ILLUSTRATED KEY TO GYMNOSPERMS OF BRITISH COLUMBIA

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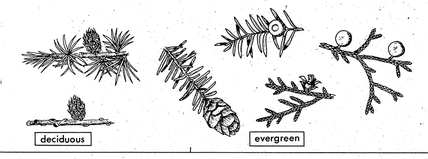
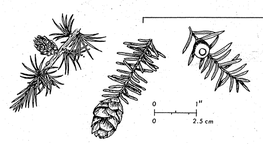
Drawings by G. F. Harcombe

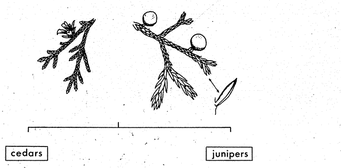
GYMNOSPERMS

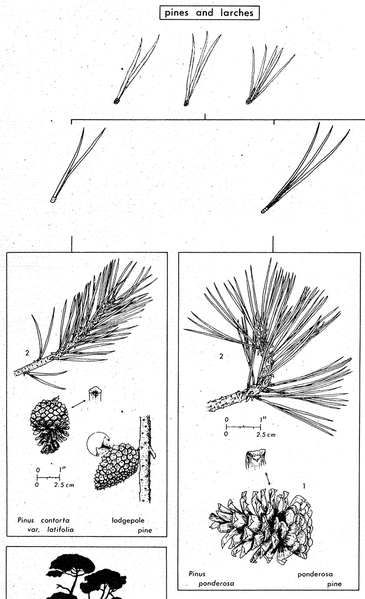
Needle or scale leaved evergreen (if deciduous then needles in groups of more than 10) trees or shrubs. Fruit a woody cone or berry.

