



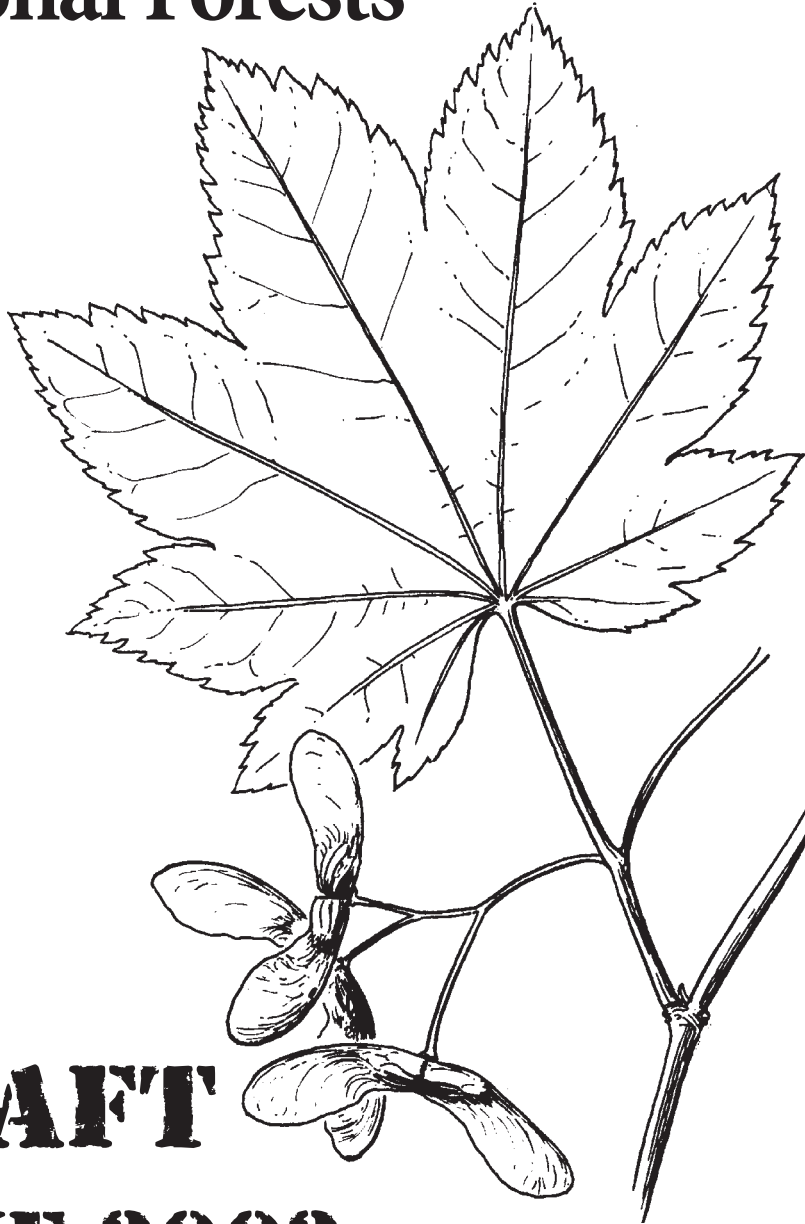
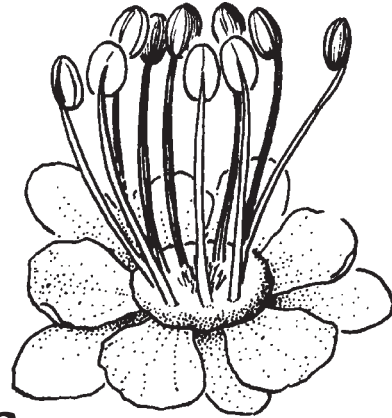
Common Plants

of the

Okanogan and

Wenatchee

National Forests



DRAFT

JUNE 2002

Some Common Plants of the Okanogan and Wenatchee National Forests

Compiled by
T.R. Lillybridge and C.K. Williams

for



USDA
Forest Service
Region 6

DRAFT

JUNE 2002

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INTRODUCTION

The plants in this guide include those: (1) necessary to identify plant associations in Forested_ Plant Associations of the Wenatchee National Forest [DRAFT] to be out in 1987, (2) that indicate environmental conditions and (3) very common or easily confused species.

This is not a botanical key to species but rather a “picture key.” It contains some of the more common species found on the Forest but contains only a small fraction of the plants in an area. For more complete coverage see Flora of the Pacific Northwest (Hitchcock and Cronquist, 1973) or the five volume set Vascular Plants of the Pacific Northwest (Hitchcock, et.al. 1955-69). Drawings from the latter publication are used by permission.

The plants are arranged alphabetically by code in four lifeform classes in this order:

Trees

Shrubs (and subshrubs)

Herbs (including ferns)

Graminoids (grasses and grass-like)

Each species description has the following

CODE Scientific name

Common name

HABIT: Statement; including: general description and physiognomy.

DESCRIPTION: technical-varies by life-form.

HABITAT: environment; common associates

REMARKS: Uses; similar or confusing species; other pertinent characteristics.

USING THIS GUIDE

Plant identification using this guide is a simple two step process:

1. Decide if a plant is: (A) a tree; (B) a shrub; (C) an herb; or (D) a grass or grass-like plant (graminoid).
2. Look in th appropriate section for a drawing of the unknown plant. (Some subshrubs may appear non-woody but are evergreen.)

The Index lists: CODE, common and scientific name, lifeform category and the page number. The Table of Contents lists all species codes alphabetically by lifeform and cross-references the CODE, common and scientific names.

The glossary includes most of the botanical and ecological terms used in the plant descriptions.

KEY TO TRUE FIRS

The following key is provided to help identify the true firs. The importance of proper identification cannot be over emphasized because the various species play different roles within the same vegetation type as well as in different types.

The following characteristics have been found useful in field identification of the true firs. Cones have the best identifying features; but they are not always available so emphasis is on vegetative characteristics.

1A. Needles glossy green above; stomatal bloom on lower needle surfaces only 2.

2A. Needles two ranked along sides of twig and of unequal length

Grand fir (*Abies. grandis*) ABGR. page: Trees 2.

2B. Needles crowded on upper side of the twig, tending to point forward, sideward and diagonally upward; obscuring upper twig surface

Pacific Silver fir (*A. amabilis*) ABAM. page: Trees 1.

1B. Stomatal bloom on upper and lower needle surfaces (look carefully!) 3.

3A. Base of needle straight; needles generally upswept and massed near upper side of twig. Branches, live or dead, extend nearly to ground. Bark is ashy gray or almost white with resin pockets in the inner bark (unique to the species)
Subalpine fir (*A. lasiocarpa*) ABLA2. page: Trees 3.

3B. Base of needle not straight; base tending to parallel the twig and bent in a hockey stick shape. Trunk of tree often free of limbs for much of its length. Bark gray-green on young trees turning to reddish brown and broken into rectangular blocks. The cones have distinctive bracts

Noble fir (*A. procera*) ABPR. page: Trees 4.

All true firs may interbreed. Individuals growing in heavy shade are often difficult to identify because they are in poor vigor. Needles should be examined on the lower half of the tree since needles from the upper half (especially on fertile branches) may be pointed and upswept on all species.

*Stomatal bloom is white waxy powder covering a surface. Shows up as a white line on conifer needles but under magnification it is actually a series of white dots.

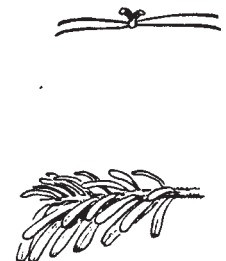
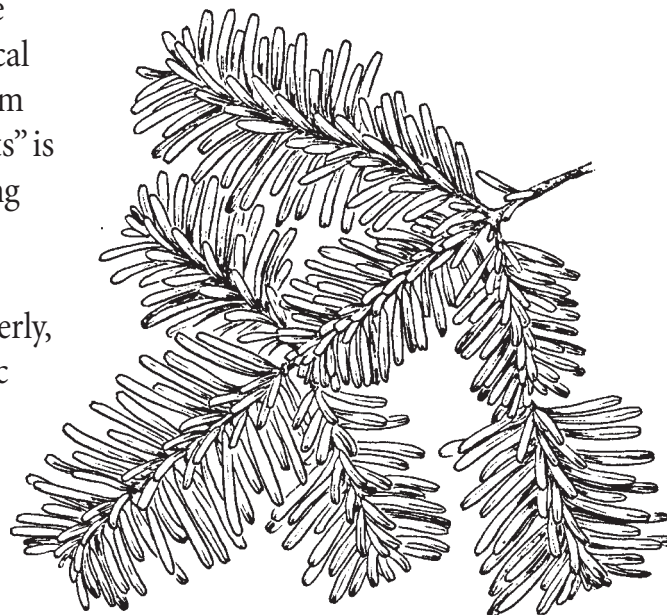
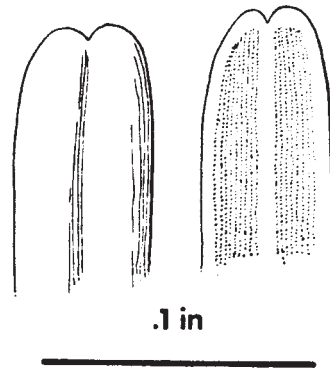
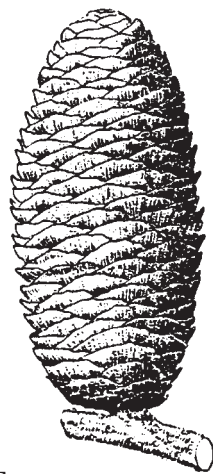
ABAM *Abies amabilis*
Pacific silver fir
PINACEAE

HABIT: A large (100-200' tall), very shade tolerant conifer.

DESCRIPTION: The needles are glossy green with no *stomatal bloom* On *upper surfaces* and are usually notched (except on cone-bearing branches). *Needles are crowded on the upper side* of twig, obscuring it and tending to *point forward, sideward and diagonally upward*. Branches are spraylike. The bark is smooth and whitish with resin pockets on younger trees, becoming furrowed and scaly on old trees. Cones are erect, purplish (when mature) and about 3.5 to 6" long.

HABITAT: An upper elevation species commonly associated with TSME or sometimes ABLA2 and TSHE.

REMARKS: May be confused with ABLA2 or ABGR. (See those descriptions.) ABAM is usually the climax dominant at upper elevations within it's range, though it sometimes becomes subordinate to TSME in areas of deep snow pack; probably the result of mechanical damage. Resin from bark "pitch pockets" is used as a mounting material for microscope slides (Arno and Hammerly, 1977). The specific epithet *amabilis* means "lovely".



ABGR *Abies grandis*
grand fir
PINACEAE

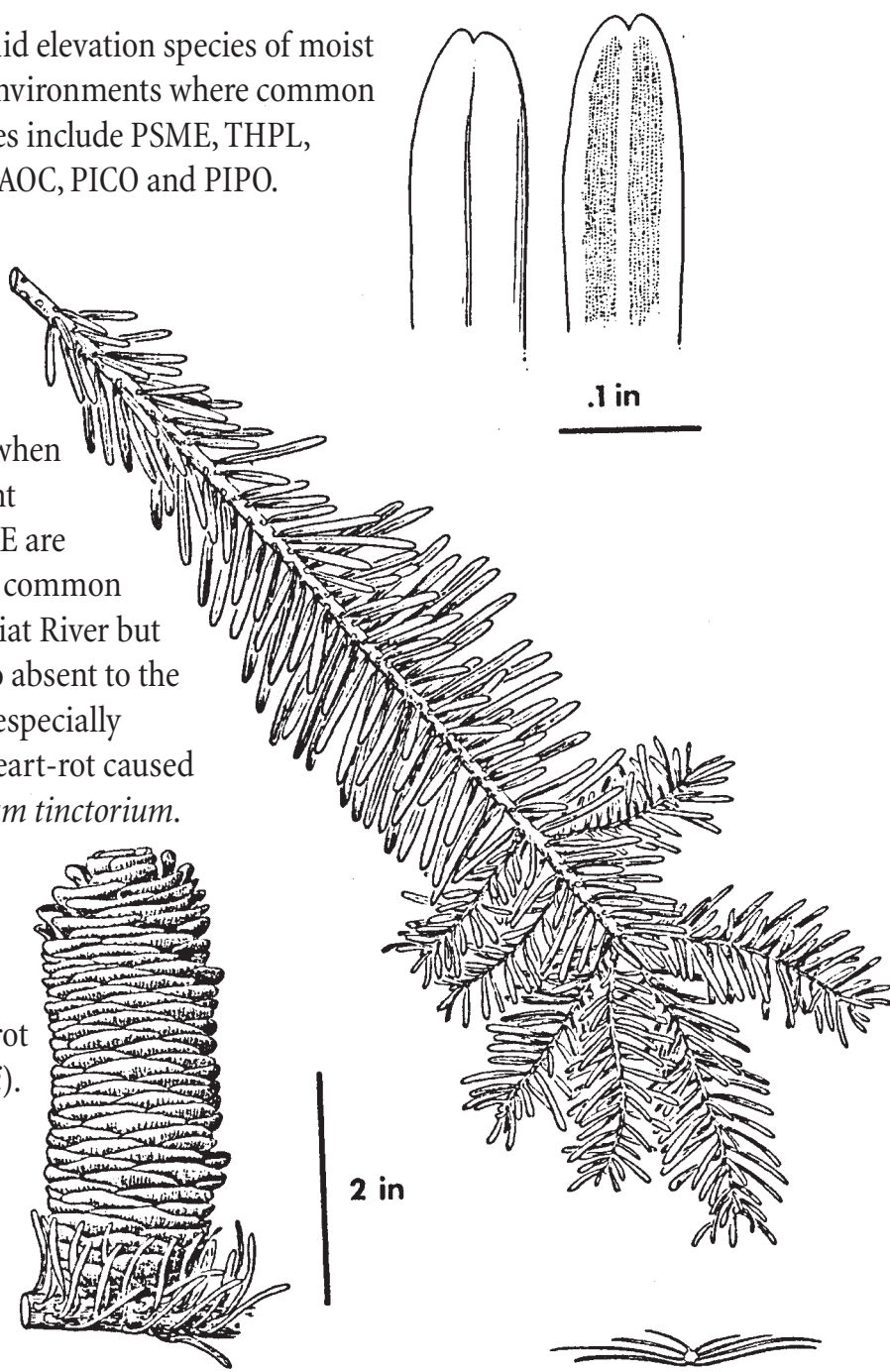
HABIT: A large, shade-tolerant conifer 125-250' tall.

DESCRIPTION: The needles are conspicuously *2-ranked*, about 1" long, *glossy green (without stomates)* above but with two stomatal bands below. The branches are distinctly *whorled*. Young trees have resin blisters on smooth, grayish bark; bark becomes deeply furrowed and grayish-silvery brown in color on mature stems. The inner bark is purplish-red. The buds are *rounded* and covered with *hardened resin*. The cones are 2-4" long, erect, high on the crown where they disintegrate in place.

HABITAT: A mid elevation species of moist and moderate environments where common conifer associates include PSME, THPL, TSHE, ABAM, LAOC, PICO and PIPO.

REMARKS:

On sites moist enough for it, ABGR is climax dominant only when the more tolerant ABAM and TSHE are absent. ABGR is common south of the Entiat River but is uncommon to absent to the north. ABGR is especially susceptible to heart-rot caused by *Echinodontium tinctorium*. ABGR series stands often are extensively infected with laminated root rot (*Phellinus weirii*).



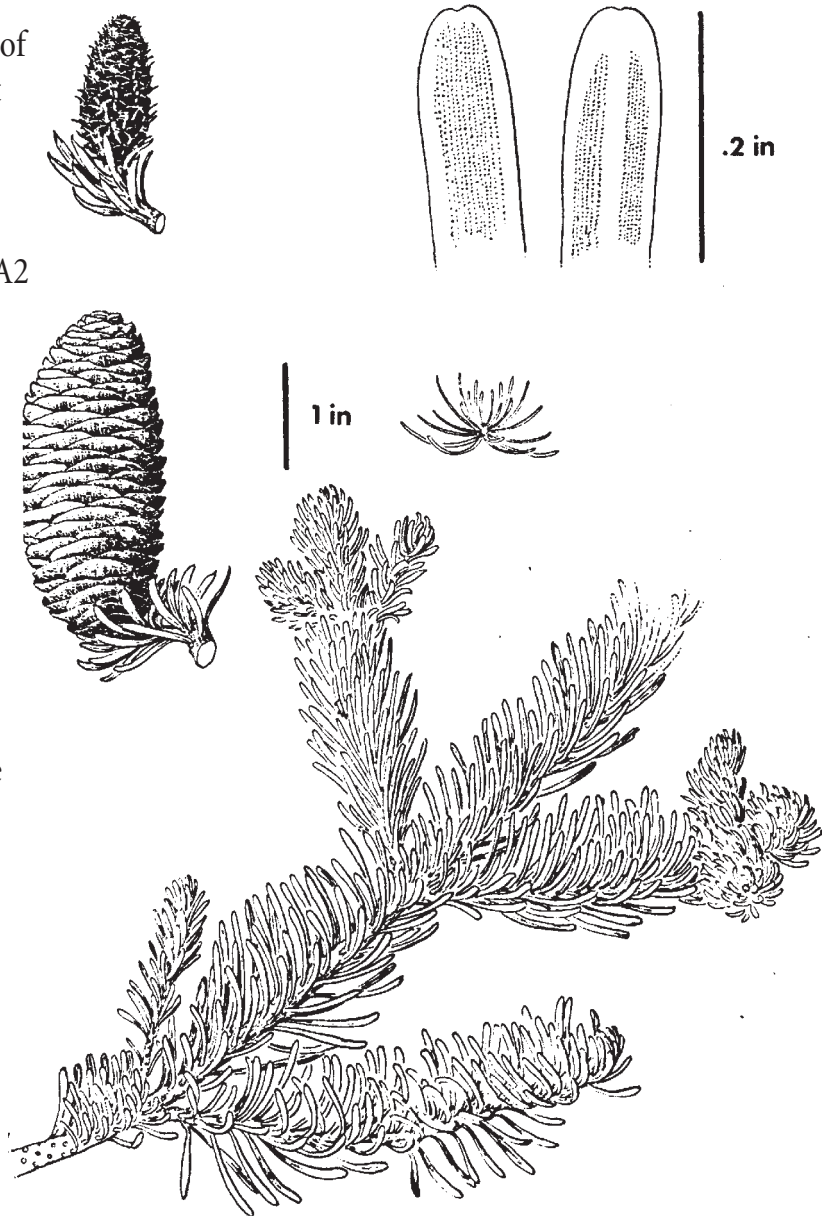
ABLA2 *Abies lasiocarpa*
subalpine fir
PINACEAE

HABIT: A *spire-shaped* to *decumbent* (at timberline) conifer usually less than 100' tall.

DESCRIPTION: The needles have a straight base and are generally upswept and massed near upper side of twig. There is *stomatal bloom* on both *needle surfaces* (look carefully in the needle groove on old foliage for the single stomatal band above). Buds are rounded and covered with hardened resin. New twigs are pale in color. The bark is usually light gray, thin and smooth (may be somewhat fissured in large, old trees). There are *resin pockets within the phloem*; readily visible when the bark is sliced. Cones are 2-4" long, erect, purplish and are found high in the crown. Branches, live or dead, extend nearly to the ground.

HABITAT: A species of cool to cold and moist conditions. Near timberline generally only PIEN, PICO and PIAL occur with ABLA2 as harsh conditions limit lower elevation trees.

REMARKS: ABLA2 is a climax dominant only when outside the elevational or geographic range of more shade tolerant competitors. It has the ability to layer and is commonly stunted on harsh sites. ABLA2 is very sensitive to fire.



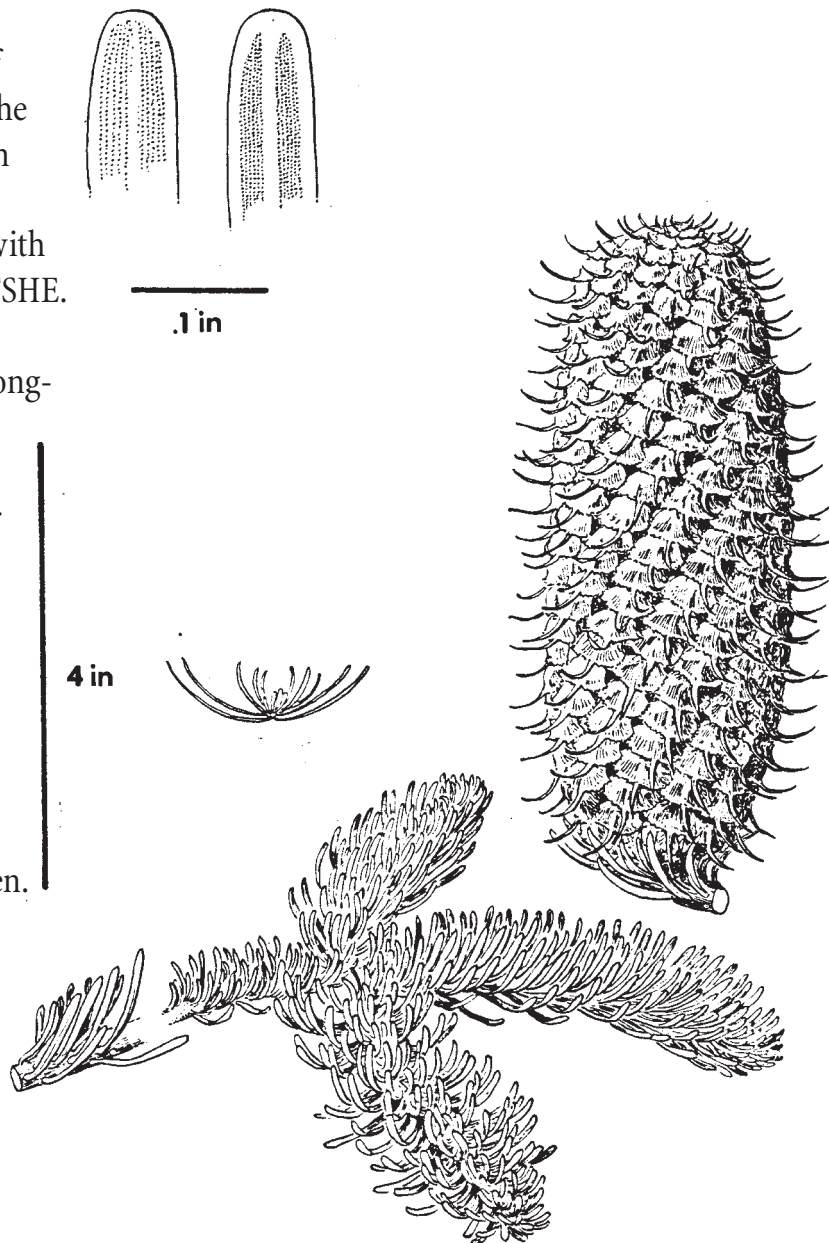
ABPR *Abies procera*
noble fir
PINACEAE

HABIT: The largest true fir (>250' tall); with a notably clear and straight bole.

