A KEY FOR IDENTIFYING CONIFERS OF THE PACIFIC SLOPE

CONIFERS (leaves needle-like or scale-like)

- leaves scale-like; ≤ 0.5" long (**most Cupressaceae**) pp. 26-59
- leaves needle-like; ≥ 0.5" long
  - needles clustered
    - soft, deciduous needles in clusters of >10 (*Larix*)
      - current year twigs woolly; growing at higher elevations ***Larix lyallii,* p. 76**
      - current year twigs not woolly; growing at low to mid-elevations ***Larix occidentalis,* p. 78**
    - hard, evergreen needles clustered in bundles of 2-5 **PINES** (***Pinus***) pp. 86-119
  - needles not clustered
    - twigs warty where old needles have fallen off
      - needles sharp
        - bark with loose scales; needles <1.5"; branches sometimes hang like tinsel **SPRUCE** (***Picea***) pp. 80-85
        - needles, 1.5", single; spherical or ovoid seed cones **PINYON PINES** (***Pinus***) pp. 86-119
      - needles blunt, bark without loose scales HEMLOCK (*Tsuga*)
        - needles flat, spread horizontally from twig; cones <1" ***Tsuga heterophylla,* p. 124**
        - needles plump, spread around twig, star-like; cones <1.5" ***Tsuga mertensiana,* p. 126**
    - twigs smooth

Picea

- buds large and sharp, cones with 3-prong bract
  - cones >4"; transverse ranges of southern CA ***Pseudotsuga macrocarpa,* p. 120**
  - cones <4"; common across most of Pacific Slope ***Pseudotsuga menziesii,* p. 122**
- twigs smooth
  - buds not large and sharp, cones without 3-prong bract
    - tips of needles extremely sharp; only in CA ***Torreya californica* p. 132** or see also: **Santa Lucia fir** ***Abies bracteata*, p. 64**
    - tips of needles not painful to touch
      - twigs of current year remain green; needles with pointed tip but not sharp
        - small tree or shrub; purplish bark; no whitish color on underside of needles; fleshy red berry-like cone ***Taxus brevifolia,* p. 130**
        - large trees; needles with stomatal bloom in two rows on underside ***Sequoia sempervirens,* p. 46**
      - twigs of current year turn brown; seed cones upright at tops of trees **FIRS** (***Abies***) pp. 62-75

Picea

- trees of higher elevation (>2000'); needles stout not flattened
  - drooping branches, cones > 3", Klamath Mountains ***Picea breweriana,* p. 80**
  - cones < 3", scales broad near base; Cascades of OR, WA - rare in CA ***Picea engelmannii,* p. 82**
- low elevation coastal tree; needles flattened, whitish on one side ***Picea sitchensis,* p. 84**

TRUE FIRS

Abies

- lower branches w/ many needles >1.5" long
  - needles sharp to touch; thin bract extending to 1" beyond scales; Santa Lucia Mtns., CA ***Abies bracteata,* p. 64**
  - needles not sharp to touch
    - needles not sharp to touch
      - common in mid-elevation forests of Sierra Nevada, Klamath Mtns., Warner Mtns. ***Abies concolor* var. *lowiana,* p. 67**
      - >6000' on sky islands of southwest U.S. into northern Baja California ***Abies concolor* var. *concolor,* p. 66**
    - needles shiny dark green on top, whitish beneath, spreading horizontally from branch in 2 comb-like rows ***Abies grandis*, p. 68**
- needles <1.5" long
  - needles shiny dark green on top, vibrant white below, spreading forward ***Abies amabilis* p. 62**
  - needle not markedly two-toned, not spreading forward covering twig
    - needles stiff and turning upward
      - seed cones without bracts (except southern Sierra Nevada) ***Abies magnifica,* p. 72**
      - seed cones with bracts extending well beyond scales
        - barrel-shaped cones with truncate and caudate bracts ***Abies* x *shastensis,* p. 74**
        - cylindrical cones with bract that extend to cover entire cone and taper to a point ***Abies procera,* p. 73**
    - needle have star-like growth around twig; mature trees with spire-like crown ***Abies lasiocarpa,* p. 70**

PINES

Pinus

- <5 needles per bundle
  - <4 needles per bundle
    - 4 needles per bundle (or 5) ***Pinus quadrifolia*, p. 88**
    - 1 needle per bundle (rarely 2) ***Pinus monophylla*, p. 87**
  - 2 or 3 needles per bundle

Pinus

- 3 needles per bundle
  - cones symmetrical, nearly spherical; SW deserts, rare in California ***Pinus edulis,* p. 86**
  - cones asymetrical

Pinus

- 2 needles per bundle
  - cones <10" long
    - only in coastal San Diego County or Santa Rosa Island ***Pinus torreyana,* p. 110**
    - higher elevations
      - needles not packed densely around stems
        - cones >3", ripen to brown
          - cones 5"-8", light brown near tip of scales ***Pinus monticola,* p. 100**
          - cones 3"-6", thick scales that ripen to pale yellow ***Pinus flexilis,* p. 96**
        - cones <3", egg-shaped and purplish ***Pinus albicaulis,* p. 94**
      - needles packed densely around stems in "bottle-brush" form
        - cones ripen to brown
          - high elevations of southern Sierra Nevada ***Pinus balfouriana* ssp. *austrina,* p. 91**
          - high elevations of Klamath Mountains ***Pinus balfouriana* ssp. *balfouriana,* p. 90**
        - cones purplish with prickle at tip of scales ***Pinus longaeva,* p. 92**
  - cones, on average, >10" long ***Pinus lambertiana,* p. 98**