- Trees with Needles, needles usually more than ½" long, fruit a woody cone (about ½" long) or fleshy berry having a pore at top
  - Needles in groups of 2 or more: pines and larches
    - Needles in groups of 2
      - A. Pinus contorta Dougl.
        - var. latifolia Engelm. (lodgepole pine)
        1- Cones short (approximately 2" with distinct sharp prickles at hardened scale tips.
        2- Needles about 1", trees of relatively open foliage, greyish green.
        3- Bark light-brown to dark-brown, finely cracked at the base of stem and somewhat more flaky over the remainder.
        5- Throughout the Province at all but alpine elevations and the dry valleys of Southern Interior.
        - Pinus contorta Dougl. var. contorta (shore pine)
        1- Leaves dark green.
        2- Contorted tree restricted to coastal areas.
      - B. Pinus banksiana Lamb. (jack pine)
        1- Cones 1" to 2" long often curved, assymetrical, without prickles at scale tips.
        2- Needles approximately 1.5" long.
        3- Trees somewhat contorted.
        5- In B.C. restricted to north-east (Peace River area).
    - Needles in groups of 3
      - A. Pinus ponderosa Laws. (ponderosa pine)
        1- Cones more than 3" long and approximately 2/3 of length wide.
        2- Needles usually more than 5" long.
        3- Trees of somewhat open greyish-green foliage.
        4- Bark thick with deep cracks. Orange-brown in cracks and exposed surfaces, darker in colour when young.
        5- Restricted to lower elevations of dry southern ½ of B.C.
    - Needles in groups of 5
      - A. Pinus monticola Dougl. (western white pine)
        1- Cones elongate usually more than 5.5" long, more than twice as long as broad, slightly curved.
        2- Needles usually more than 4" long, silver-green and relatively slender.
        3- Slender tree often with distinct whorled branches particularly in the upper parts where the leader and the tips of branches often point upwards like candles.
        4- Bark silvery grey on young trees becoming dark and deeply fissured on older trees to form a regular pattern of small thick plates.
        5- In interior wet belt and coastal forest.
      - B. Pinus albicaulis Engelm. (white bark pine)
        1- Cones 1.5" to 4" long, purple, ovoid, consisting of more or less fleshy scales (thickened).
        2- Bark on young stems, thin greyish or old trees broken into narrow, plate-like scales.
        3- Needles 1.5" to 3" long, slightly curved.
        4- Often somewhat stunted tree, open, firm shiny dark-green foliage.
        5- Usually on exposed slopes near timber line in interior.
      - C. Pinus flexilis James (limber pine)
        1- Cones elongate 3" to 6" long.
        3- Needles 1.5" to 3" long, slightly curved yellow-green.
        3- Bark on young stems, smooth, grey or silvery-white, becoming rough dark brown to almost black, deeply fissured into wide scaly plates.
        4- Contorted subalpine to alpine tree of rocky mountains.
    - Needles in groups of more than 10
      - A. Larix laricina (Du Roi) K. Koch (tamarack)
        1- Cones almost spherical ½" to 1" long.
        2- Needles 3/4" to 1½" long, light green turning yellow in autumn. In clusters of 10-20 on older twigs.
        3- In B.C. restricted to northern half. Restricted to bogs in boreal and sub-boreal forests.
        4- Tree usually small and stunted.
        5- Bark thin smooth bluish-grey on young trees. On old trees consisting of many curved-out hard scales.
      - B. Larix lyallii Parl. (alpine larch)
        1- Cones elongate approximately 1" long, 1.5 to 2 times longer than wide.
        2- In B.C. at high elevation of alpine tundra cirques, and snow chutes of interior wet belt and adjacent areas.
        3- Small often stunted tree of conical shape. Foliage light to greyish-yellow-green. Dwarf shoots 1/8" to 3/8" long with distinct soft hairs on young twigs and cone scales.
        4- Needles 1" to 1.5" long, pale blue-green, in brush like cluster of 30-40 on older twigs.
        5- Bark thin dark-greyish-brown in the longitudinal cracks and on exposed surfaces.
      - C. Larix occidentalis Hutt. (western larch)
        1- Cones less than 1.4" long, yellowish-brown when mature. Scales usually covered on lower half with a dense coating of white hairs when young.
        2- Needles less than 1", in clusters of 14-30 on older twigs.
        3- Tree of open yellowish-green foliage, usually somewhat cylindrical in form when mature.
        4- Lower to medium elevations of the interior wet belt and the adjacent Columbia forests.
  - Needles single
    - Needles blunt, not sharply pointed
      - Needles rounded at tip: hemlocks
        - A. Tsuga heterophylla (Raf.) Sarg. (western hemlock)
        1- Cone ovoid, less than 1" long, scales thin with more or less wavy edges.
        2- Leaves flattened, round-spaced appearing 2-ranked rather variable in length up to ¾". Each leaf with a twist at the abruptly narrowed base, lighter lines or under surface.
        3- Large trees (120'-160' high) with narrow pyramidal crown having drooping leaders.
        4- Young trees with rusty-brown bark covered with fine scales. Older trees with darker bark having flat, scaly ridges with deep furrows.
        5- Coastal forests and interior wet belt.
        - B. Tsuga mertensiana (Bong) Carr. (mountain hemlock)
        1- Cone cylindrical more than 1" long, purple, brownish-purple, scales slightly thickened.
        2- Leaves semi-circular in cross section, projecting out all around the twig.
        3- Small tree (25'-50' high).
        4- Bark dark reddish brown rough hard, narrow, rounded ridges.
        5- Coast forests and interior wet belt.
      - Needles notched at tip: true firs
        - A. Abies lasiocarpa (Hook) Nutt. (alpine fir)
        1- Cone dark-purple, 2"-4" long, somewhat wider near the base, scales fan shaped.
        2- Bark smooth, grey with resin blisters, old trees with shallow longitudinal furrows.
        3- Needles about 1.5" long, dark-green with 2 silvery strips underneath, usually curved upward near branch tips.
        4- Symmetrical narrow spire-like form.
        5- Throughout Province in sub-alpine boreal and sub-boreal forests.
        - B. Abies amabilis (Dougl.) Forb. (amabilis fir)
        1- Cones erect, dark-purple, cylindrical 4"-5" long. Scales fan shaped.
        2- Needles dark-shiny-green, upper side, pointing forward, about 1" long.