DESCRIPTION: The upward-pointing needles are about 1" long, "hockey-stick" shaped and bluish-green to almost silver from stomatal bloom in *two bands* on the lower needle and more or less *two* on the upper surface. They are *strongly upswept* with only the twisted leaf bases on the lower side of the twig. Thus giving the short, stiff branches a lacy or almost *skeleton-like* appearance when viewed from below. The outer bark is grayish and flaking but reddish beneath. The buds are brown, obtuse and resinous. The erect cones disintegrate on the tree, are tan, very large (4-6") and have *reflexed bracts* that are longer than the cone scales.

HABITAT: A shade intolerant species of cool, moist sites in the Cascades south from near Stevens Pass. Usually associated with ABAM, PSME and TSHE.

REMARKS: Very long-lived (for a true fir) probably 600-700 years. A slow grower up to about age ten, but then growth is rapid (Arno and Hammerly, 1977). Highly desirable for Christmas trees. Commonly called "larch" by timbermen.



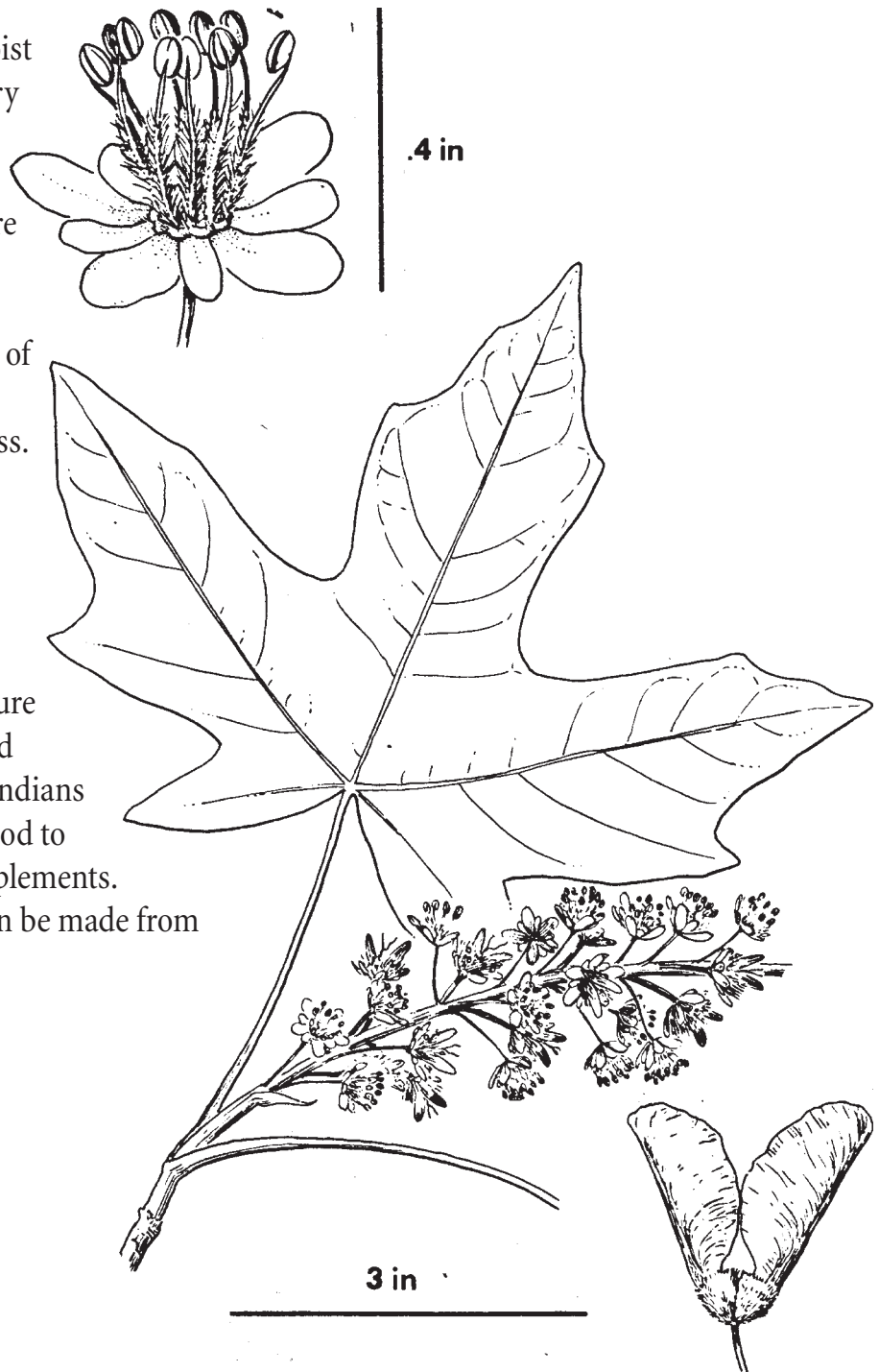
ACMA *Acer macrophyllum*
big-leaf maple
ACERACEAE

HABIT: A medium-sized, deciduous tree, 40-100' tall.

DESCRIPTION: The *opposite* leaves are 4-12" across, *palmately 5-lobed* and borne on a 6-12" petiole. Branches and young stems have smooth greenish to grayish-brown bark. Bark on old trees is ridged furrowed and grayish to reddish-brown. Numerous small *Yellow flowers* appear from March-June in long *hanging racemes*. The fruit is a *double samara* with wings 1.5-2" long that touch (or nearly so).

HABITAT: Moist to somewhat dry sites from low to upper elevations where soils are well drained. Most common south of Lake Chelan to Snoqualmie Pass.

REMARKS: A very common shade tree in urban areas. Used for furniture and makes good firewood. The Indians used ACMA wood to make many implements. Maple sugar can be made from ACMA sap.



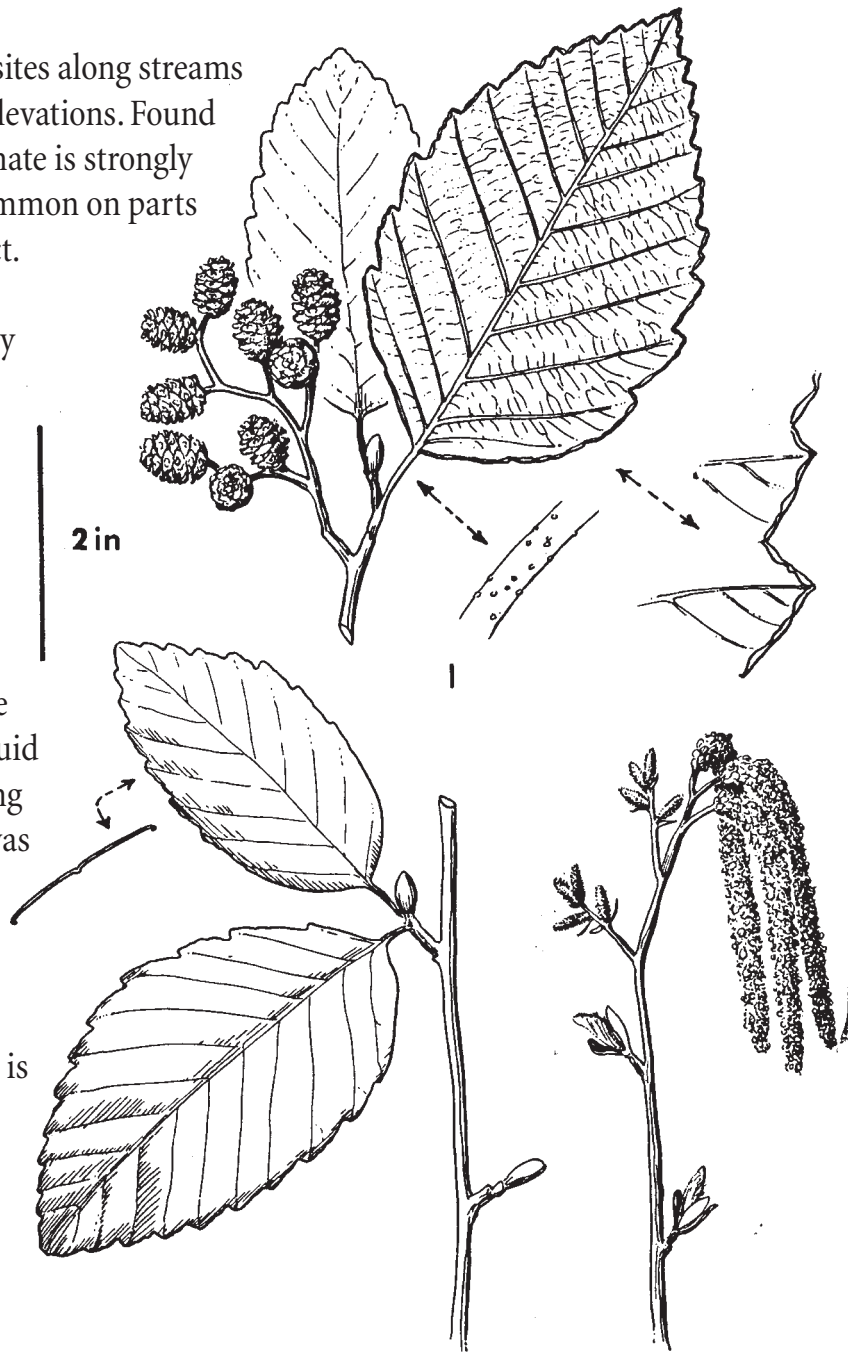
ALRU *Alnus rubra*
red alder
BETULACEAE

HABIT: A moderate sized, very fast growing deciduous tree to 80' tall and 1-3' in diameter.

DESCRIPTION: The dark shiny green, alternate leaves are doubly serrate to slightly dentate, 3-6" long and half as wide with rusty hairs and *gland-dotted* on the underside. The leaf margins are rolled down and under (revolute). The bark is gray to grayish-brown, but often whitened by lichens. The inner bark is tan rapidly turning *reddish-brown* when exposed to air. Catkins appear before the leaves and female ones mature to become woody and dark brown.

HABITAT: Moist sites along streams and seeps at mid-elevations. Found only where the climate is strongly maritime. Most common on parts of Cle Elum District.

REMARKS: A very shade intolerant tree that seldom exceeds 100 years of age. ALRU is a nitrogen fixer. Indians derived a reddish dye from an extraction of the inner bark. The liquid obtained by steeping the bark in water was used to treat rheumatic fever (it contains salicin (a precursor to aspirin)). The wood is good for fuel and furniture.



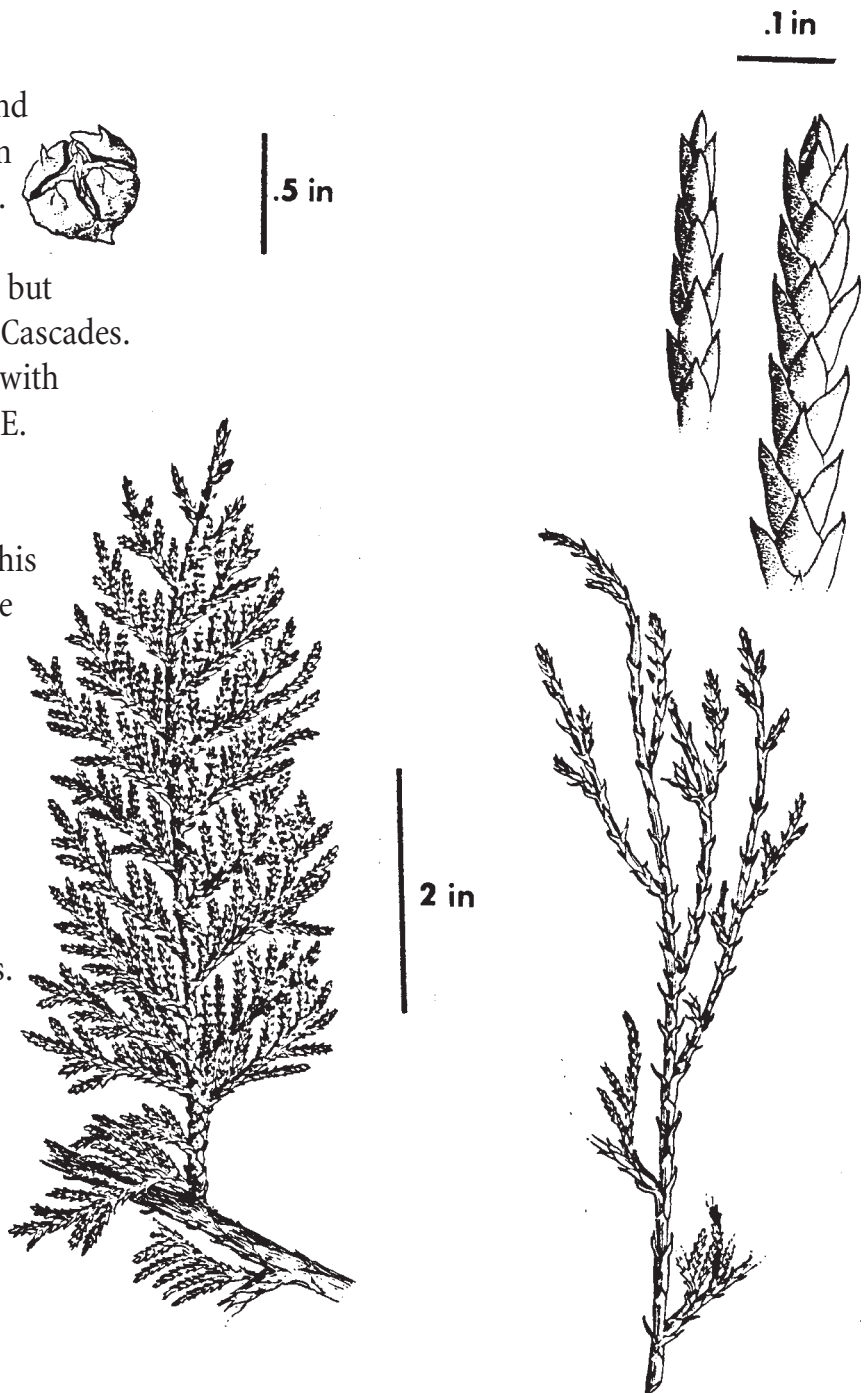
CHNO *Chamaecyparis nootkatensis*
Alaska yellow cedar
CUPRESSACEAE

HABIT: A medium-sized, very long lived, shade tolerant tree 70-100' tall.

DESCRIPTION: The tiny, *scale-like*, dark bluish-green leaves occur in opposite pairs with no *white stomata*. The branches appear flattened and fern-like in sprays that *droop strongly* (as does the leader). The foliage has a foul odor when crushed. The thin, shaggy bark is grayish-brown outside, cinnamon-brown beneath and comes off in thin sheets. It does not peel off in long strips like THPL. The .5" cones are *green* and *berry-like* the first year becoming *tan* and *woody* at maturity the second year.

HABITAT: Cool and wet sites at medium to upper elevations. Most common on the Naches District but found all along the Cascades. Usually associated with ABAM and/or TSHE.

REMARKS: Like ABAM and ABPR this tree is limited to the Cascades. The yellow heartwood contains chemicals that make it highly resistant to rot but which also (reputedly) caused diarrhea in sawyers. An attractive ornamental.



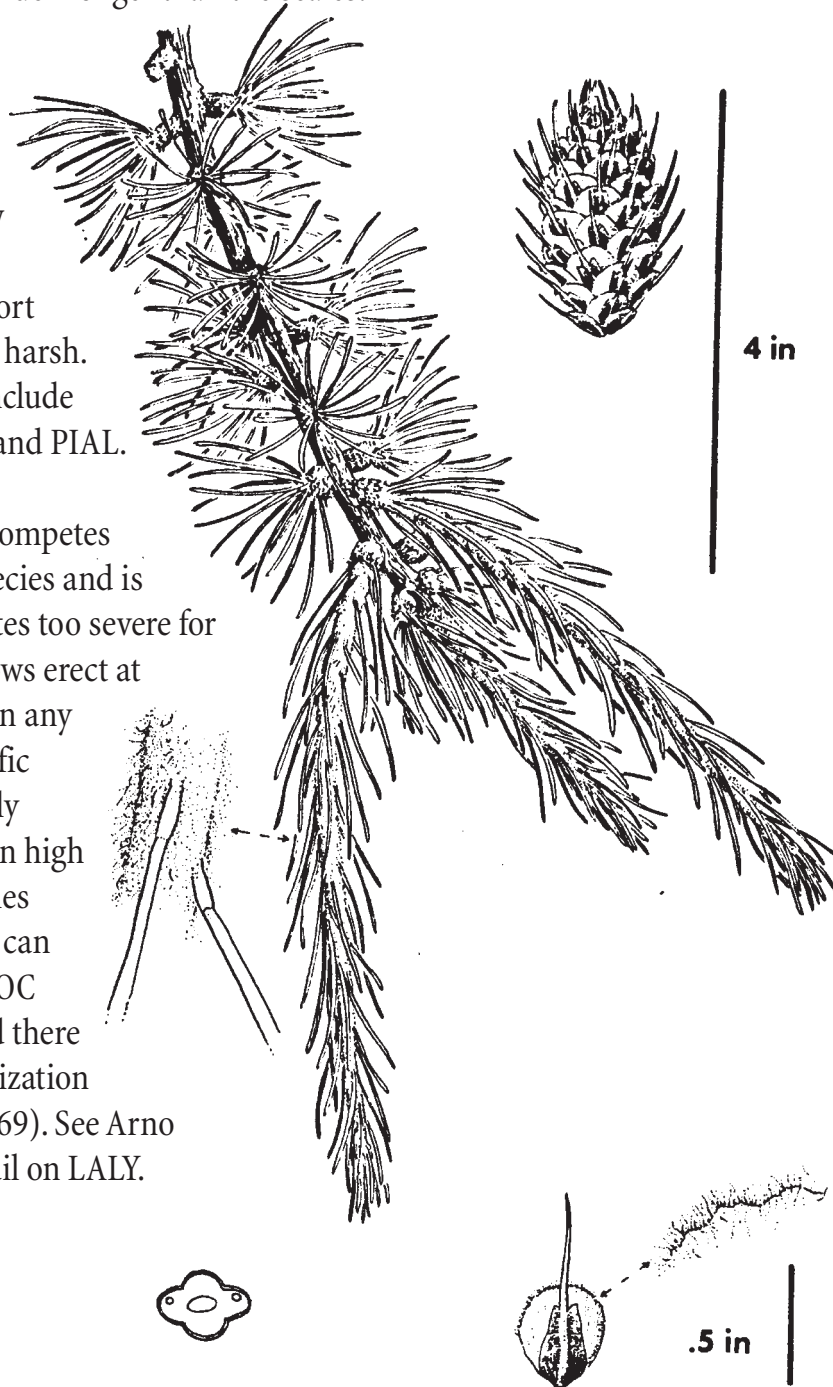
LALY *Larix lyalli*
subalpine larch
PINACEAE

HABIT: A small, typically dwarfed or misshapen tree of upper timberline; usually less than 50' tall.

DESCRIPTION: Needles are *deciduous*, four-angled, very light bluish-green in color and occur in fascicles of 30-40 from spur shoots. Young twigs are *densely* woolly with white to yellowish hairs. The thin grayish bark becomes deeply furrowed and scaly and reddish to purplish gray-brown with age. Cones are 1-2" long with the tracts much longer than the scales.

HABITAT: Often found on northerly slopes at high elevation where snow is persistent. The growing season is short and the environment harsh. Associated species include ABLA2, PIEN, PICO and PIAL.

REMARKS: LALY competes poorly with other species and is most abundant on sites too severe for other trees. LALY grows erect at higher elevations than any other tree in the Pacific Northwest. It is readily observed in the fall on high ridges when its needles turn butter-yellow. It can be confused with LAOC (see description) and there is evidence of hybridization (Hitchcock, et. al., 1969). See Arno (1970), for more detail on LALY.



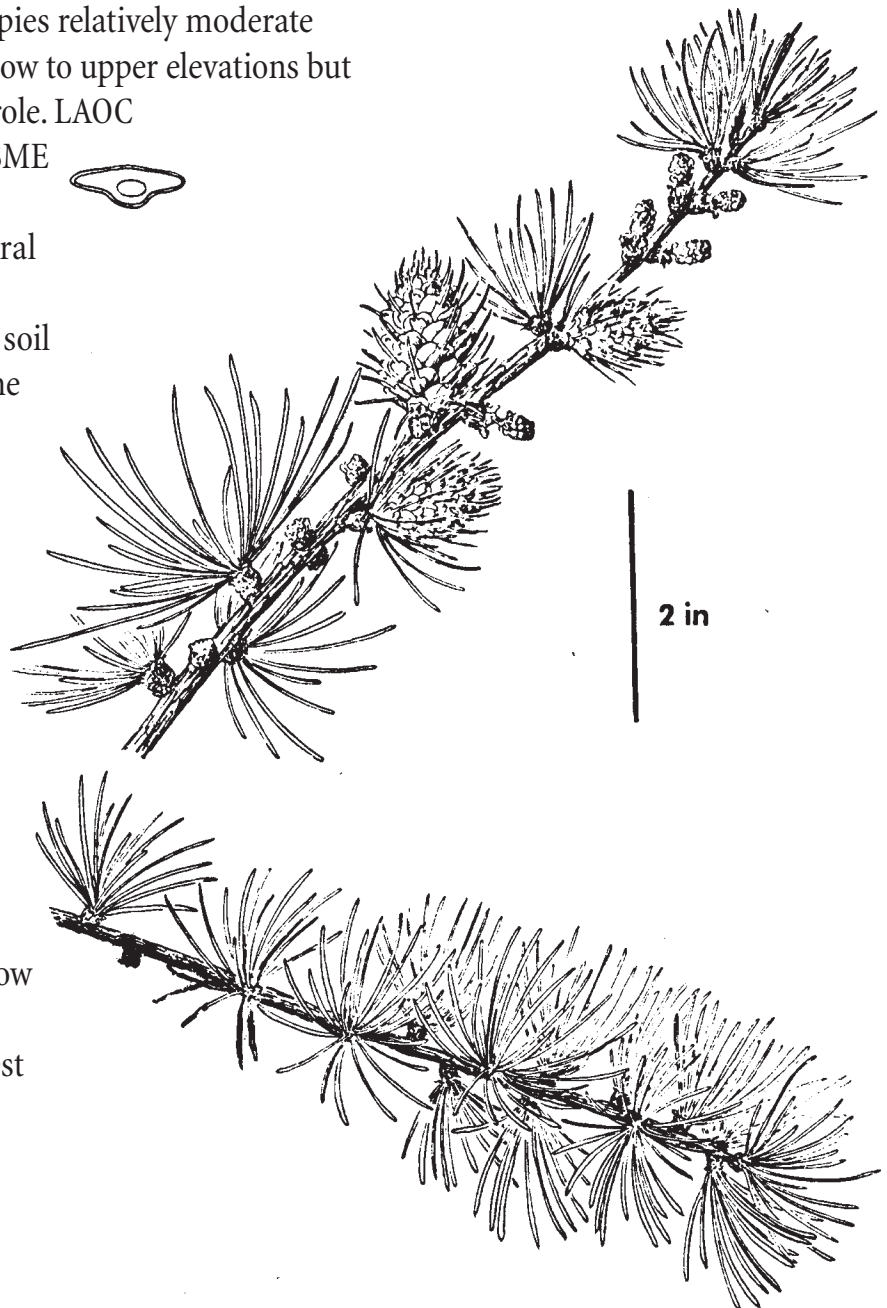
LAOC *Larix occidentalis*
western larch
PINACEAE

HABIT: A large (up to 200'), very shade intolerant, *deciduous* conifer with few lower branches on mature trees.