PINES

Pinus

- 3 needles per bundle
  - cones >6" long
    - rounded or recurved scale-tip
      - CA Central Coast, cones without thick prickle at tip ***Pinus radiata,* p. 111**
      - higher elevations, xeric sites, scales with recurved tip, not sharp ***Pinus jeffreyi,* p. 104**
    - scales with sharp hook at tip
      - seed cones nearly symmetrical, 6-10" long, dull brown, 4-sided scales ***Pinus sabiniana,* p. 108**
      - seed cones asymmetrical, 8-14" long, pale yellow-brown ***Pinus coulteri,* p. 102**
  - cones <6" long
    - serotinous
      - scale tips appear rounded or padded ***Pinus radiata,* p. 111**
      - scales thick with prickles at tips ***Pinus attenuata,* p. 112**
    - not serotinous
      - mid-elevation forests across West ***Pinus ponderosa,* p. 106**

Pinus

- 2 needles per bundle
  - cones >2.5" long with thick prickle at tip ***Pinus muricata,* p. 114**
  - cones <2.5" long ***Pinus contorta,* pp. 116-119**

Cupressaceae

- leaves scale-like, <0.5" long
  - trees enormous, western Sierra Nevada only ***Sequoiadendron giganteum,* p. 48**
  - not Earth's largest living thing ☺
    - cones not spherical
      - cones to 1" with 3 obvious scales (duck-billed) ***Calocedrus decurrens* p. 40**
      - cones <0.75", upright relative to branch ***Thuja plicata,* p. 44**
    - cones spherical and/or berry-like

CUPRESSACEAE

- cones spherical and/or berry-like
  - cones berry-like
    - prostrate or shrubby <2" tall ***Juniperus communis*, p. 52**
    - trees or shrubs >2" tall
      - resin glands conspicuous on leaves
        - at elevations <5000' often in semi-desert with pinyon ***Juniperus californica*, p. 50**
        - at elevations >5000'
          - bark brown, trees growing in Great Basin and east Cascades ***Juniperus occidentalis*, p. 55**
          - bark red-brown, trees growing in Sierra Nevada southward ***Juniperus grandis*, p. 54**
      - resin glands not conspicuous on leaves
        - bluish-brown seed cones ***Juniperus osteosperma*, p. 56**
        - tan brown to purplish seed cones
          - growing seaside on granite or sand, Puget Sound - St. George Strait ***Juniperus maritma*, p. 58**
          - eastern WA and across the Rocky Mtns. ***Juniperus scopularum*, p. 58**
  - cones woody
    - cones <0.5" in diameter
      - twigs thin, >5 scales per cone; coastal OR and Klamath Mountain endemic ***Chamaecyparis lawsoniana,* p. 42**
      - twigs thicker, <5 scales per cone; rare in Klamath Mountain common northward ***Callitropsis nootkatensis,* p. 38**
    - cones >0.5" in diameter **CYPRESSES** (***Cupressus***), pp. 26-37

CYPRESSES (*Cupressus*)

- in Arizona ***C. arizonica***
- Baja California, California, Oregon (rare)
  - resin glands present (survey broadly)
    - 3-4 pairs of scales per cone
      - thick resin glands, dull gray-green needles, often on serpentine ***C. macnabiana,* p. 35**
      - resin glands present but less conspicuous
        - Cuyamaca State Park in San Diego County ***C. stephensonii,* p. 27**
        - Sierra Juarez Mountains near Rincon in Baja California, Mexico ***C. revealiana,* p. 27**
        - Piute Mountains of Kern County; mature trees have sharp, conical crowns ***C. nevadensis,* p. 26**
    - 4-5+ pairs of scales per cone
      - Klamath Mountain region, California Cascades ***C. bakeri*, p. 34**
      - Baja California in Sierra de San Pedro Martir National Park ***C. montana* p. 26**
  - resin glands absent
    - 3-4 pairs of scales per cone
      - Mendocino and Sonoma county coast; marine terraces ***C. pigmaea*, p. 33**
      - coast range of central and northern California; often on serpentine ***C. sargentii* p. 36**
    - 4-5+ pairs of scales per cone
      - native only around Carmel Bay, now widely naturalized along Pacific Coast ***C. macrocarpa*, p. 32**
      - two groves near Carmel Bay, smaller and darker cones than *C. abramsiana* ***C. goveniana*, p. 31**
      - Santa Cruz Mtns of Santa Cruz and San Mateo counties - on poor soils ***C. abramsiana*, p. 30**

Special thanks for help creating this key:

- Stephen Arno for providing initial inspiration through his key in *Northwest Trees,* and for providing invaluable feedback for this one.
- Jeff Bisbee for his keen eye for taxonomic details.
- Chris Earle for his feedback and amazing website (conifers.org) that presents accessible and thorough information online.