        3- Bark thin, smooth, unbroken except on old trees pale or ash-grey with conspicuous chalky white patches.
        5- Sub-alpine slopes of coast range and Vancouver Island.
        - C. Abies grandis (Dougl.) Lindl. (grand fir)
        1- Cone cylindrical yellow-green with broader than long scales about ½" long, 1.5"-2" broad.
        2- Needles distinctly 2-ranked (oriented in flat plain), green above, whitish below, 1.5" long.
        3- Young bark thin, grey-brown with resin blisters and chalky white patches. Old bark 2"-3" thick, usually furrowed into hard reddish brown ridges.
        4- Southern coast, Vancouver Island, lower valleys of Kootenay and Arrow lakes.
    - Needles pointed at apex
      - Twigs rough due to left-over peg-like leaf bases, leaves more or less 4-sided, stiff and prickly: spruces
        - A. Picea engelmannii Parry. (Engelmann spruce)
        1- Cones about 2" long, edges of scales distinctly ragged, cones attached at tips of branches, never forming a dense cluster.
        2- Young twigs have dense, very fine hairs.
        3- Bark thin, brownish to cinnamon-red, outer layers broken into small, thin loosely attached scales.
        4- Needles ¾"-1" long, usually curved upward.
        5- Mature trees usually narrowly spire-like often interrupted. Branches often distorted, rarely ever forming distinct layers of foliage or regular whorles around the stem. Mature foliage dark green.
        6- Sub-alpine forests of interior.
        - B. Picea glauca (Moench) Voss. (white spruce)
        1- Cone about 2" long, scale edges truncate and smooth (hybrids, between A and B abundant in contact zones, many show intermediate features).
        2- Young twigs smooth or only spar ely hairy.
        3- Ashy brown bark with long and rough scales.
        4- ¾"-1 1/4" long, blue-green sharp pointed needles.
        5- Tree cone shaped.
        6- Northern and central and south-east B.C., east of Cascades.
        - C. Picea mariana (Mill) B.S.P. (black spruce)
        1- Cones ovoid, purplish green .5" to 1.5" long often forming dense clusters scales stiff, rounded, with irregularly toothed margins.
        2- Young twigs with dark-reddish hairs.
        3- Inner living part of bark olive green. Outer surface scaly, greyish to reddish.
        4- Needles .5" to .75" long, sharp pointed, blue green.
        5- Often a low stunted tree.
        6- In northern and central B.C. east of Cascades. In bogs, wet sites and rapidly drained coarse-textured sites.
        - D. Picea sitchensis (Bong) Carr. (sitka spruce)
        1- Cone cylindrical, pale-yellow to reddish-brown, 2"-4" long, scales thin, stiff with wavy edges.
        2- Twigs smooth.
        3- Needles somewhat flattened, stiff, sharp pointed.
        4- Bark dark-brown, scaly, scales thin, loose, crisp.
        5- Restricted to coastal forests.
      - Twigs smooth (not leaving peg-like leaf bases)
        - Trees with woody cones, leaves not 2-ranked, twigs with oval leaf scars.
          - A. Pseudotsuga menziesii (Mirbel) Franco. (Douglas fir)
          1- Cones 2"-4" long, oval, pendent bracts 3 toothed, longer than the scales.
          2- Young bark smooth, grey-brown with resin blisters, older bark thick (up to 10"-12") corky and cracked, deeply fissured into reddish brown ridges.
          3- Needles more or less flattened, leave oval scars on smooth twigs, bright-green and grooved above, paler below.
          4- Throughout the interior at low to medium elevations in well drained positions and drier parts of coastal area.
        - Shrubs or low trees usually less than 20' high, leaves 2-ranked, fruit a fleshy berry.
          - A. Taxus brevifolia Nutt. (western yew)
          1- Needles ½" to 1" long flattened, appearing 2-ranked, oriented in a flat plane.
          2- Fruit; about 1/3" long, single berries, green turning reddish at maturity, with an opening at its tip through which the "stone" is exposed.
          3- Bark very thin, dark reddish-purple with papery scales.
          4- Low altitudes at coast and Vancouver Island, and in interior wet belt.
  - Having short (about ½") Scale-like or Awl-like leaves which are more or less pressed, fruit a berry or a small cone (about ½")
    - Fruit a green or more or less woody cone, with distinctly visible scales even when immature. cedars
      - A. Thuja plicata Donn. (western red cedar)
      1- One oval, small (½" long), fan shaped scales not more than a few (7) arising from a central axis.
      2- Leaves overlapping scale-like, blunt, in pairs, dark yellow-green. Crushed foliage pungent smelling.
      3- Reddish-brown bark forming long fibrous shreds with a network of narrow intersecting ridges.
      4- Throughout wet belt, coast and in wet spots of dry interior.
      - B. Chamaecyparis nootkatensis Spach. (yellow cedar)
      1- Cones small (approximately ½") spherical, with conical scales radiating from a central point.
      2- Leaves on seedlings awl-shaped, sharp pointed, arranged in groups of 3 or 4, leaves on older trees scale-like, bluish-green, sharp pointed, prickly to touch, in pairs, overlapping. Crushed foliage non-aromatic.
      3- Bark greyish-brown with longitudinal intersecting cracks. Not fibrous.
      4- At coast and near Beatrice Lake in interior wet belt.
    - Fruit a berry, bluish-black when mature, without a pore at top. junipers
      - A. Juniperus scopulorum Sarg. (Rocky Mountain juniper)
      1- Fruit a fleshy green to dark-blue (when mature) berry usually with a distinct silvery bloom which rubs off, lacking an opening at the end.
      2- Young branches with short prickly scaly leaves, attached 3 in a whorl, somewhat curved upward. Older foliage of appressed scale-like leaves, not prickly.
      3- Bark thin fibrous, red-brown to grey-brown, divided by shallow furrows.
      4- Generally a bushy shrub or small tree less than 20' high, with one to several stems giving a conical form.
      5- In dry central and south interior
      - B. Juniperus communis L. (common juniper)
      1- Prickly awl shaped leaves arranged in three's.
      2- Never a tree, often spreading over ground with the branches turned upward. Young and mature foliage similar.
      3- Fruit, a fleshy green to dark blue berry (when mature) usually with a distinct silvery bloom which rubs off.
      4- This reddish-grey bark with scales.
      5- Throughout B.C. at low to medium elevations.









LEGEND

enlargement 5 statement in key

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