DESCRIPTION: A tall, straight tree with light green foliage and thin canopy. Leaves are deciduous, broadly *triangular* in cross-section and occur in fascicles of 15-30 from spur shoots. Twigs may be pubescent but are *not woolly*. On mature trees the very thick bark is furrowed into large plates that flake off as *cinnamon-colored scales*. The bark resembles that of PIPO except it is *purple-maroon* when cut. The cones are 1-1 1/2" long and erect.

HABITAT: Occupies relatively moderate environments at low to upper elevations but always in a seral role. LAOC indicates good PSME sites with good potential for natural regeneration and moderate to little soil drought during the growing season.

REMARKS: It is highly fire *tolerant* because of its thick bark, open crown and low foliage flammability. Its deep, wide-spreading root system makes it windthrow resistant. Seed germination is best on mineral soil.



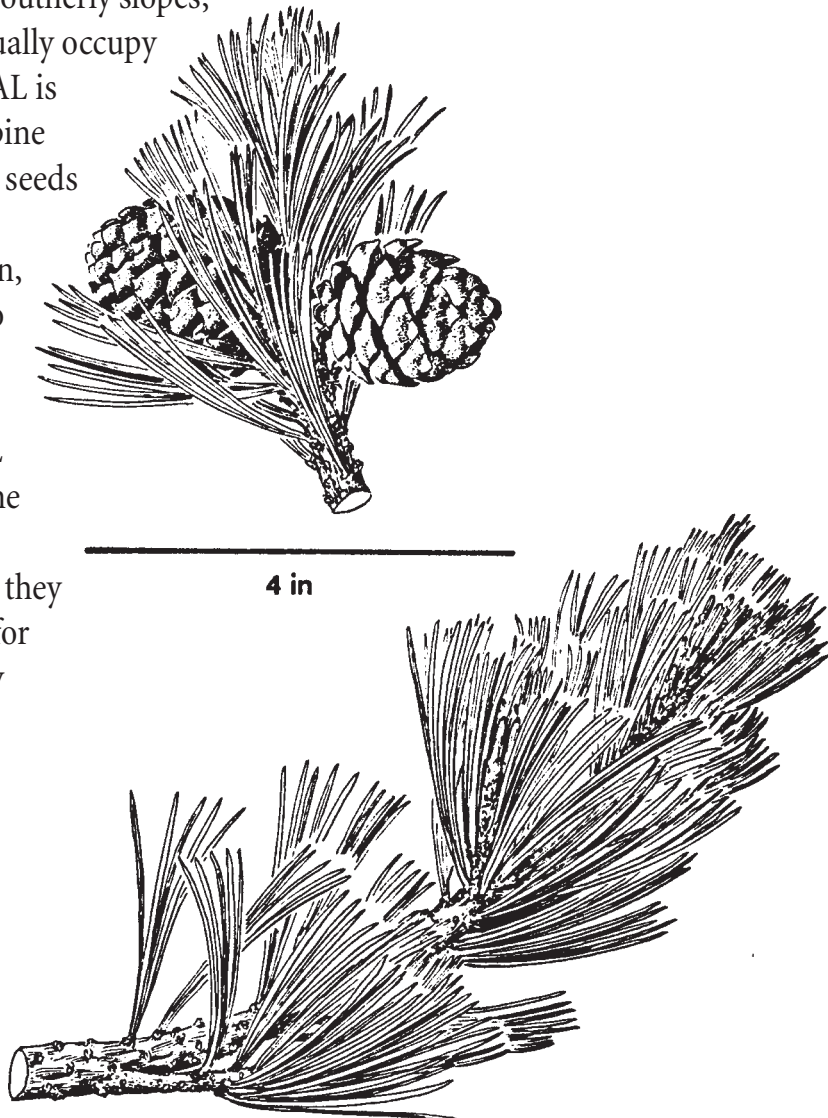
PIAL *Pinus albicaulis*
whitebark pine
PINACEAE

HABIT: A subalpine tree usually less than 50' in height often dwarfed or even decumbent on severe sites.

DESCRIPTION: Typically a tree of timberline habitats; decumbent to erect and characterized by its harsh environmental preferences. Needles occur in *fascicles* of *five* and are 1-3" long. Bark is thin and whitish scaly on the surface and brown beneath. Cones are 2-4" long with pointed urnbos and *disintegrate* on *the* tree.

HABITAT: A high elevation species of wind-swept ridges near timberline. Commonly on southerly aspects in areas of snow removal by wind.

REMARKS: PIAL tolerates extreme cold, wind desiccation and intense insolation. PIAL may be confused with PICO (PICO is a two-needle pine). In localities where PIAL dominates the southerly slopes, LALY and ABLA2 usually occupy the north aspects. PIAL is susceptible to white pine blister rust. The large seeds of PIAL can be eaten (Randall and Keniston, 1970). The wood is so resinous it is very flammable when green. Often old PIAL trees or snags form the center of subalpine "timber atolls" where they serve as a nurse tree for ABLA2 which usually dominates the atoll.



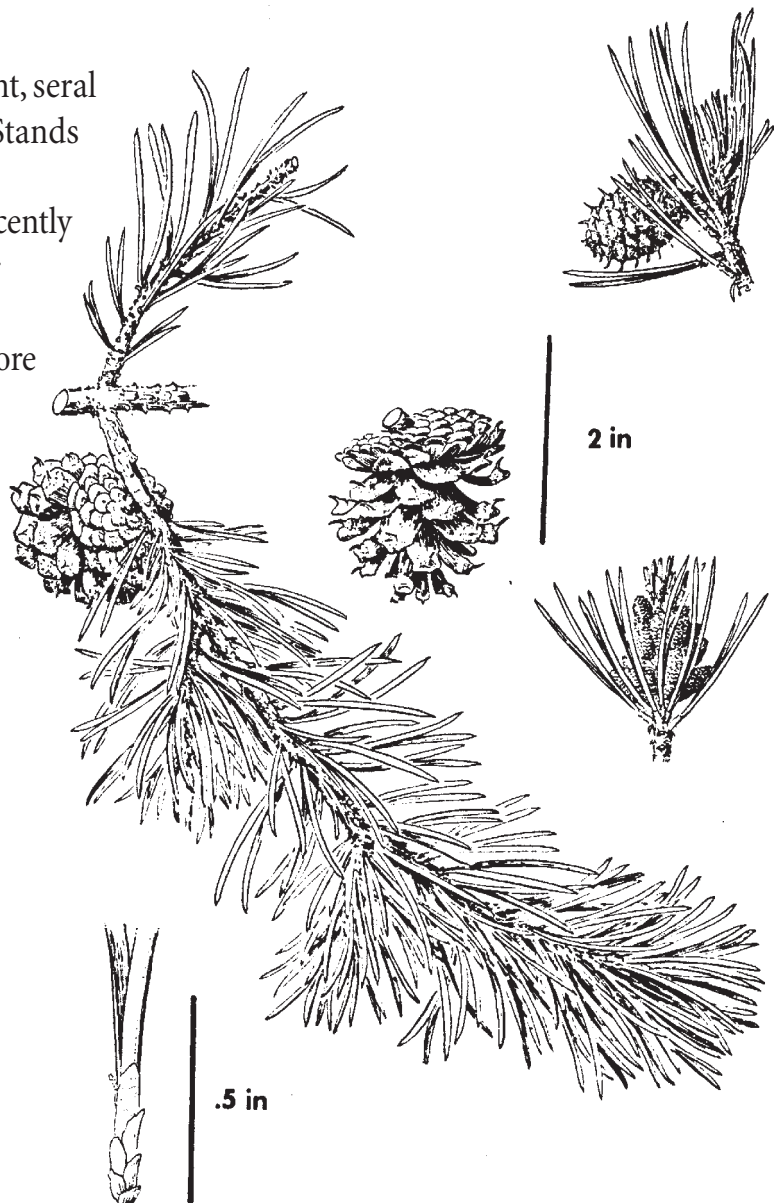
PICO *Pinus contorta*
lodgepole pine
PINACEAE

HABIT: A widespread, highly adaptable tree usually less than 100' tall.

DESCRIPTION: A small tree generally having a rounded crown with many to few lower limbs depending whether the stand is open or closed. Needles are 1-3" long; typically with two *per fascicle*. Bark is thin, scaly and usually *blackish* in color becoming somewhat platy with age. Upper elevation specimens have lighter, thinner and less platy bark. Cones are 1-2" long and may persist for many years. Cone scales are armed with a deciduous prickle. *Serotinous* cones are common.

HABITAT: A mid to high elevation tree of moderate to cold, moist sites. PICO is very frost tolerant and requires fewer nutrients for growth than any other species in the area.

REMARKS: An intolerant, seral tree prone to *stagnation*. Stands of nearly pure PICO are characteristic of many recently burned areas. Presence or absence of cone serotiny should be established before management plans are made. PICO is very susceptible to fire and bark beetles. Many scars on PICO are the result of unsuccessful beetle attacks. PICO may be confused with PIAL in mixed stands.



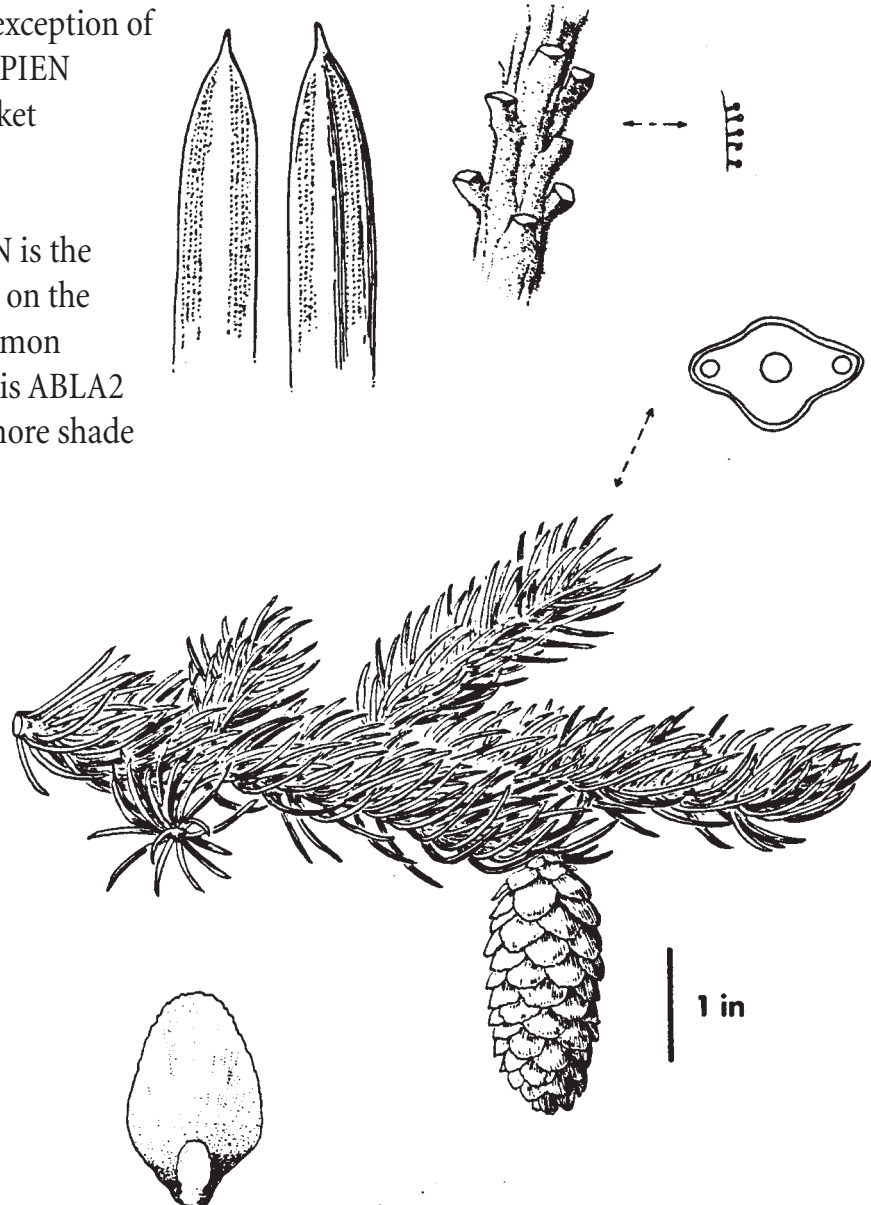
PIEN *Picea engelmanni*
Engelmann spruce
PINACEAE

HABIT: A tall (up to 160'), shade tolerant tree of upland sites or wet bottomlands.

DESCRIPTION: A pyramidal shaped tree with branches commonly extending to near ground level. Needles are on small stems (*sterigmata*), *four-angled, sharp* and have a bad odor when crushed. Young twigs are finely pubescent and all twigs are *rough* textured after losing their needles because the *sterigmata* are retained. The bark is thin, grayish to brownish-red with small scales. The cones are 1-2 1/2" long. The cone scales have a "bitten off" appearance and are widest toward the base (unlike *Picea glauca*).

HABITAT: A mid to high elevation tree of cold and wet bottomland sites and cold, moist uplands; often associated with ABLA2. PIEN is our most frost tolerant tree, with perhaps the exception of LALY. Presence of PIEN suggests frost pocket potential.

REMARKS: PIEN is the only spruce found on the Wenatchee. A common associate of PIEN is ABLA2 which is slightly more shade tolerant.



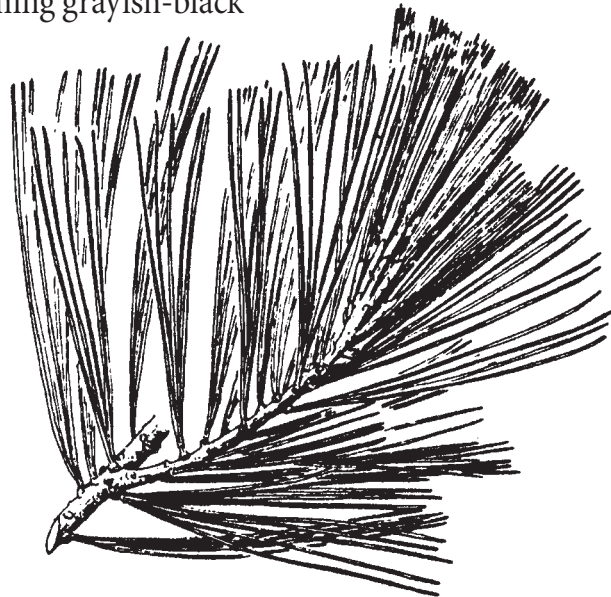
PIMO *Pinus monticola*
western white pine
PINACEAE

HABIT: A vigorous, handsome conifer 120-180' tall and 2-4' in diameter.

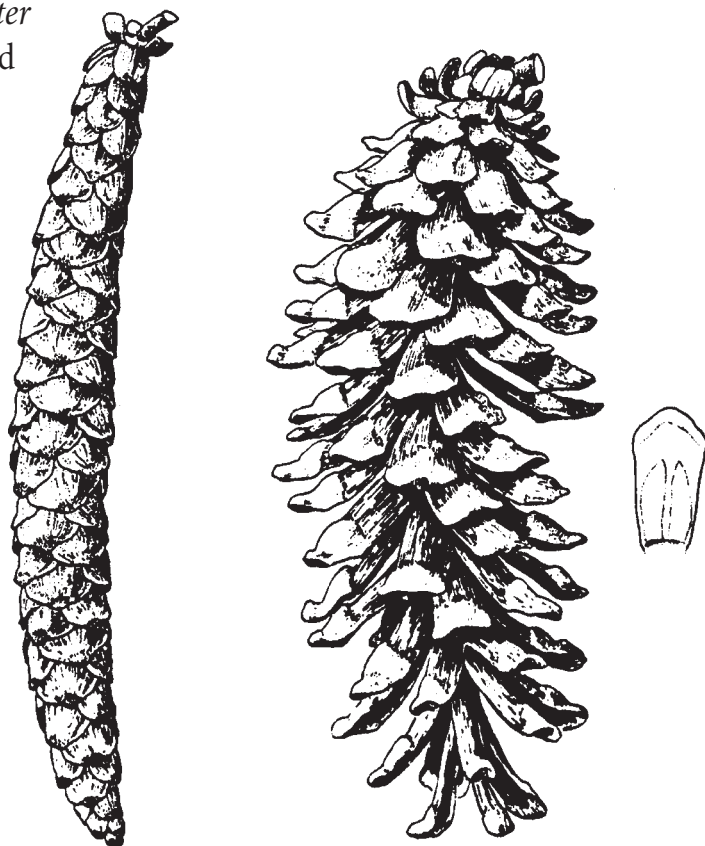
DESCRIPTION: The bluish-green needles are 2-4" long, *slender, flexible* and in groups of five. The branches are distinctly whorled with a few of the upper ones commonly *extending* beyond the normal profile of the crown. The bark is smooth and grayish on young trees becoming grayish-black and divided into angular blocks on mature individuals. The lower 1/3 to 1/2 of the bole on mature trees is commonly free of branches. The *cones* are *large* (5-12" long), pendant and usually curved.

HABITAT: A mid to upper elevation tree of cool and moist sites. Often found in association with ABAM and TSHE.

REMARKS: PIMO is very susceptible to *White pine blister rust* (*Cronartium ribicola*) and to fire (because of thin bark). PIMO may be confused with PIAL (short-stiff needles, white bark) where their elevational ranges overlap (infrequent).



4 in



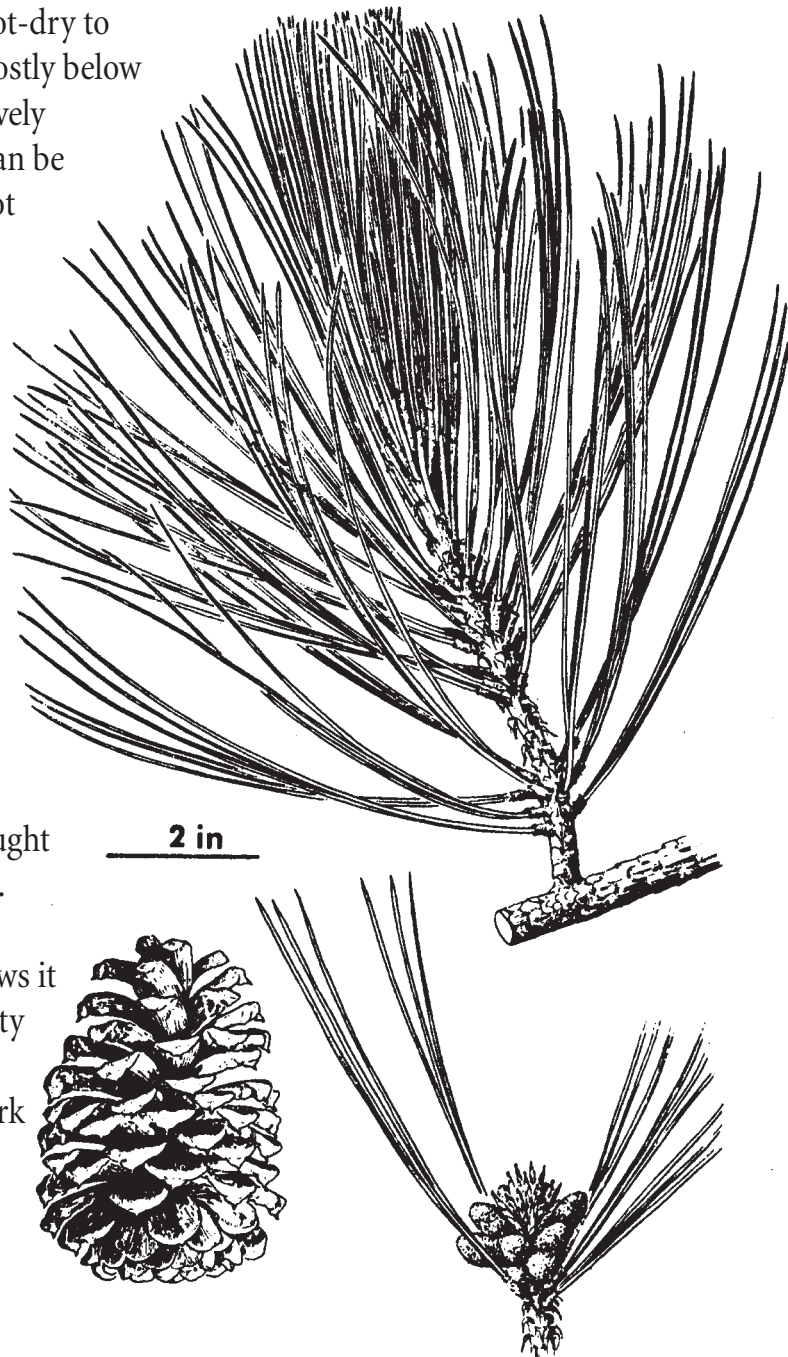
PIPO *Pinus ponderosa*
ponderosa pine
PINACEAE

HABIT: A stately tree up to 180' tall and 3-6' dbh.

