S. lutea*



*S. lutea* twig with yellow-gray bark. Photo AB.

***S. lutea*** Nutt. (p. 1233) YELLOW WILLOW Shrub < 7 m. **ST:** twigs yellow-gray or yellow- or gray-brown, glabrous or hairy. **LF:** stipules gen lf-like; petiole 4–19 mm; young lvs glabrous or silky; mature blade 42–90 mm, strap-shaped to elliptic, lanceolate, or narrowly oblanceolate, acuminate (base convex to rounded), entire to fine-serrate or -crenate, abaxial hairs long-soft-shaggy or sparsely long-silky, straight, to 0. **INFL:** blooming just before or with lvs, pistillate 13–38 mm, on lfy shoots 0.5–7 mm; fl bract brown to ± tan, sparsely curly-hairy. **STAMINATE FL:** stamens 2. **PISTILLATE FL:** ovary glabrous, stalk 0.9–3.8 mm, style 0.13–0.6 mm.  $2n=38$ . River, creek margins, wet meadows; 640–3100 m. c&s SNH (esp e slope), SnBr, SnJt, GB, w DMoj; to OR, MT, WY, AZ. [*S. eriocephala* var. *watsonii* (Bebb) Dorn] Mar–May



## ***Salix lasiolepis* (Arroyo Willow)**

**Drainage:** Pine Creek

**Site:** Pine Creek Canyon (a.k.a Pratt's Crack Canyon)

**Collection Site/Date:** 06/15/23

Growing along the stream up the canyon.

**Salicylate Level/Taste:** moderately bitter

**Elevation/range:** Abundant. Shores, marshes, meadows, springs, bluffs; < 2800 m (9,186 ft)

### **Pistillate Catkins:**

-Ovary glabrous



*S. lasiolepis* pistillate catkin showing glabrous ovaries. Photo AB.

-Flower bracts persistent, hairy, tips entire



2 female *S. lasiolepis* flowers showing persistent, hairy bracts. Photo AB.

-Shrub to tree; twigs erect; nectary < ovary stalk



Two *S. lasiolepis* female flowers showing the nectaries as smaller than the ovary stalk. The nectaries are to the left and the flower bracts are to the right of the ovary stalks in this photo. Photo AB.