DESCRIPTION: A common, relatively low elevation species with an open crown and yellowish-red bole in mature individuals. Needles are long (5-8"), yellowish-green in fascicles of *three* (rarely two). The bark is brown to black on younger trees (often called "bull pine") becoming *cinnamon red* with scaly plates and deep fissures on older trees. Buds are large, *candle-like* and often resin-dotted. Cones are 3-6" long; the umbos armed with a straight prickle.

HABITAT: Found on hot-dry to moderate-moist sites mostly below 4000'. Because it is relatively sensitive to frost PIPO can be used to indicate areas not prone to frost.

REMARKS: A very important pine for timber in the west. Easily damaged by deep snow accumulations. PIPO is fire resistant because of its thick bark, high crown and its common occurrence in open stands. Natural regeneration tends to be episodic because of drought and irregular seed crops. Rapid elongation of the taproot of seedlings allows it to grow on more droughty sites than any other conifer on the Forest. Bark fissures have a vanilla scent.



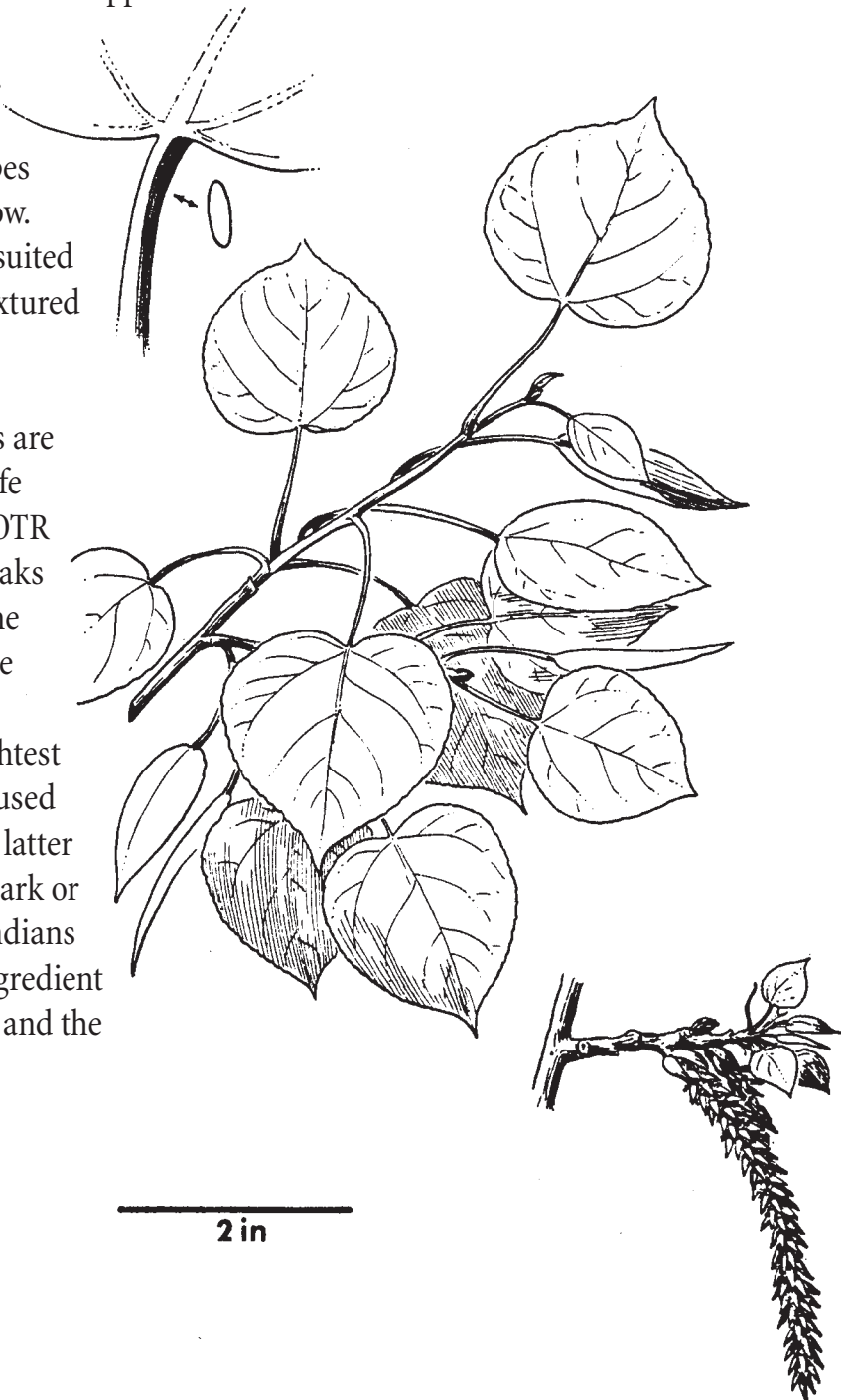
POTR *Populus tremuloides*
quaking aspen
SALICACEAE

HABIT: A small, deciduous tree 30-50' tall commonly found in clonal groves.

DESCRIPTION: A beautiful tree, especially in fall when its leaves turn golden. The alternate finely toothed leaves are ovate to nearly round with a pointed tip. The petiole is 2/3 as long as the leaf and flattened. The bark is smooth *greenish-white* to *silvery-white* becoming rough and *black* scarred with age.

HABITAT: Prefers mid to upper elevation areas with subsurface water i.e. along drainageways, on benches and slopes with lateral water flow. POTR appears best suited to areas with fine textured Mollisols.

REMARKS: Groves are important for wildlife habitat. Stands of POTR form natural firebreaks in conifer forests. The long flattened petiole causes the leaves to “tremble” in the slightest breeze. May be confused with POTR2 but the latter doesn't have white bark or flattened petioles. Indians used POTR as an ingredient in a spring tonic tea and the bark to make hats.



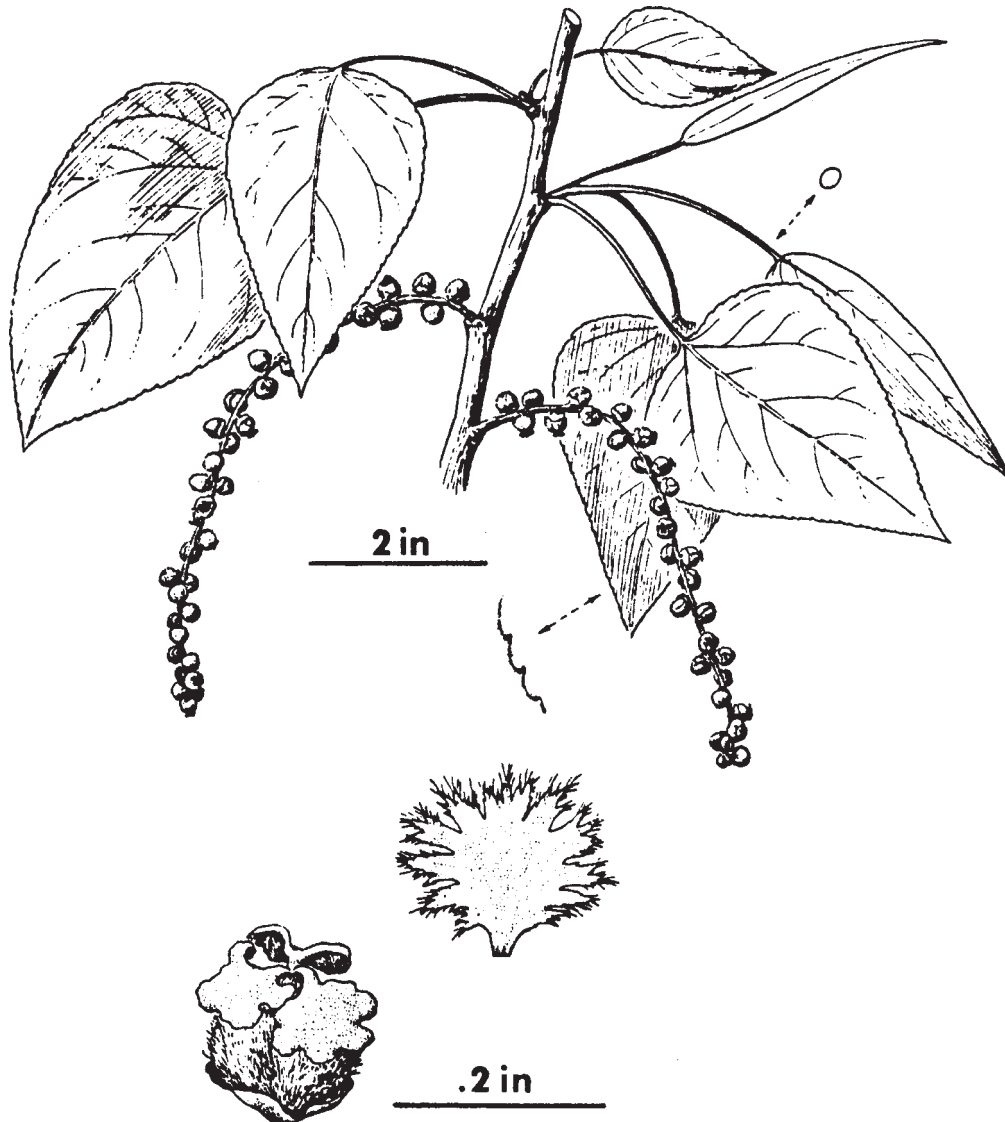
POTR2 *Populus trichocarpa*
black cottonwood
SALICACEAE

HABIT: A large, deciduous tree normally less than 100' tall; typically on moist streamside terraces.

DESCRIPTION: Leaves are 3-~" long, alternate, *bicolored* (light below; dark above) and resinous with round petioles (cross-section). The bark is smooth yellowish-brown above and grayish-brown and furrowed on the lower trunk. Buds are about 3/4" long, resinous, and have a *fragrant* odor when crushed.

HABITAT: Warm and moist environments usually along streams and lake shores at lower elevations. Indicates high water tables and saturated soils.

REMARKS: Very shade intolerant. The largest American *Populus* spp. and the largest hardwood indigenous to the West (Randall and Keniston, 1970). Once the most important pulp species in the west.



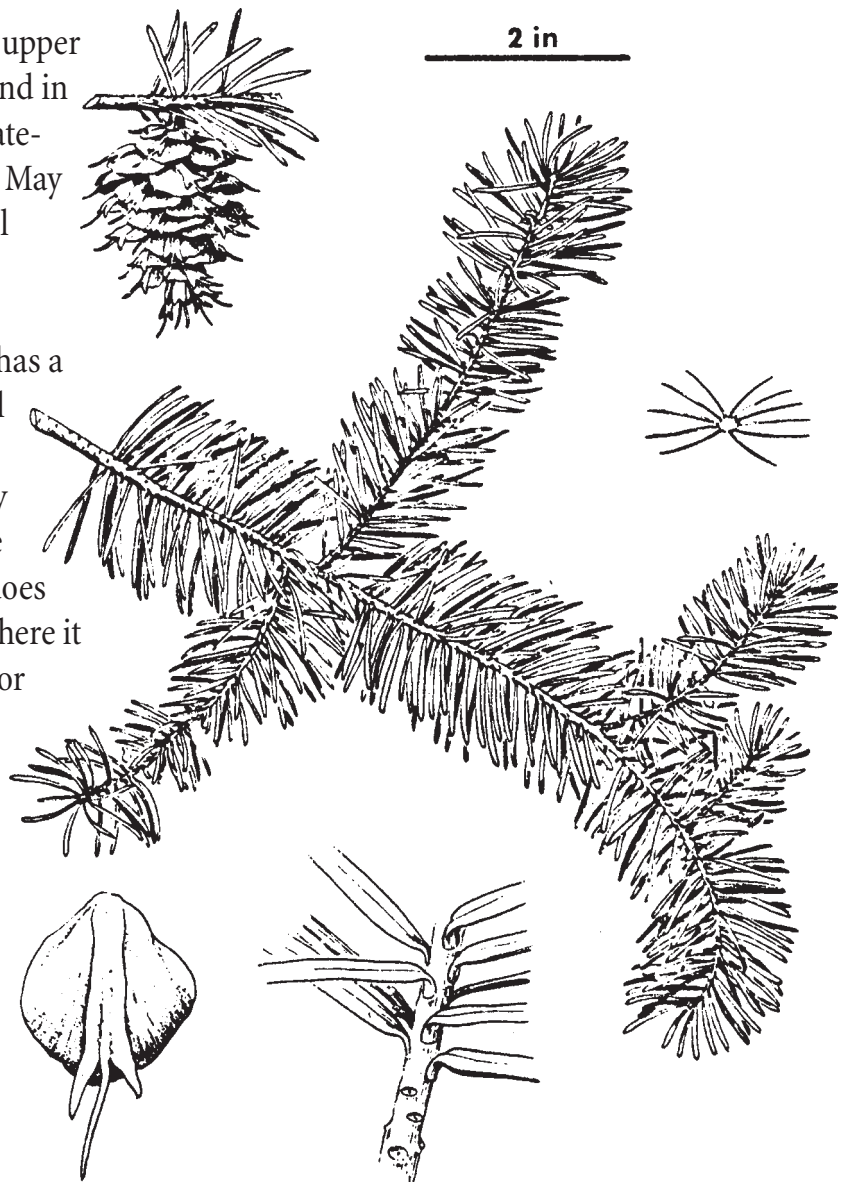
PSME *Pseudotsuga menziesii*
Douglas-fir
PINACEAE

HABIT: A large (100-260' tall), tree with a broad, dense, pyramid-shaped crown.

DESCRIPTION: The crown of younger trees is typically pyramidal with a stiffly erect leader at the apex, while that of older trees is often flattened. The 1/2 to 1 1/2" long needles are petiolate, bluish-green and *spirally arranged* on the twigs. Branching is irregular, such that branchlets are not always opposite. The bark of young trees is thin, smooth, and grayish to grayish brown with resin blisters; while older trees have thick, dark, grayish-brown and deeply fissured bark. When the old bark is cut it has a corky appearance. *Buds are pointed, reddish-brown and non-resinous.* The 2-4" cones are pendant and characterized by a *three-pronged projecting bract*.

HABITAT: A low to upper elevation species found in warm-dry to moderate-moist environments. May be associated with all other conifers.

REMARKS: PSME has a broad environmental amplitude and is common on a variety of sites. Intermediate in tolerance; PSME does well on many sites where it is not climax. ABGR or ABLA2 generally replaces PSME as the upland climax dominant on cooler more moist upland sites. The most common tree on the Wenatchee.



QUGA *Quercus garryana*
Oregon white oak
FAGACEAE

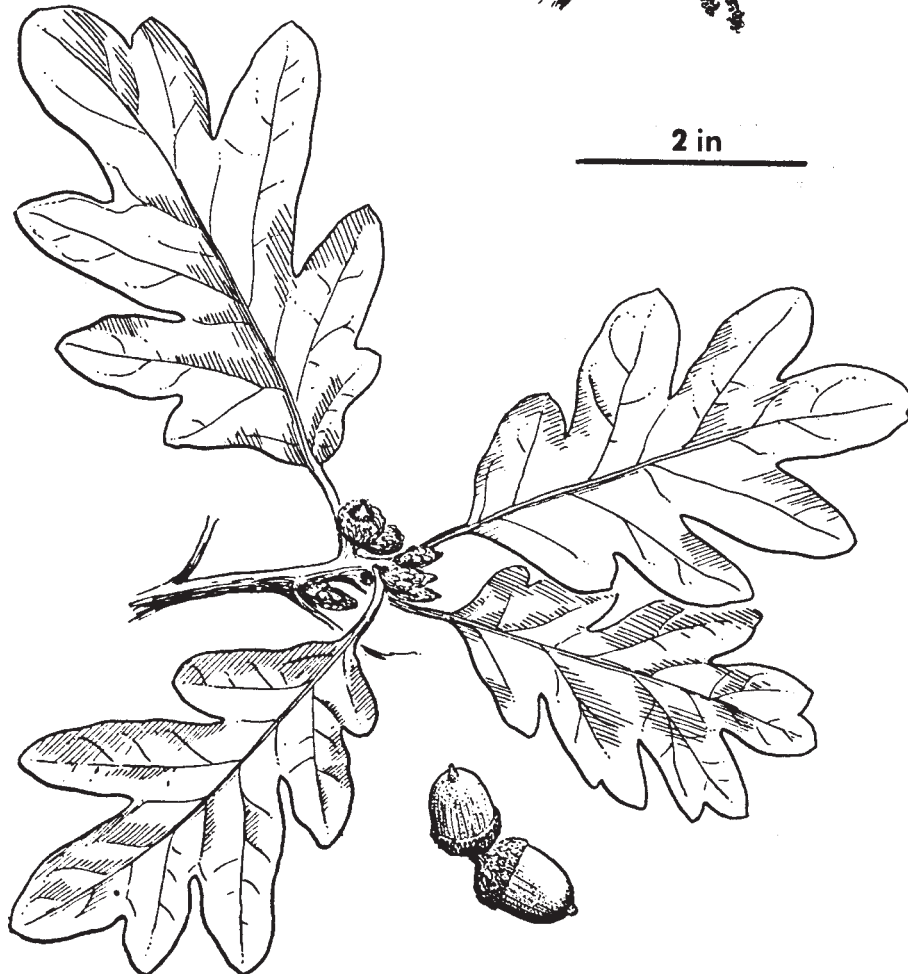
HABIT: A 20-80' tall deciduous tree with a broad, compact crown.

DESCRIPTION: The *leathery leaves* have a .5-1" petiole, are about 3" by 5" with 5-9 *rounded lobes* and are dark green above and yellowish-green beneath. The bark is grayish-brown; furrowed on older trees while young trees are scaly smooth. The fruit is a .75-1.5" long acorn that matures in one year.

HABITAT: Warm, dry sites at low elevation usually adjacent to grassland. Our driest forested site. Restricted in range east of the Cascades. It is common on the forest only within the lower Tieton River drainage.

REMARKS: QUGA is shade intolerant so it does best where it is too dry for other trees to grow or close over. This is the only oak native to our area. It will sprout after fire. QUGA is good for fuel. The wood is hard, strong and attractive and useful for furniture, flooring and many other products. The acorns are edible once the tannin is removed.

Indians apparently ate them and may have planted them in some areas.



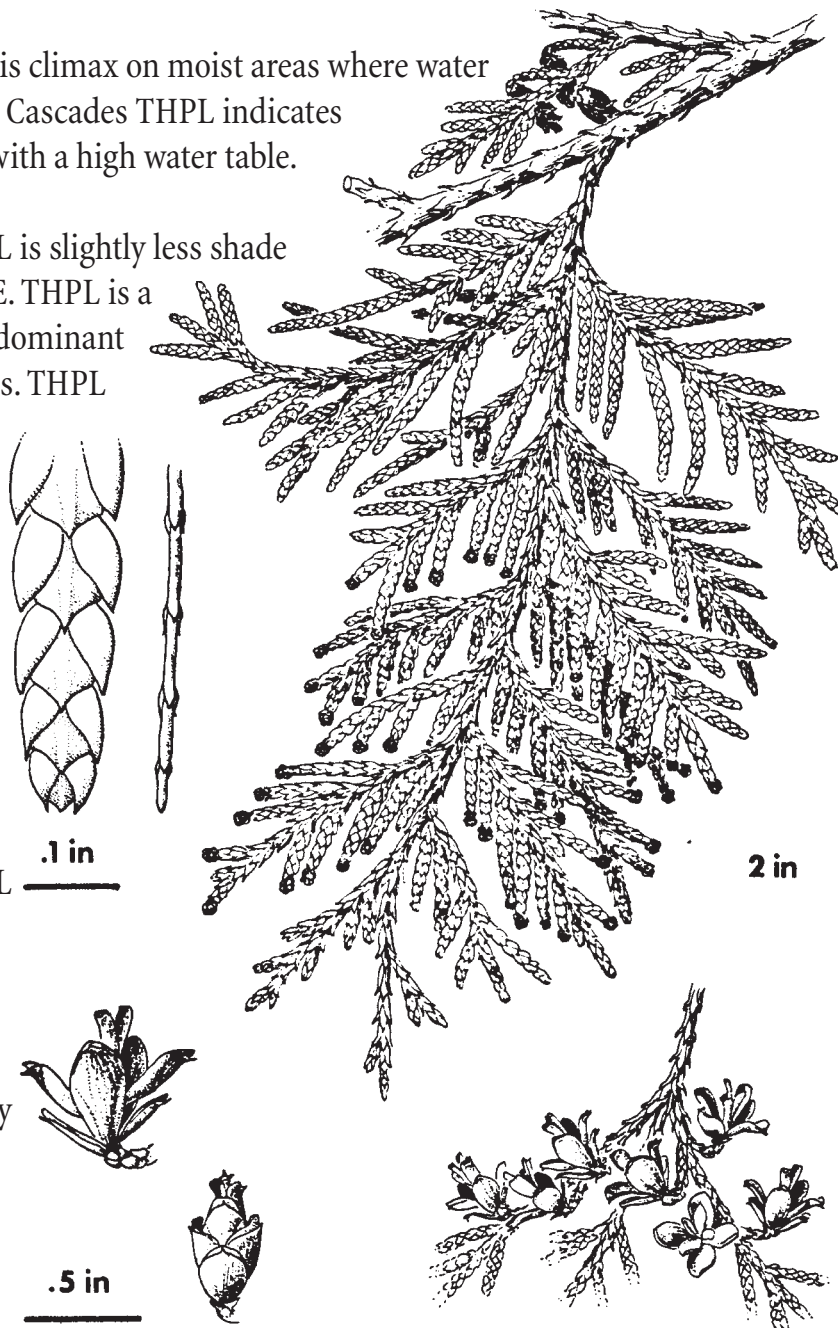
THPL *Thuja plicata*
western red cedar
CUPRESSACEAE

HABIT: A large tree up to 150' tall; commonly with a broadly buttressed base, highly tapered bole and drooping leader.

DESCRIPTION: Leaves are very small, dark yellow-green, *scale-like* and occur as opposite pairs; the facial ones flattened while the lateral leaves are keeled. The branches normally droop but are upturned at the ends. Twiglets are *strongly flattened* in cross-section and the stomatal bloom beneath is butterfly shaped. The reddish-brown to gray-brown bark is easily peeled in *vertical strips*. Cones are about 1/2" long and *semi-woody*.

HABITAT: THPL is climax on moist areas where water is abundant. In the Cascades THPL indicates moist to wet sites with a high water table.

REMARKS: THPL is slightly less shade tolerant than TSHE. THPL is a long-lived seral codominant on some TSHE sites. THPL was extensively used by Indians for canoes, baskets, thongs, shelter, and clothing, Randall and Keniston (1970). The rot resistant wood is commonly used to make shakes. THPL is readily killed by fire because of its thin bark and shallow roots. Old trees are commonly hollow-butted.



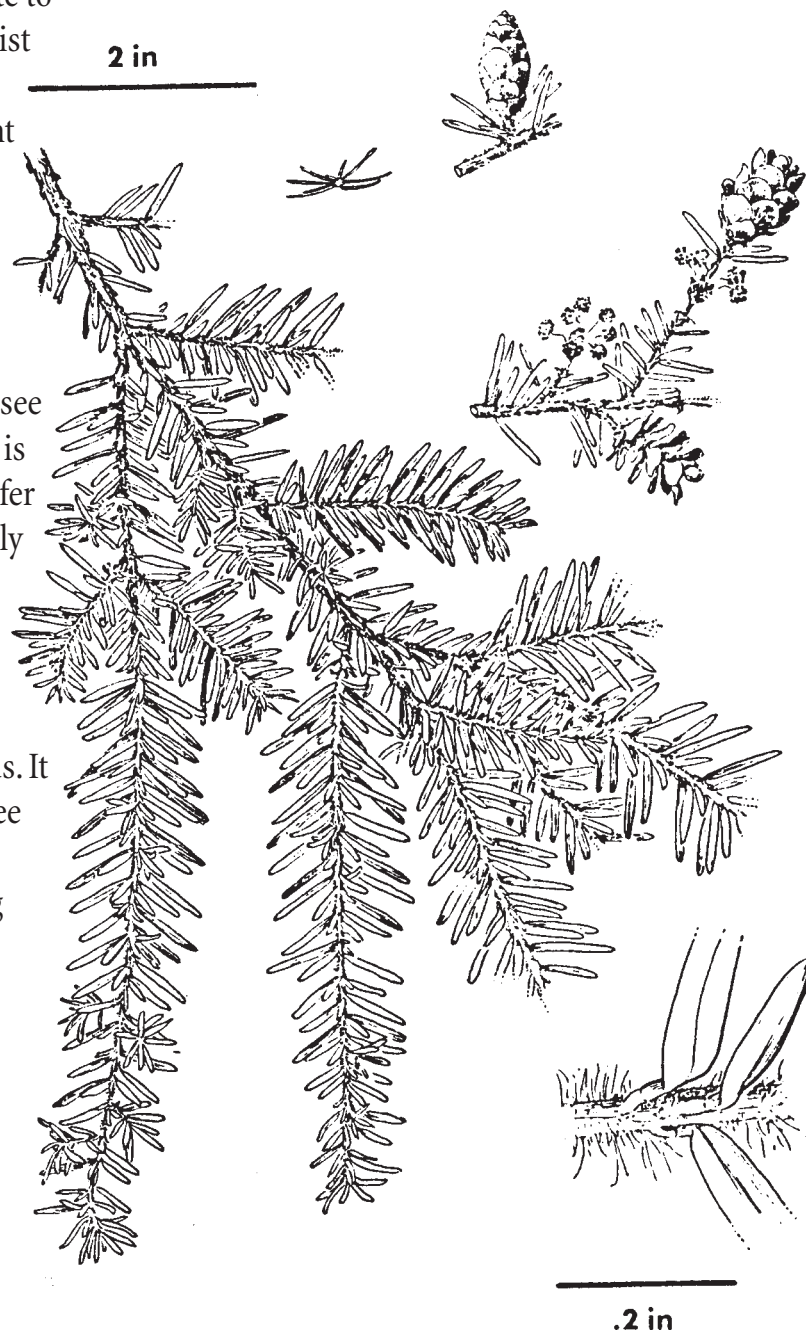
TSHE *Tsuga heterophylla*
western hemlock
PINACEAE

HABIT: A coniferous tree, 100-160' tall with soft-appearing non-shiny foliage and a *drooping leader*.

DESCRIPTION: The dark green needles are flat, *variable* in length (up to about 1/2"); borne on short *stalks* at right angles to the twigs forming flat, drooping sprays. There are two stomatal bands on the lower needle surfaces. The cones are *small* (<1") and *light brown*. The bark is dark to reddish brown, thick and strongly furrowed in mature trees. The inner bark is dark red streaked with purple.

HABITAT: A moderate to cold site species of moist environments, most common and abundant on the Naches, Cle Elum and Lake Wenatchee Districts.

REMARKS: May be confused with TSME (see its description). TSHE is our most tolerant conifer (or perhaps second only to ABAM) and is the largest American hemlock. Regenerates especially well on moist organic seedbeds. It is not uncommon to see lines of TSHE regeneration following the outlines of an old rotten log.



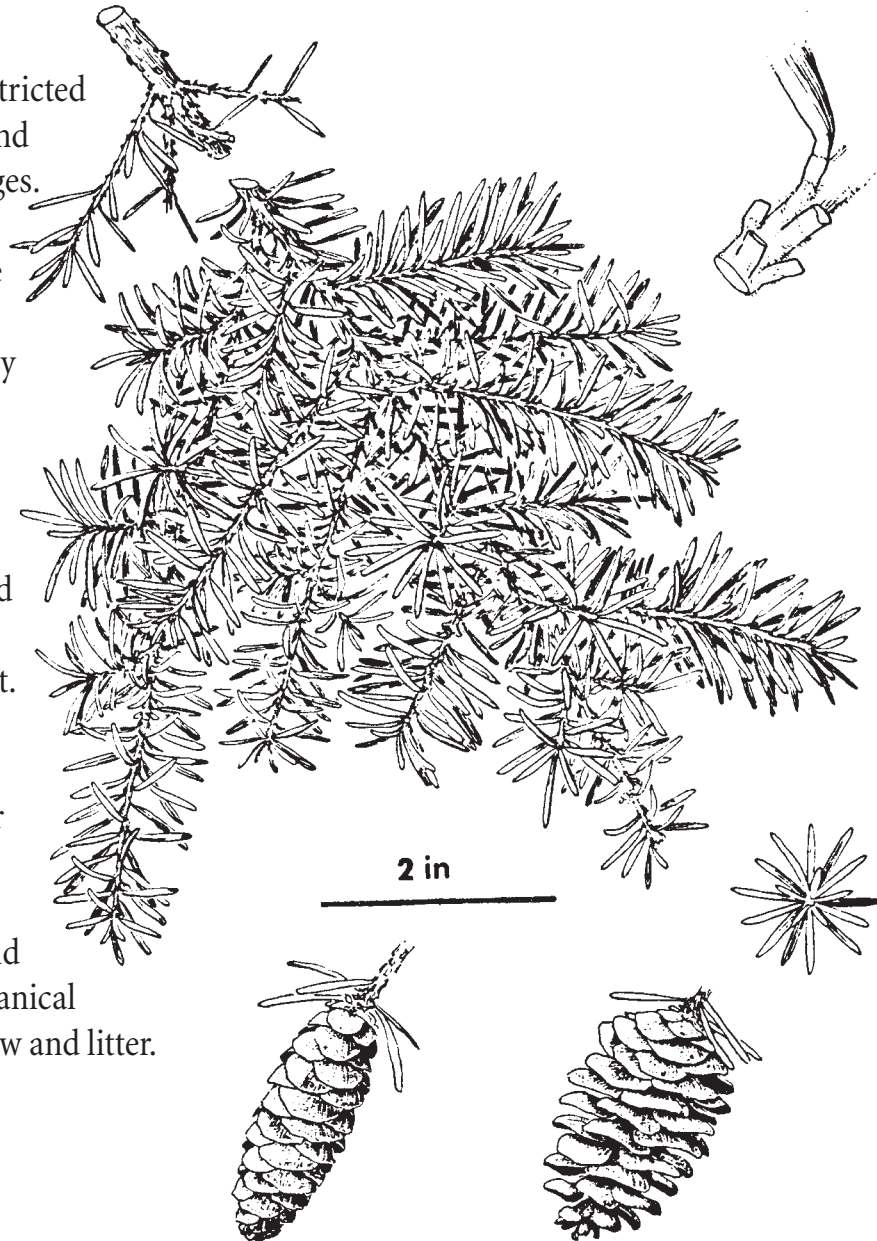
TSME *Tsuga mertensiana*
mountain hemlock
PINACEAE

HABIT: A stunted to erect subalpine tree, reaching over 100' in height; with a very dense crown.

DESCRIPTION: *Bluish-green needles* (borne on sterigmata) are 1/2 to 1 inch long with stomata on *both upper and lower surfaces*. They are arranged on all *sides* of the twigs. The terminal leader and branches are drooping with strongly hairy young twigs. The inner bark is purplish to reddish-brown and deeply divided by rounded scaly ridges. Cones are purple to brown (when mature) and 1-3" long.

HABITAT: A subalpine to timberline tree characteristic of areas that are cold and moist with a heavy snowpack. It indicates moderate to severe regeneration problems.

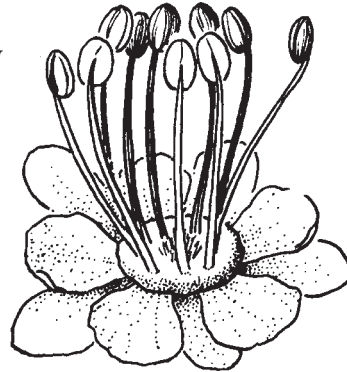
REMARKS: Restricted to the Cascades and adjacent high ridges. When abundant it indicates severe regeneration problems and very slow growth. Commonly associated with ABAM or TSHE but usually judged to be somewhat less shade tolerant. May be confused with TSHE but TSHE has smaller cones and two-ranked needles. TSME is hardy and resistant to mechanical damage from snow and litter.



ACCI *Acer circinatum*
vine maple
ACERACEAE

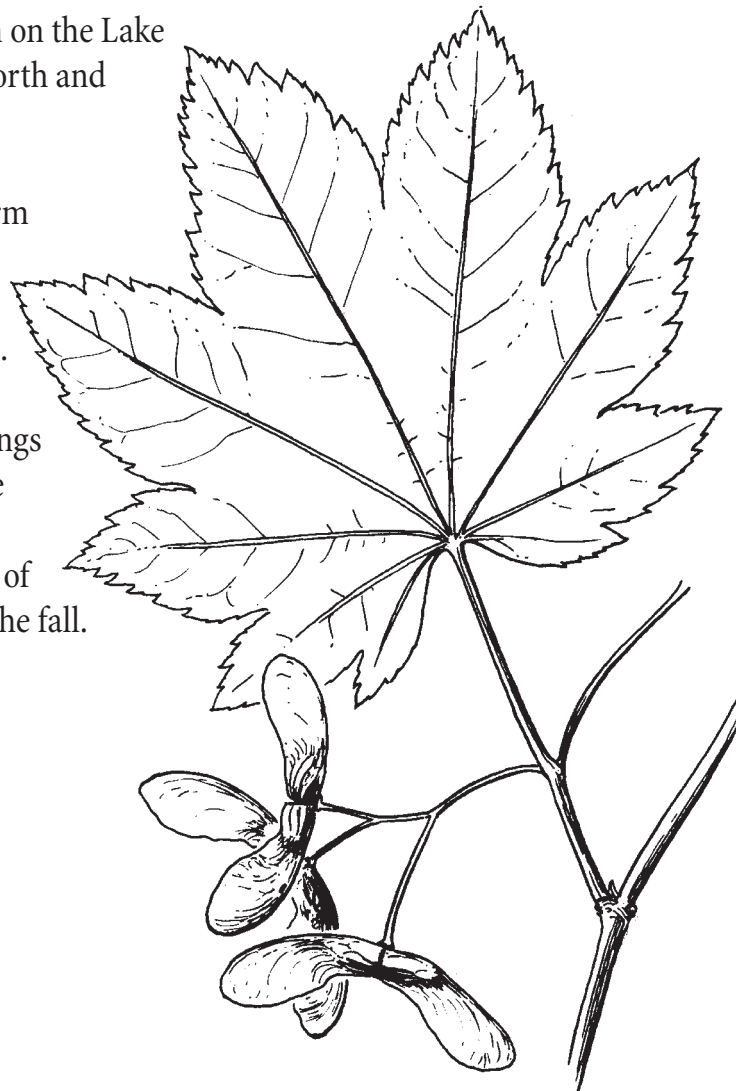
HABIT: A deciduous shrub or small tree to nearly 30' tall.

DESCRIPTION: The opposite leaves are more or less fan-shaped, up to 3" across, 7-9 lobed and serrate. The leaf blades are generally *pilose* on the *lower surface* and hairy, at least along the veins on the upper surface. The stems are purplish-red becoming brown with age. The flowers are red from the wine-red color of the conspicuous sepals although the petals are white. The relatively few flowers are on terminal and lateral, mostly 2-leaved shoots. The fruit is a double samara with widely spreading wings. Flowers March-June.



HABITAT: Moist sites at low to middle elevations within and above the ABGR series. Most common on the Lake Wenatchee, Leavenworth and Cle Elum Districts.

REMARKS: May form nearly impenetrable tangles and make regeneration difficult. Northwest Indians made a variety of things from the very flexible stems. Excellent for landscaping because of exceptional color in the fall.



ACGLD *Acer glabrum* var. *douglasii*
Douglas maple
ACERACEAE

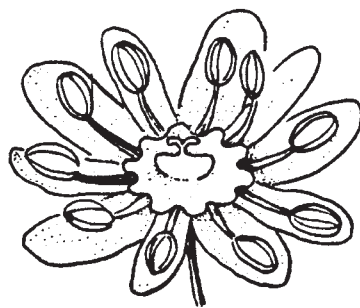
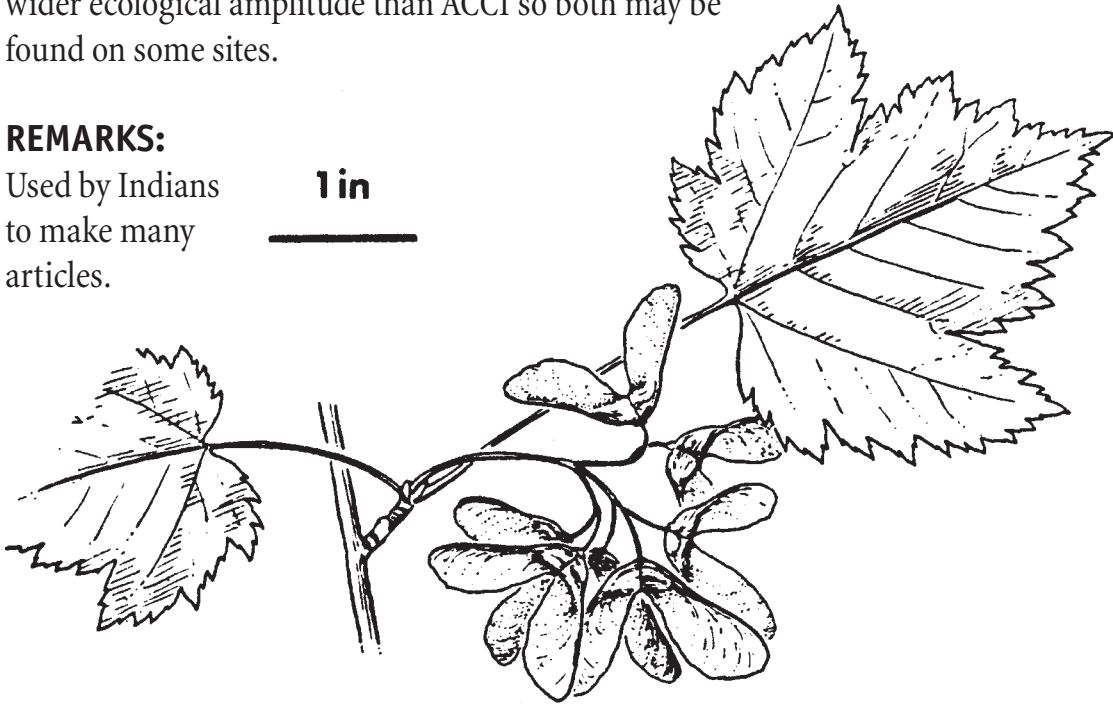
HABIT: A deciduous shrub or small tree up to 30' tall.

DESCRIPTION: It has small (1-6" long by 2.5-6" wide), 3-5 *lobed* (commonly 3), opposite leaves borne on reddish stems. The leaves are sharply toothed with long petioles. The older bark becomes gray. Wings of the fruit form an angle of less than 90 degrees.

HABITAT: Found within both PSME and ABLA2 series in moderate environments. Indicates moderate to good PSME and PIPO sites but it is not constant enough to be a reliable indicator. Found in drier environments than ACCI but ACGLD has a wider ecological amplitude than ACCI so both may be found on some sites.

REMARKS:

Used by Indians to make many articles.



.1in

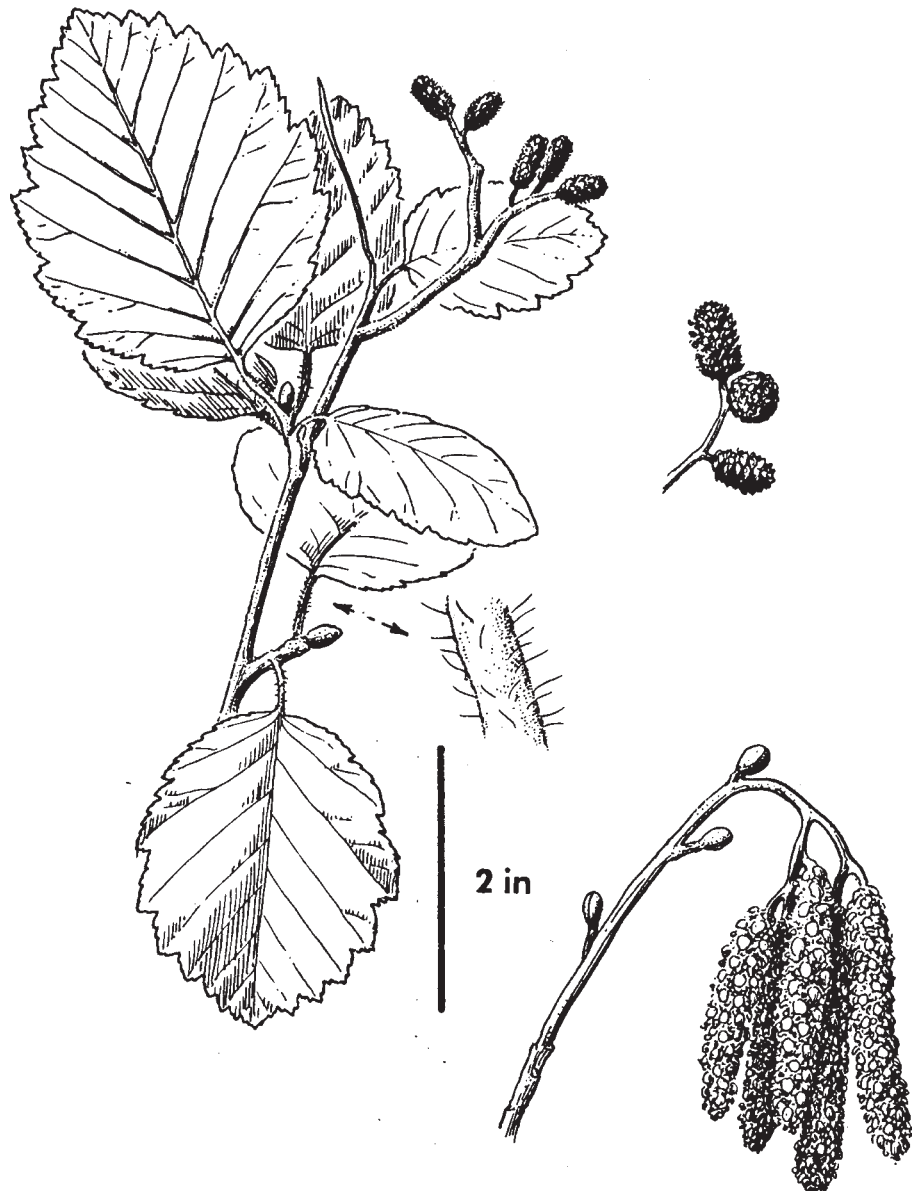
ALIN *Alnus incana*
mountain alder
BETULACEAE

HABIT: A shrub (or small tree) up to 25' tall; commonly forming dense thickets.

DESCRIPTION: The leaves are deciduous, alternate, 1-3" long, ovate-oval, acute and *twice dentate*. The .5-1" long petiole and twigs often have rusty hairs. The cambium and pith turns reddish-brown when exposed to air. The winter buds are blunt, bright red and stalked. The *catkins develop before the leaves*. The male catkins are clustered and pendulous while the female ones are small semi-woody, persistent and cone-like. All catkins are exposed over winter. The bark is greenish-gray, thin and smooth; tending to flake near the base of older trees.

HABITAT: Cool to cold and wet sites along streams and sub-irrigated areas. Found generally in riparian areas at lower elevations than ALSI.

REMARKS: A very intolerant nitrogen-fixing species. See ALSI for uses.