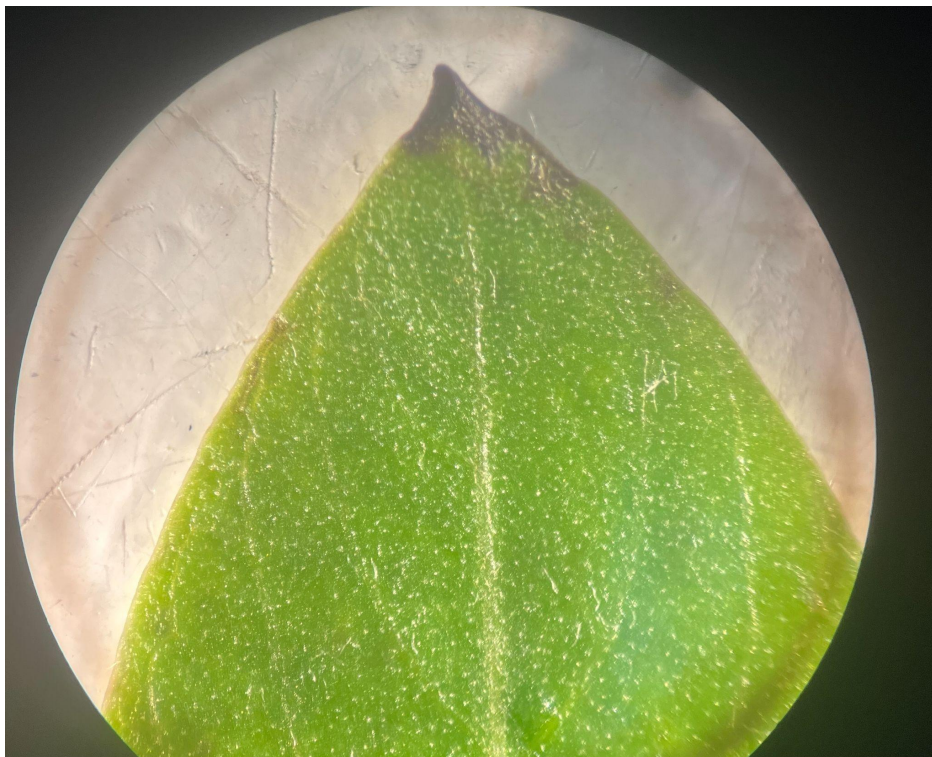


-Flower bract dark brown, wider distally, tip rounded, hairs dense, short, gen wavy; lvs white- or white-and-rusty-hairy



Two *S. lasiolepis* flower bracts removed from the female flowers, showing the dark brown color, dense wavy hairs, and widened, rounded tips distally. Photo AB.

-Stipule tip acute; lf glands submarginal or distinctly on adaxial surface; young lvs thick, yellow-green (or  $\pm$  red) . . . . .  
. . . . . ***2s. lasiolepis***



A young *S. lasiolepis* leaf with leaf glands on the adaxial (upper) surface. Photo AB.



*S. lasiolepis* twig showing thick, yellow-green young leaves and overall growth form of the willow species, with a ruler in cm for scale. Photo AB.



Photo of *S. lasiolepis* from Calflora.org for comparison of above photos, showing similarities of catkin morphology, twig bark color, and growth form of young leaves. (<https://www.calflora.org/app/taxon?crn=7277>)





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Photo of *S. lasiolepis* from Calflora.org for comparison of above photos, showing similarities of twig bark color and growth form of young leaves. ( <https://www.calflora.org/app/taxon?crn=7277>)



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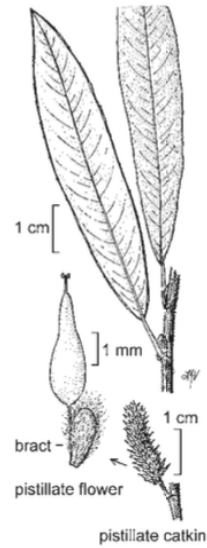


Photo AB.

(<https://www.calflora.org/app/taxon?crn=7277>)

Comparison of *S. lasiolepis* catkin morphology from Calflora.org to the sample from Pratt's Crack Canyon. The characteristic brown flower bracts are revealed in the photos.

***S. lasiolepis*** Benth. (p. 1233) ARROYO WILLOW Shrub, small tree, < 10 m. **ST**: twigs ± yellow, yellow-green, or yellow- or red-brown, glabrous, densely short-soft-spreading-hairy, or tomentose, gen brittle at base. **LF**: later stipules gen lf-like; petiole 3–16 mm, tomentose to velvety; young lvs white- or white-and-rusty-hairy; mature blade 35–125 mm, strap-shaped to elliptic or obovate, acute to convex (base wedge-shaped to convex), entire to irregularly serrate, ± to strongly rolled under, abaxially gen ± dense-tomentose or -woolly-tomentose or hairs sparsely short-soft-spreading or short- or long-silky, white or white and rusty, wavy, to ± 0. **INFL**: blooming before lvs, pistillate 18–72 mm, on lf shoots 0–6 mm; fl bract dark brown, with gen wavy hairs, tip broadly rounded. **STAMINATE FL**: stamens 2. **PISTILLATE FL**: ovary glabrous, stalk 0.5–2.4 mm, style 0.1–0.6 mm.  $2n=76$ . Abundant. Shores, marshes, meadows, springs, bluffs; < 2800 m. CA; to WA, ID, TX, Mex. [*S. l.* var. *bigelovii* (Torr.) Bebb] Highly variable; several weak vars. described. NCo populations suggest intergradation with *S. hookeriana*. Jan–Jun



*Salix lasiolepis*