ALSI *Alnus sinuata*

Sitka alder

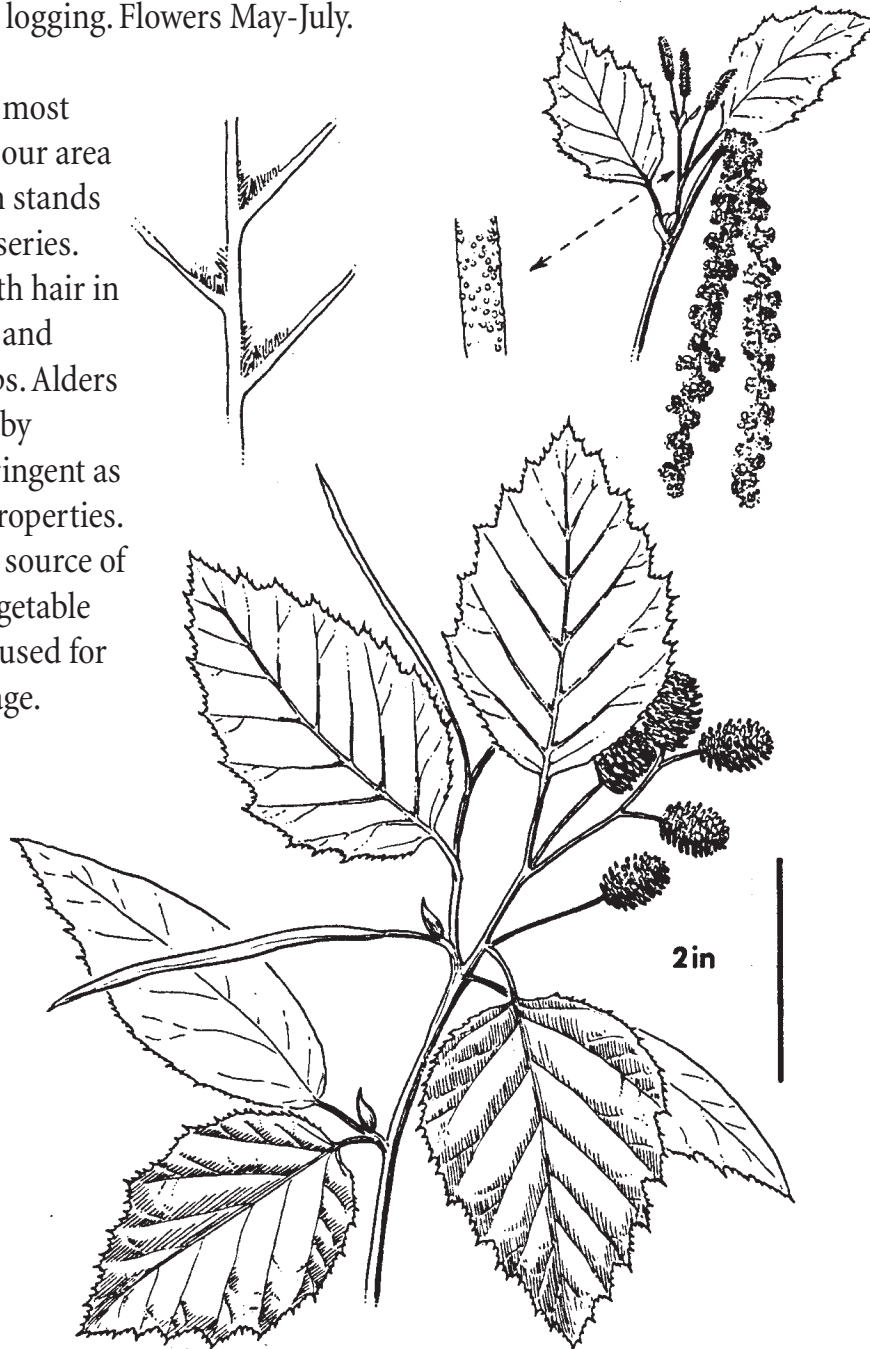
BETULACEAE

HABIT: A bushy shrub up to 10' tall, often forming dense thickets.

DESCRIPTION: Leaves are deciduous, alternate, *doubly serrate* and *sharply pointed*. The *main veins* on the underside of the leaf commonly have *tufts of hair* in *their axils*. The stems are glandular and the bark is reddish-brown, maturing to grayish black. Catkins develop with the leaves on the *current years' growth*.

HABITAT: Generally found at upper elevations on northerly aspects or bottoms in cool-cold and moist environments. Indicates high soil moisture with potential for excess water after logging. Flowers May-July.

REMARKS: The most common alder in our area but uncommon in stands within the PSME series. The only alder with hair in the leaf vein axils and acuminate leaf tips. Alders were widely used by Indians as an astringent as well as for tonic properties. Alder was a main source of red and brown vegetable coloring and was used for baskets and cordage.

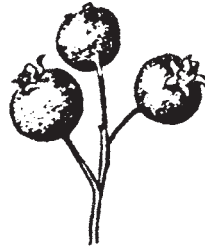


AMAL *Amelanchier alnifolia*
serviceberry
ROSACEAE

HABIT: A shrub that occasionally reaches small tree stature (30').

DESCRIPTION: Leaves are deciduous, alternate, oblong to oval and *toothed* above *the middle*. They are dark *bluish-green*; appearing somewhat glaucous. The stems are smooth and reddish-brown aging to gray. The fruit is a dark purple berry (pome). The flowers have 5 petals and occur in highly visible clusters. Flowers April-July.

HABITAT: Occupies sites from dry, rocky and treeless shrub-steppe to moist and cool forest environments. Found on all but the harshest upper elevation sites.



1 in

REMARKS: May be confused with SPBEL (different leaf color, serration and stature). The fruits are edible (though pithy) and make excellent jelly. Various parts of the plant were used by the Indians for medicinal purposes and the wood for tools.



ARNE *Arctostaphylos nevadensis*
pinemat manzanita
ERICACEAE

HABIT: A prostrate, evergreen shrub with trailing, rooting stems to over 10" long.

DESCRIPTION: The leaves are generally over 1" long, spatulate and *leathery* with a slight to well-developed *point*. The stems are reddish to brownish and often *exfoliating*. The flowers are small (1/4"). pink and *urn-shaped* in terminal, few-flowered racemes. The fruit is a round, *brownish-red* berry. Flowers April-June.

HABITAT: A middle to upper elevation species typically on rocky sites with sedimentary geology.

REMARKS: Readily confused with ARUV which has obtuse leaves, a bright red berry and is slightly lower growing. Uses are probably similar to those of ARUV.



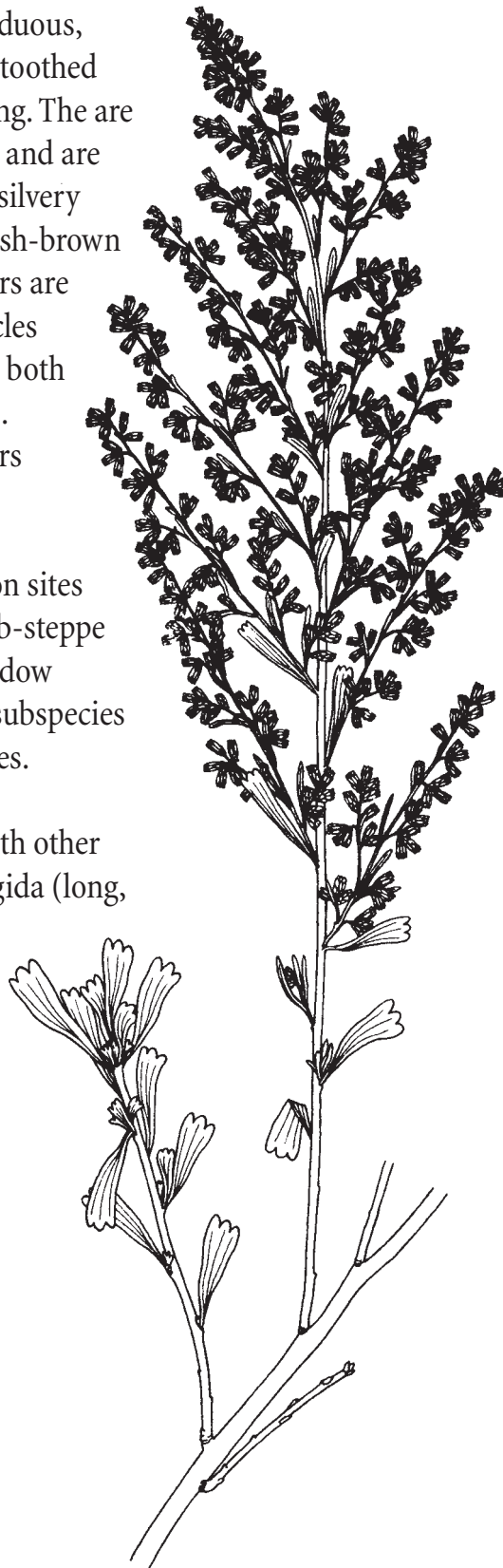
ARTRV *Artemisia tridentata* and (ssp. *vaseyana*)
Big sagebrush & Mountain big sagebrush
ASTERACEAE, COMPOSITAE

HABIT: A medium-sized aromatic shrub 2-4'tall.

DESCRIPTION: Leaves are deciduous, alternate, cuneate (triangular), 3-toothed strongly pubescent and .5-1.5" long. They are gray-green both above and below and are strongly aromatic. The stems are silvery gray when young becoming grayish-brown and shredded with age. The flowers are small and inconspicuous in panicles above the foliage (mountain) and both above and within the foliage (big). The fruit is a small achene. Flowers August-September.

HABITAT: Occupies low elevation sites from dry, rocky and treeless shrub-steppe (big) to moist and cool forest meadow environments (mountain). Both subspecies are often found with scattered trees.

REMARKS: May be confused with other sagebrush species including *A. rigida* (long, narrow leaf segments and short plant in scablands) and *A. arbuscula* (shorter stature, shallower soils). Compare also to PUTR. ARTR bark was used by Indians for rope and clothing. Leaves and branches were used for medicinal tea (Turner et.al. 1980).



10 in

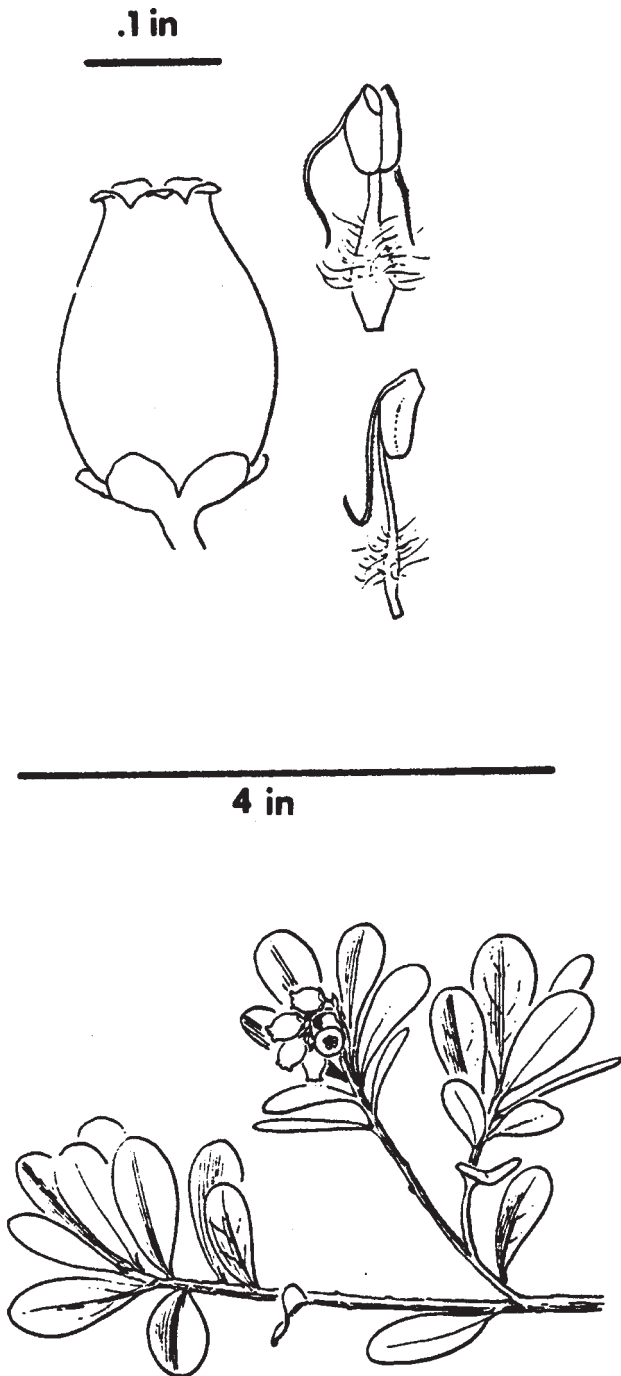
ARUV *Arctostaphylos uva-ursi*
bearberry; kinnikinnick
ERICACEAE

HABIT: A decumbent, spreading, evergreen shrub with rooting stems. Seldom over 6" tall.

DESCRIPTION: The blunt, leathery, evergreen leaves are oblong to *spatula-shaped*. They are 3/4 to 1 1/4" long, dark green and somewhat shiny above, while paler below. The stems are reddish to brown. The small flowers are pinkish, urn-shaped and the fruit is a mealy, bright red berry. Flowers April-June.

HABITAT: Occurs on dry, warm sites at lower elevations to cooler, moist sites at upper elevations. ARUV has a broad ecological amplitude but is most abundant on sites with compacted or stony subsoils that limit root development.

REMARKS: Commonly confused with LIBOL (leaves opposite and shallowly toothed) and ARNE (pointed leaves more nearly the same color on both sides). The berries are edible but not especially tasty. Indians used the dried leaves for tobacco and steeped the leaves (which contain arbutin and tannic acid) in water to make a curative tea (Scully, 1970).



BEAQ *Berberis aquifolium*

Oregon grape

BERBERIDACEAE

HABIT: An evergreen, generally erect, holly-like shrub up to 3' tall.

DESCRIPTION: The usually *shiny leaves* have 5-9 leaflets that are twice as long as broad with spinulose-serrate to spinose margins. BEAQ has clustered, bright yellow flowers and deep blue, glaucous berries. Flowers March-May.

HABITAT: BEAQ is found from low to mid-elevations on sites ranging from warm and dry to cool and moist.

REMARKS: Our plants generally fit BEAQ better than *Berberis repens* (BERE) though there seems to be considerable variation from plant to plant. The berries were eaten by the Indians, and the roots and bark were used for yellow dye and medicinal purposes. The berries make excellent jelly.



4 in

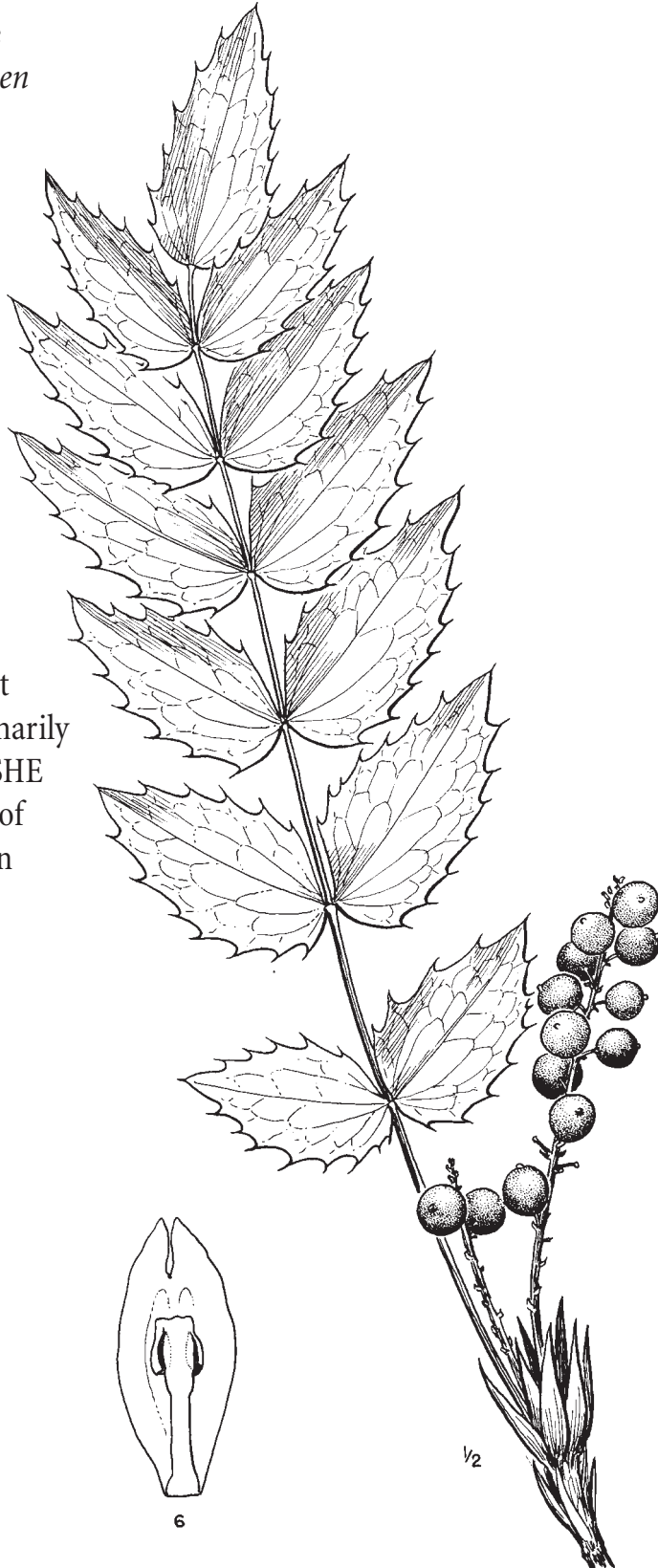
BENE *Berberis nervosa*
Cascade Oregon grape
BERBERIDACEAE

HABIT: A low, evergreen, strongly rhizomatous shrub with pinnately compound leaves; rarely over 2.5 feet tall.

DESCRIPTION: The leaves are compound, 10-16" long, *dull green* with *11-21 leaflets*; coarsely serrate-spinulose. The flowers are bright yellow and the fruit is a dark blue glaucous berry about .25" in diameter. Flowers March-June.

HABITAT: Moist but well-drained sites at lower to middle elevations in the Cascades and adjacent foothills.

REMARKS: Very shade tolerant shrub of relatively dry sites primarily within the ABAM, ABGR and TSHE series. Uses are similar to those of BEAQ. BENE generally occurs on more moist sites than BEAQ.



CESA *Ceanothus sanguineus*
redstem ceanothus
RHAMNACEAE

HABIT: An erect, loosely branched, *deciduous* shrub 3-10' tall; commonly forming thickets.

DESCRIPTION: The alternate leaves are dark green above, glabrous and *prominently 3-veined*. They are 1-3.5" long from a 1" petiole with serrate margins. The stems are *purplish-red*, glabrous and slender. The small white flowers are borne in dense clusters near the twig ends and have hooded anthers. Flowers May-June.

HABITAT: Dry to moist sites with well-drained soils in partially shaded stands or in openings; often following fire. Most common on sites within or below the ABGR series on Swauk sandstone.

REMARKS: CESA fixes nitrogen and is good browse for big game. It is a fire dependent species whose seeds require heat treatment or scarification for germination.



CEVE *Ceanothus velutinus*
snowbrush ceanothus
RHAMNACEAE

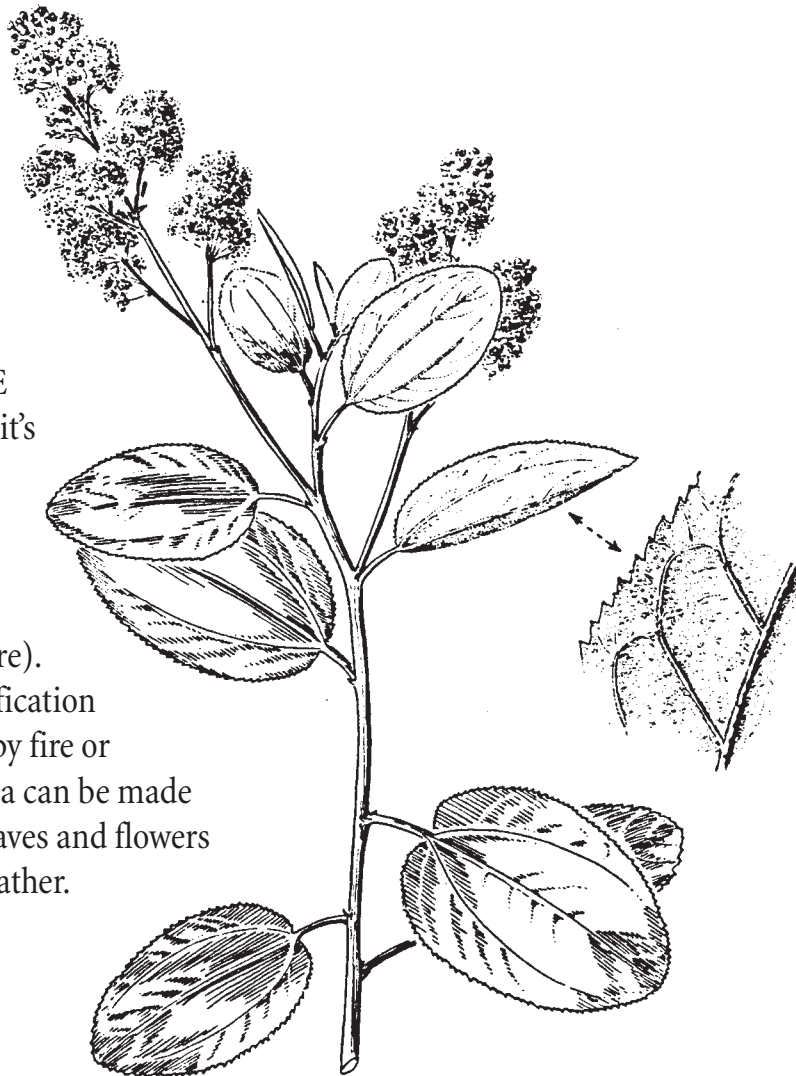
HABIT: A heavily scented, erect to spreading, *evergreen* shrub, 2 to 10' tall.

DESCRIPTION: The leaves are *glossy* above (appearing varnished, gummy), paler below and finely glandular-serrate with 3 *prominent veins* from the base. They are alternate, *thick*, often curled and 1 1/2 to 2 1/2" long. The stems are green and smooth. The flowers are small and white with hooded anthers in pyramid shaped clusters. Flowers June-August.

HABITAT: A low to mid elevation species; typically on burned sites. Prefers open, sunny stands growing on glacial drift. It normally dies out from shading as tree canopy cover increases.

REMARKS:

CEVE has a strong, distinctive odor; especially in warm weather. It fixes nitrogen, and may play an important role in nutrient cycling after catastrophic fires. CEVE indicates past fires and it's density and vigor are roughly correlated with the time since burning (young and vigorous plants indicate recent fire). The seeds require scarification for germination either by fire or mechanical means. A tea can be made from the flowers and leaves and flowers can be used to make a lather.



4 in

CHME *Chimaphila menziesii*
little princes-pine
ERICACEAE

HABIT: A rhizomatous, low-growing (2-7" tall) slightly woody, *evergreen* shrub.

DESCRIPTION: Leaves are pointed, leathery, very dark green, *widest near the middle* and about 1-2.5" long with margins that are usually serrated. The flowers are pinkish in a few *flowered* (1-3) terminal raceme. The filaments have a *swollen hairy* base. Flowers June-August.

HABITAT: Sites of moderate moisture at middle elevations within or above the ABGR series.

REMARKS: May be confused with CHUMO (larger, lighter colored leaves that are widest near the tip and more flowers). A drink can be made by steeping the leaves in water.



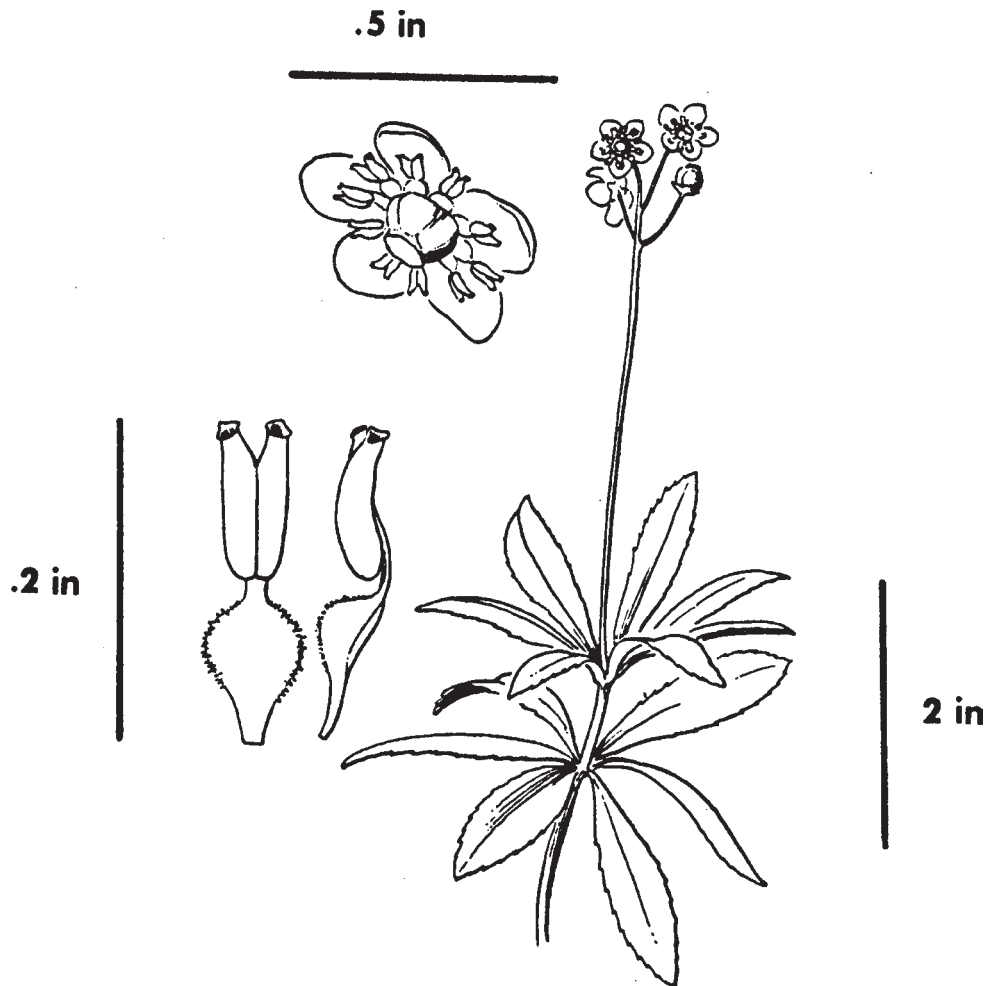
CHUMO *Chimaphila umbellata* var. *occidentalis*
western princes pine
ERICACEAE

HABIT: A rhizomatous, low-growing (4-11" tall), slightly woody, *evergreen* shrub.

DESCRIPTION: Leaves are leathery, dark green, shiny and *widest near* the tip. They are serrated, *whorled* and 1-3" long. The stems are yellowish-green and slightly woody. The flowers occur in groups of 5-15 and are whitish-pink to rose in color. The filaments are *not hairy* (unlike CHME). Flowers June-August.

HABITAT: A mid elevation species that prefers moist and cool conditions. It does not extend into dry and hot PSME sites or the coldest and wettest ABLA2 sites. Indicates good to excellent sites for growth of PSME and little to no soil drought.

REMARKS: Sensitive to fire but will regenerate from rhizomes to pre-burn levels (Patterson, et.al., 1983); presumably if the fire has not been so hot that the shallow rhizomes are killed. A tea made from the leaves was used by Okanogan and other Indians for medicinal purposes; and is a "refreshing drink" when chilled (Kirk, 1970). CHUMO has been used as an ingredient in soft drinks. May be confused with CHME (leaves are widest toward the base.)



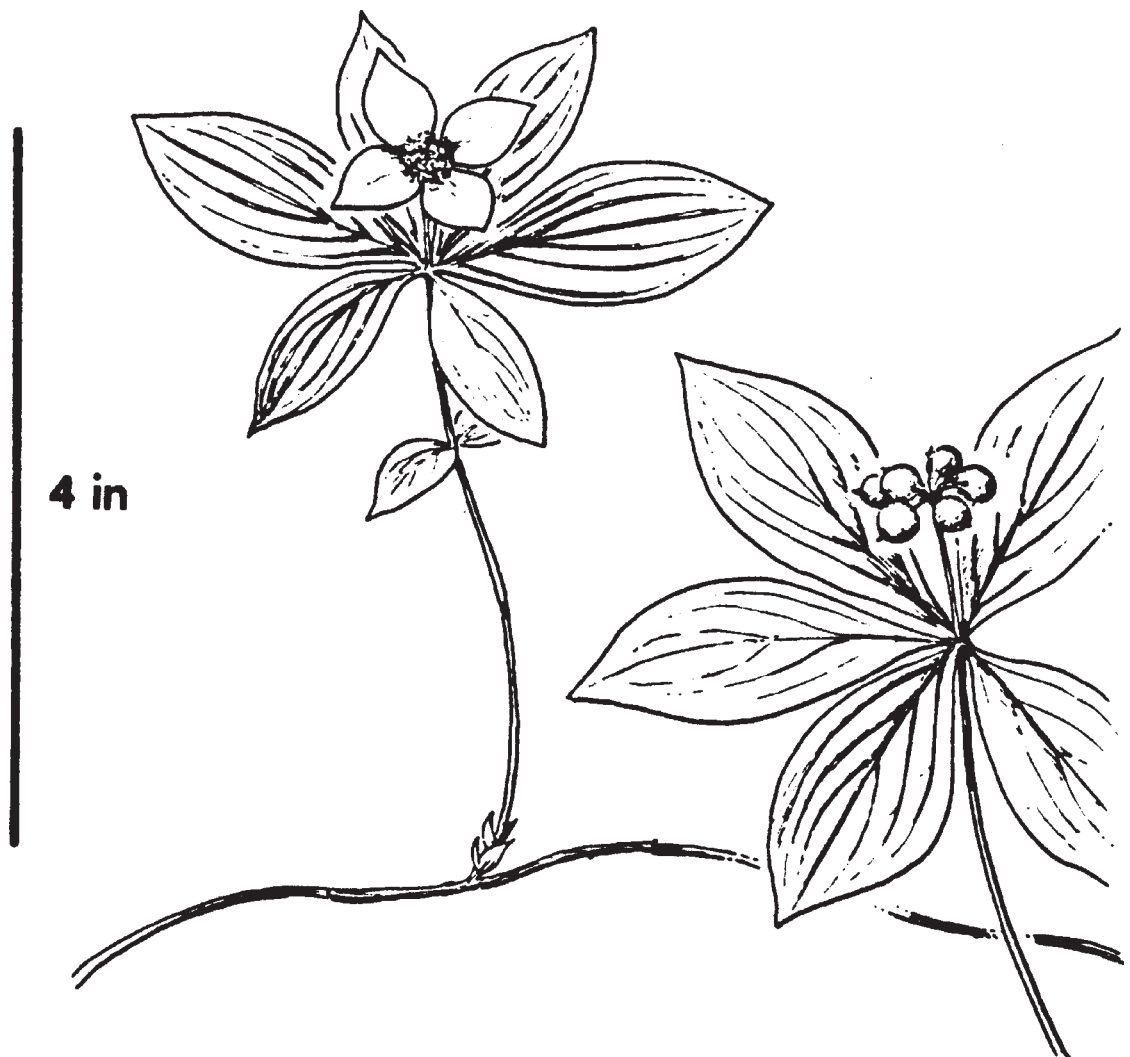
COCA *Cornus canadensis*
bunchberry dogwood
CORNACEAE

HABIT: A low, widely rhizomatous subshrub, 2-8" tall.

DESCRIPTION: The 5-7 evergreen leaves occur in a terminal whorl. The leaves are 1-3" long with *prominent, distinctive venation*. COCA flowers occur in a *single terminal cluster* subtended by four white, pinkish or purplish-tinged *petal-like bracts*. The clustered fruits (drupes) are bright red. Flowers June-August.

HABITAT: A mid elevation species typically restricted to mid elevation sites above the PSME series. It indicates moist and cool to frosty conditions.

REMARKS: An excellent landscape species. The berries are edible but may have a laxative effect. Indians used the plant for a variety of medicinal purposes.



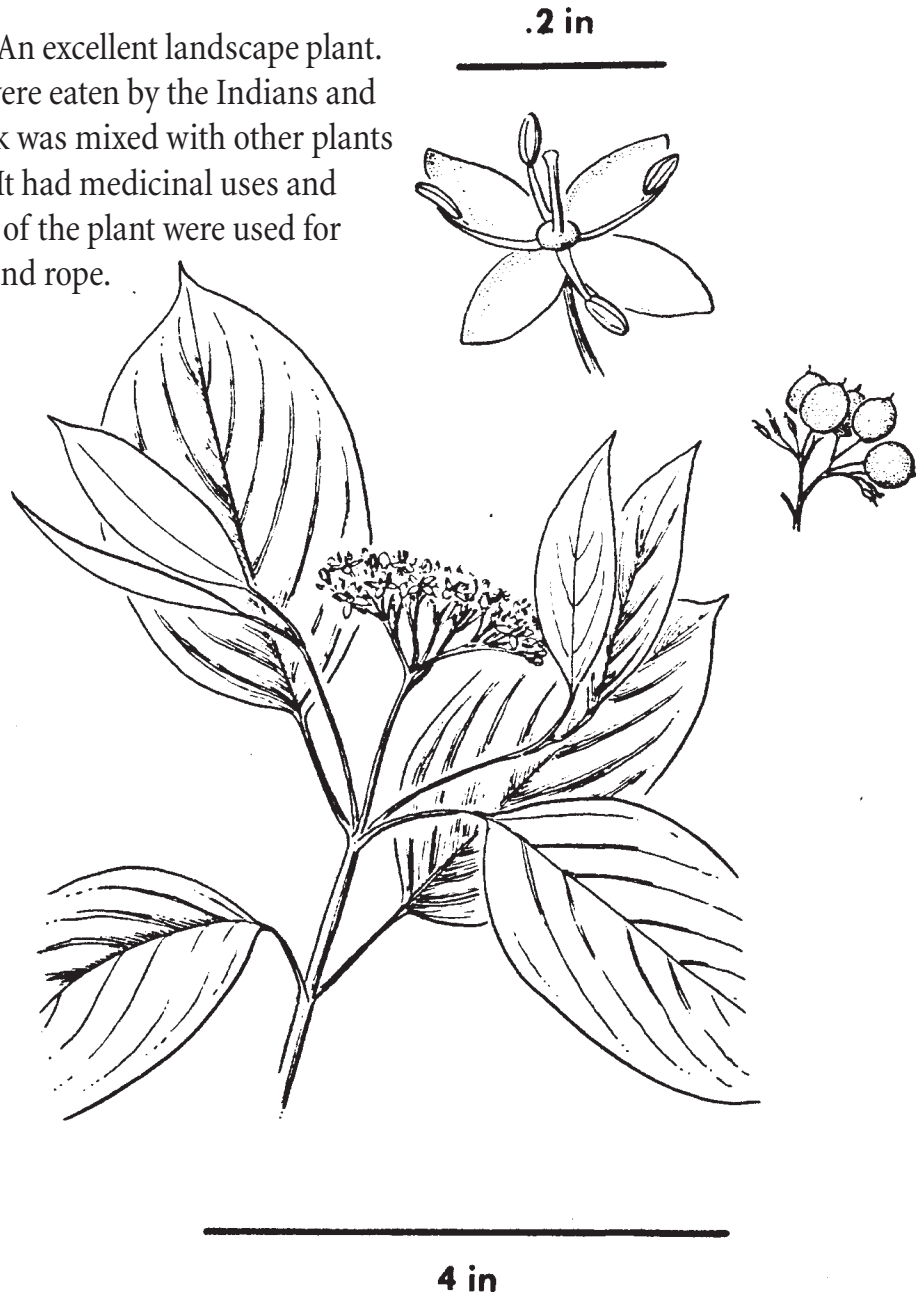
COST *Cornus stolonifera*
red-osier dogwood
CORNACEAE

HABIT: A many-stemmed riparian shrub, 6-20' tall, commonly spreading by layering.

DESCRIPTION: Leaves are *opposite*, deciduous, 2-5" long with 5-7 *prominent parallel* veins up-curving near the margins. The younger stems are *bright red to reddish-purple* with pointed, red buds that have a distinctively enlarged base. Flowers are small and white in flat-topped terminal clusters. The fruits are small, white and bitter berries (drupes). Flowers May-July.

HABITAT: Restricted to wet soils and is typical of river and stream banks.

REMARKS: An excellent landscape plant. The berries were eaten by the Indians and the inner bark was mixed with other plants for smoking. It had medicinal uses and various parts of the plant were used for implements and rope.



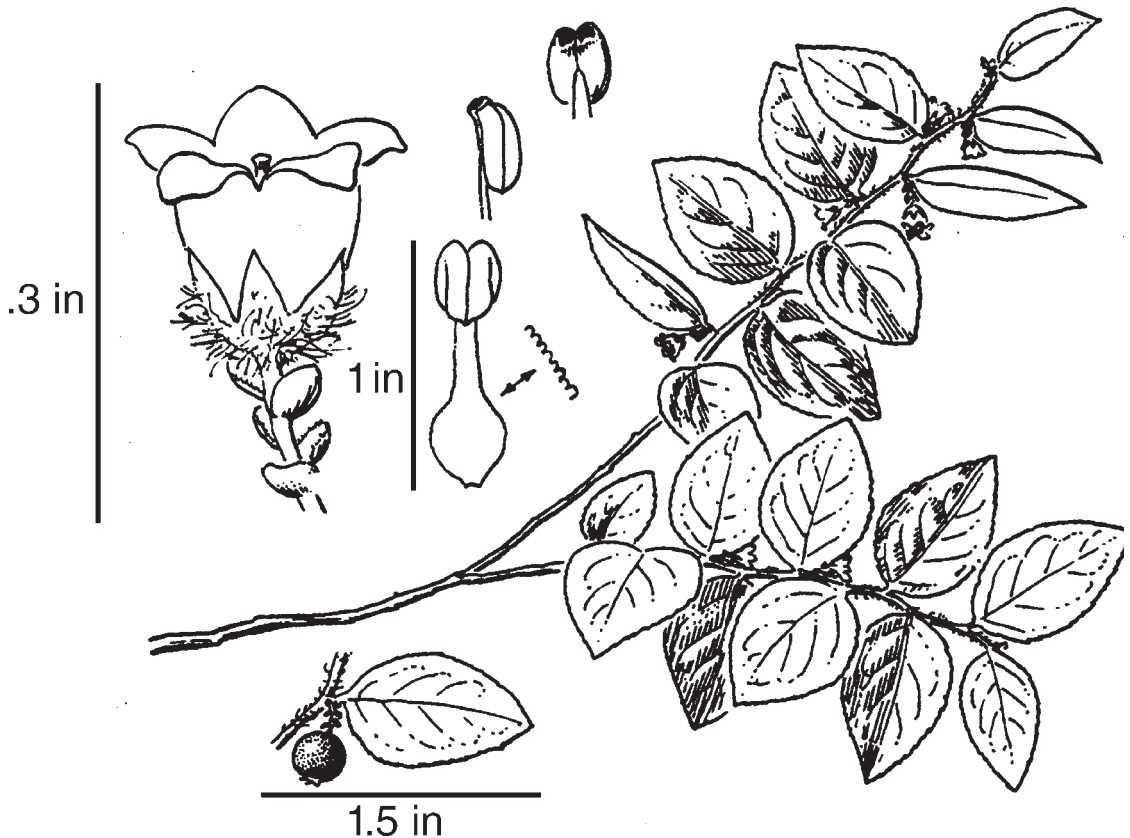
GAOV *Gaultheria ovatifolia*
slender wintergreen
ERICACEAE

HABIT: Low, mat forming, evergreen subshrub, seldom over 1.5" tall.

DESCRIPTION: The leaves are ovate, acute, leathery and <1 to nearly 2" long. The margins are thickened and usually conspicuously serrulate. The branches are copiously brownish-pilose. The fruit is a bright red berry. Flowers June-August.

HABITAT: Moist and cold places at middle to upper elevations in the Cascades.

REMARKS: May tend to hybridize with *Gaultheria humifusa* (GAHU) forming plants of intermediate characteristics. Many of the plants observed appeared to exhibit characters of both species such that all were finally termed GAOV in our data. Makes an excellent ground cover.



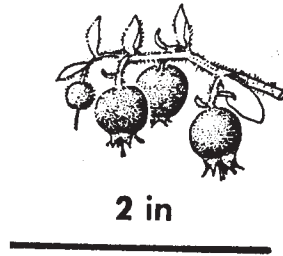
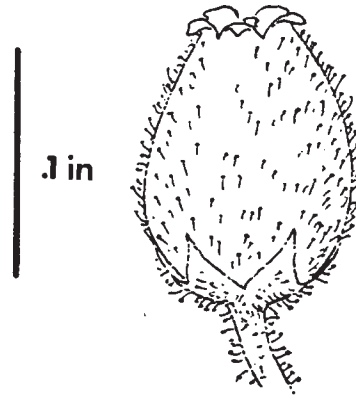
GASH *Gaultheria shallon*
salal
ERICACEAE

HABIT: A stiff, creeping to erect evergreen shrub 2-3' tall.

DESCRIPTION: Leaves are 1.5-3.5" long, alternate, ovate to oval, *leathery*; dark glossy green above and paler beneath. The upper leaf surface is smooth and the veins are raised. The twigs are zig-zag in shape with scattered long, often gland-tipped hairs. The twigs become reddish-brown and glabrous with age. The flowers are pinkish and urn-shaped in racemes of 5-15. Fruit is a bluish-black berry about .5" in diameter. Flowers May-July.

HABITAT: Cool and moist sites within the Cascades with a strong maritime climate; usually within the ABAM series.

REMARKS: The foliage is important to florists as a source of greenery. Indians used the fruits for food.



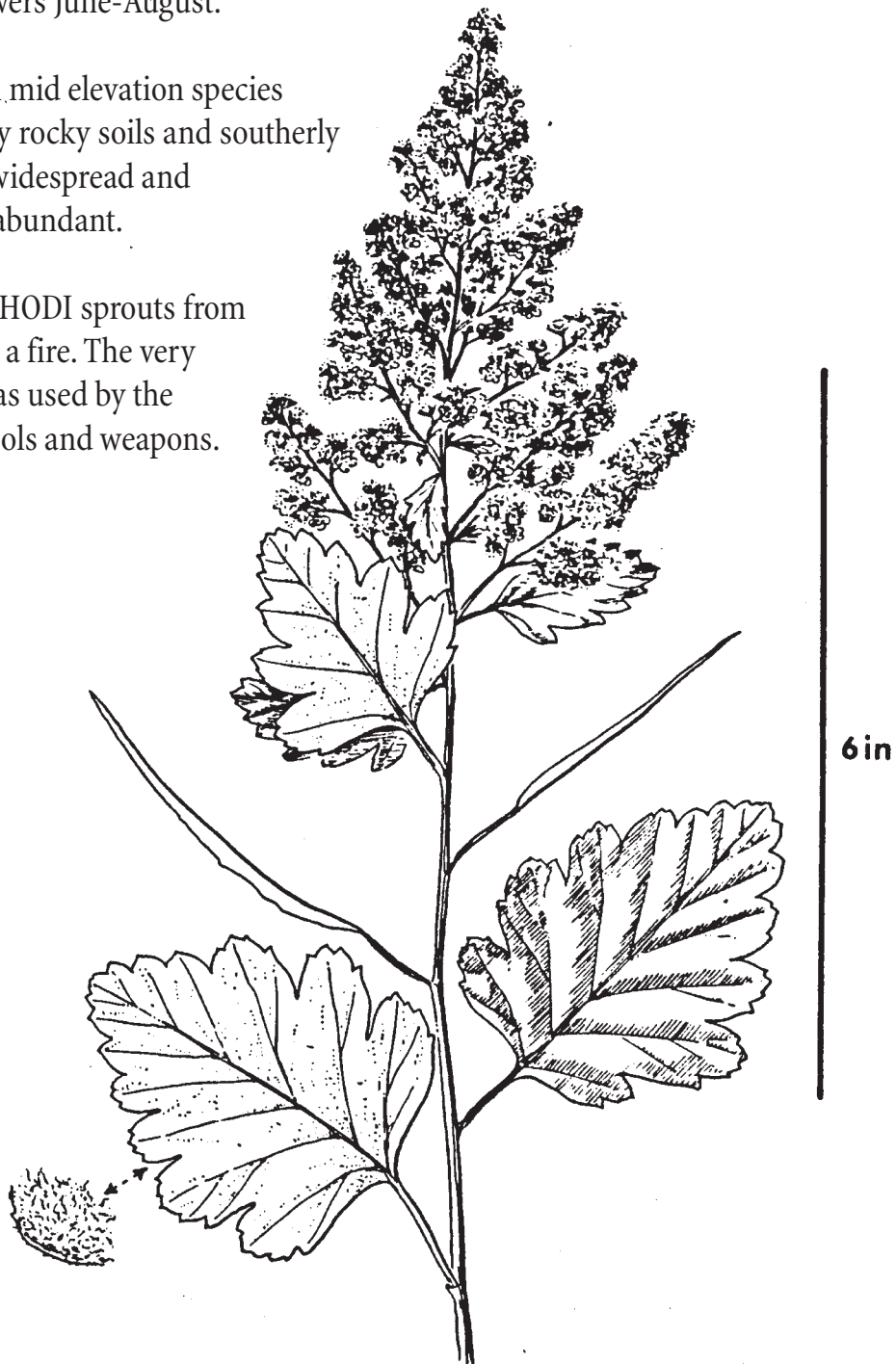
HODI *Holodiscus discolor*
ocean-spray
ROSACEAE

HABIT: A generally erect shrub, 3-12' tall.

DESCRIPTION: Leaves are alternate, 1-3" long, very *coarsely serrate* (or shallowly lobed), somewhat pubescent on the upper surface and hairy below. The stems arch upward and outward from the base creating a distinctive appearance. The bark is deep grayish-red and *strongly ridged* on young stems. HODI flowers are tiny and cream colored in dense terminal clusters that *persist over winter*; turning brown with age. Flowers June-August.

HABITAT: A mid elevation species typical of very rocky soils and southerly aspects. It is widespread and occasionally abundant.

REMARKS: HODI sprouts from the base after a fire. The very hard wood was used by the Indians for tools and weapons.



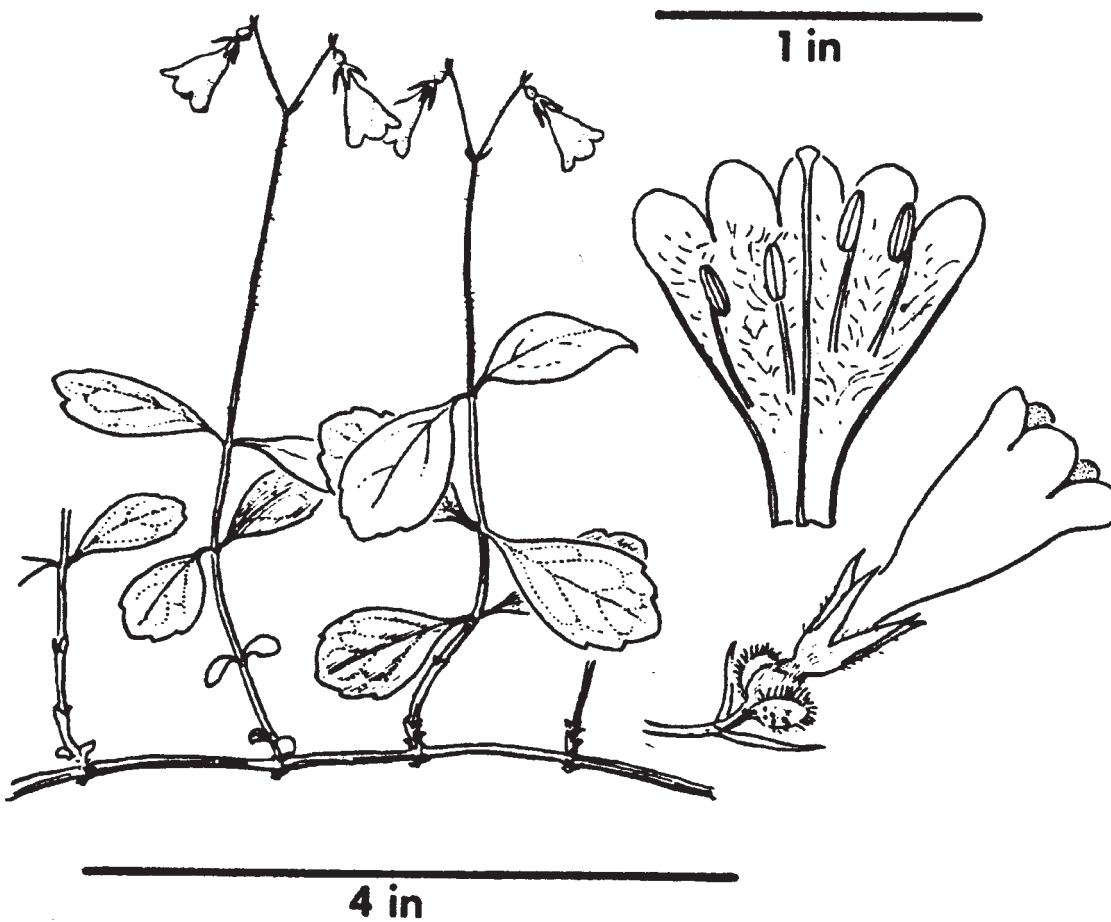
LIBOL *Linnaea borealis* var. *longiflora*
twinflower
CAPRIFOLIACEAE

HABIT: A low, creeping, *evergreen* subshrub, 2-5" tall.

DESCRIPTION: The leaves are *opposite*, firm, shiny, shallowly *toothed* and about 1/2" long. The stems root at the nodes. The 1/4" long, pinkish, bell-shaped flowers occur in pairs at the tips of erect flower stalks. Flowers June-September.

HABITAT: A mid to upper elevation species characteristic of moist, moderate to cold environments. It does best in partial to full shade.

REMARKS: An indicator in the PSME/VACCI, ABLA2/LIBOL and ABGR/CLUN associations. May be confused with ARUV (alternate leaves; not dentate). Abundance of LIBOL indicates little soil drought with excellent opportunity for regeneration. It commonly forms mats on favorable sites. A handsome ornamental.



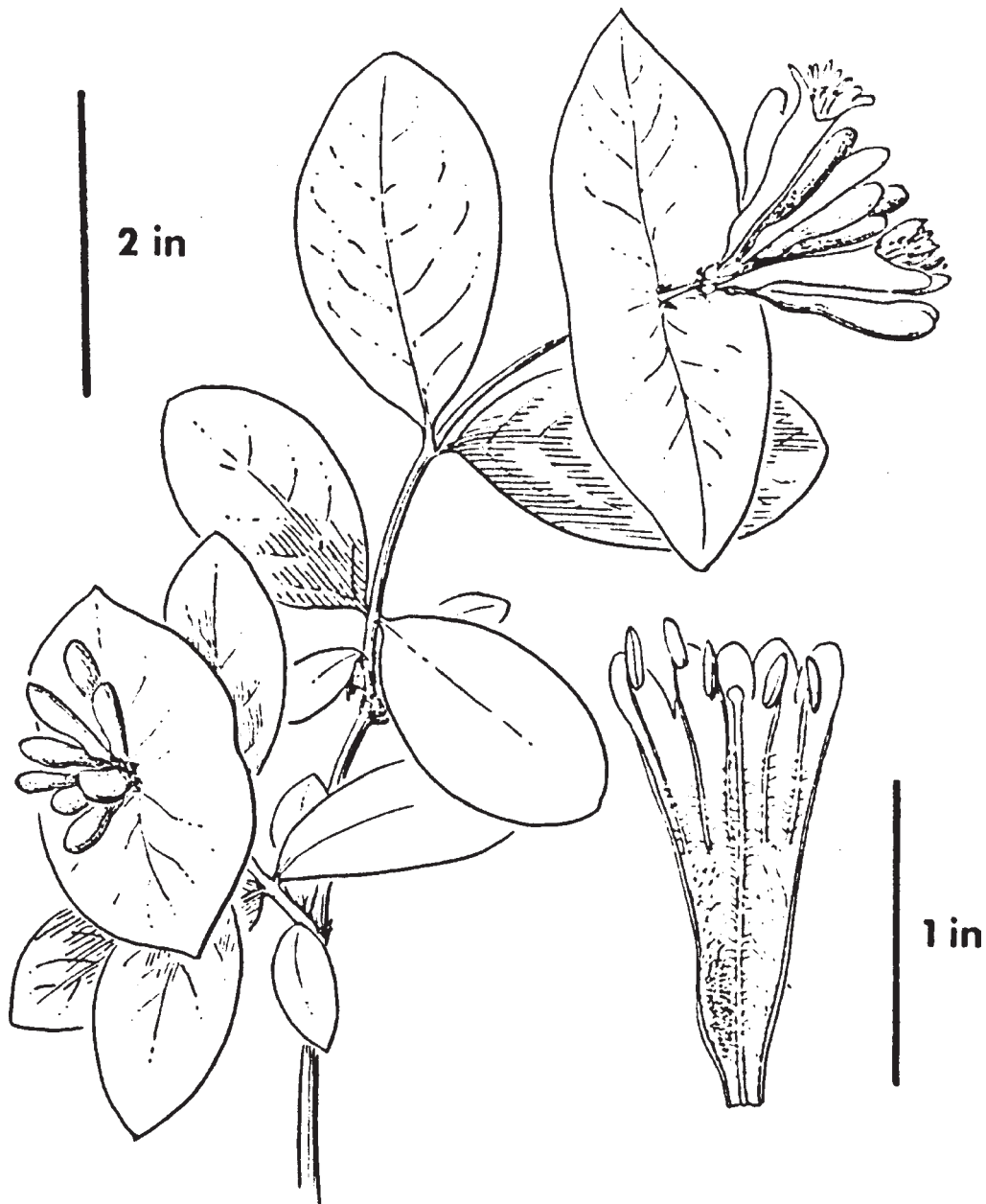
LOCI *Lonicera ciliosa*
trumpet honeysuckle
CAPRIFOLIACEAE

HABIT: A native twining vine; climbing to 20' on other plants.

DESCRIPTION: The leaves are opposite, 2-4" long, strongly *glaucous* beneath and have *ciliate* margins. The upper leaf pair of each twig are joined together so that the twig passes *through* the middle. The flowers are 1-1 3/4" long, trumpet-shaped and *bright orange* in a dense, short, terminal inflorescence. Flowers May-July.

HABITAT: Most common near streams and rivers but not restricted to riparian or even especially wet environments.

REMARKS: LOCI may be confused with LOUT when immature.

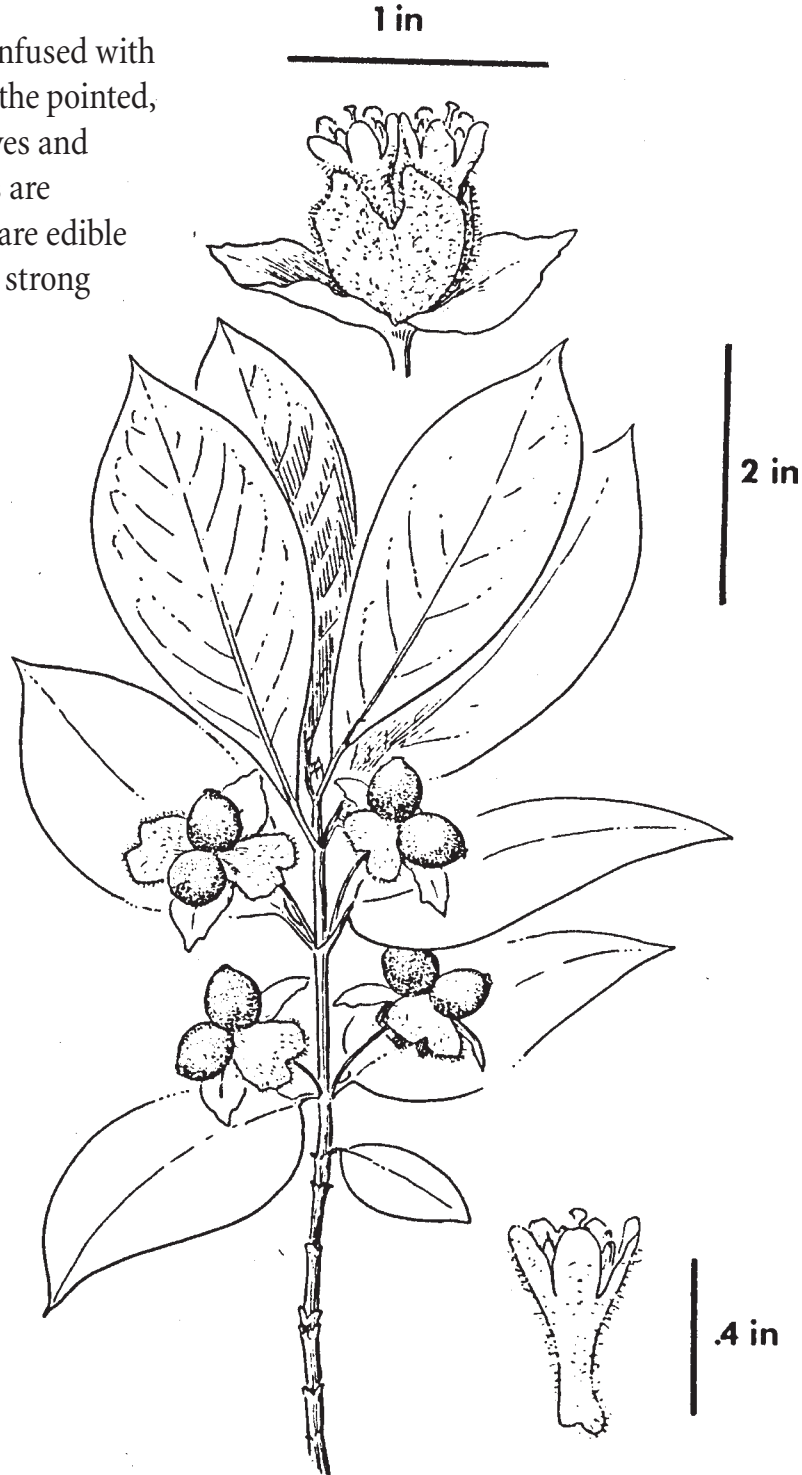


LOIN *Lonicera involucrata*
bearberry honeysuckle, twinberry
CAPRIFOLIACEAE

HABIT: An erect, deciduous shrub, 2-15' tall.

DESCRIPTION: The leaves are opposite, elliptic, 2-6" long with conspicuous venation. They are *pointed* and hairy beneath; especially along the main veins. The young twigs are four angled. The yellow axillary flowers are subtended by two *purplish bracts*. The fruits are "twin", black berries. Flowers April-August.

REMARKS: May be confused with other honeysuckles but the pointed, prominently veined leaves and subtending floral bracts are distinctive. The berries are edible but not palatable with a strong medicinal flavor.



LOUT *Lonicera utahensis*
Utah honeysuckle

HABIT: A widely branching, deciduous shrub, 3-7' tall.

DESCRIPTION: Leaves are *bluish-green, opposite*; generally glabrous above and hairy below. The stems are gray and solid (not hollow). The flowers are pale yellow and occur in *pairs* as do the bright red *berries*. Flowers May-July.

HABITAT: A widely distributed but rarely abundant forestland shrub in all but the driest and coldest conditions. Most common on sites more mesic than the PSME series.

REMARKS: LOUT may be confused with LOIN or SYAL. LOIN has black berries and conspicuous *veins* on the leaves while SYAL has *hollow* stems and *smaller, paler* leaves. LOUT berries are edible but not especially palatable.



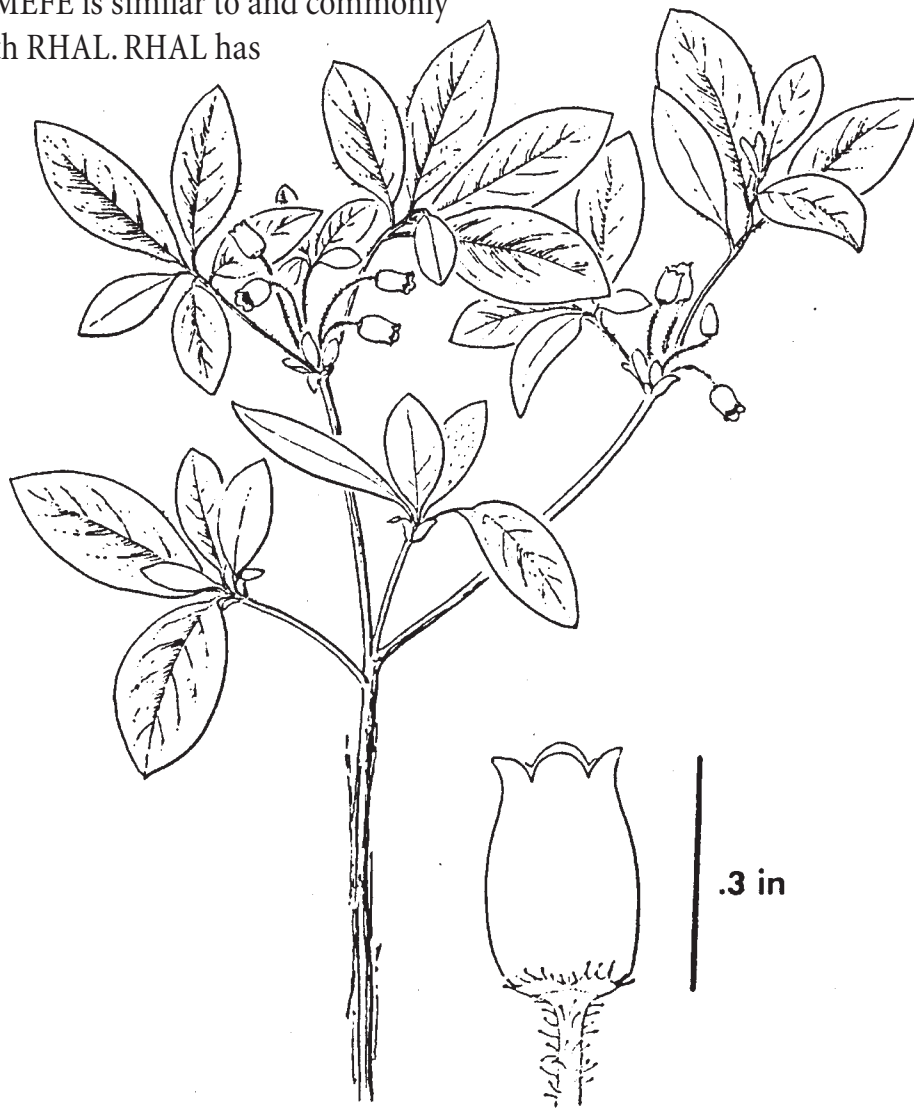
MEFE *Menziesia ferruginea*
rusty menziesia
ERICACEAE

HABIT: A straggling, deciduous shrub 2-7' tall; often prostrate downhill on steep slopes.

DESCRIPTION: Leaves are alternate (appear whorled near branch ends) thin, *not shiny* and light green to blue-green. They are brownish-hairy and glandular on both sides with finely serrated margins. The leaf *midvein protrudes* slightly from the leaf tip. The herbage has a strong *skunk-like* odor when crushed. The stems are gray-reddish brown with shredded bark. The flowers are small and pinkish to white in a *flat-topped* cluster from last year's growth. Flowers May-August.

HABITAT: MEFE is most common on Cle Elum District. It is found only in cool to cold and wet environments; commonly on northerly aspects at upper elevations where heavy snowpacks cause the stems to be bent downslope.

REMARKS: MEFE is similar to and commonly associated with RHAL. RHAL has large, single, white flowers and shiny green leaves.



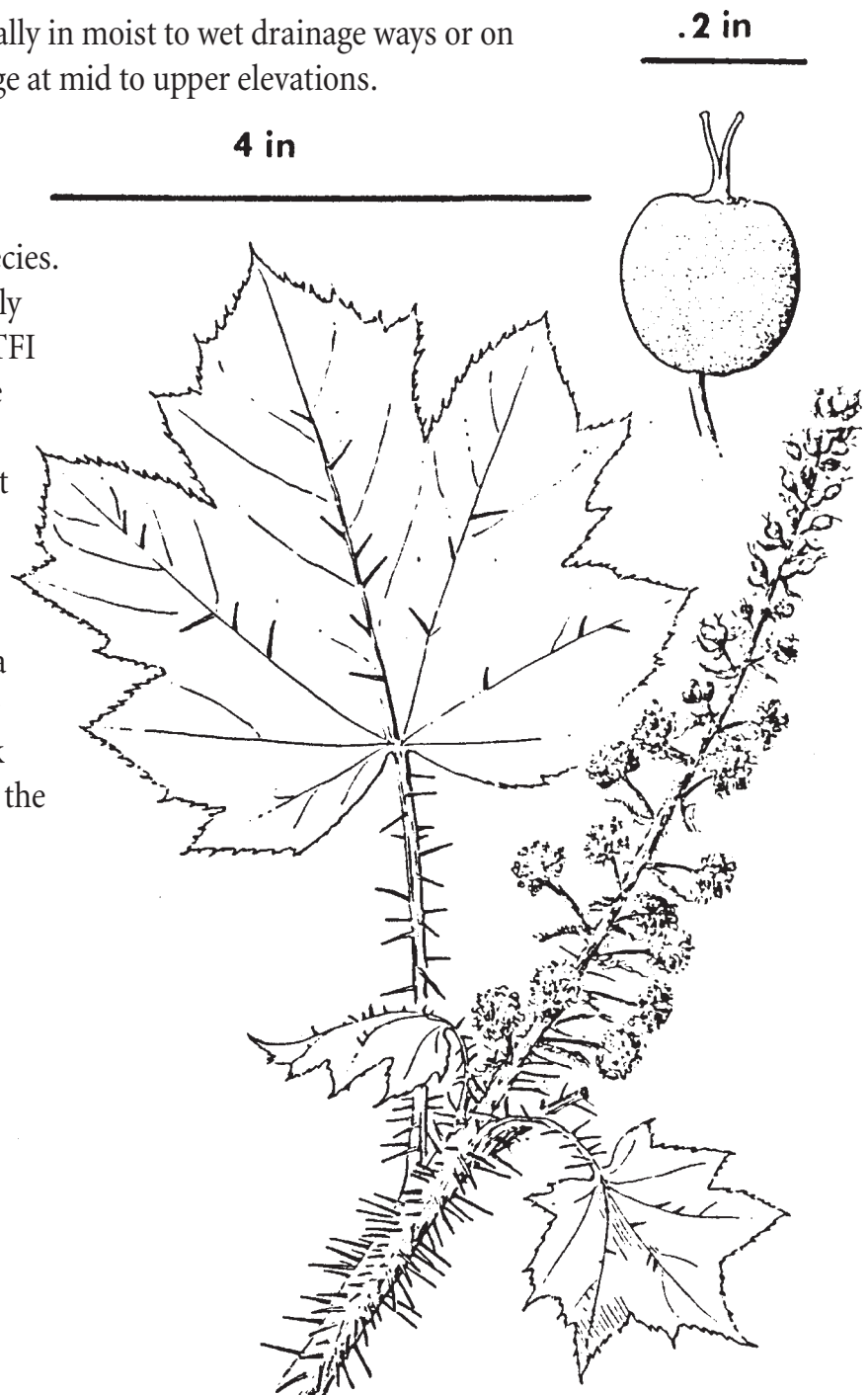
OPHO *Oplopanax horridum*
Devil's club
ARISTOLOCHIACEAE

HABIT: A somewhat prostrate to erect, deciduous shrub 3-12' tall.

DESCRIPTION: The leaves are 5-15" in diameter, palmately 7-9 lobed ("maple leaf"-like) and *armed* with yellowish spines up to 1" long. The stems are thick, pithy and *profusely* armed with prickles or spines. The flowers are small and greenish-white in elongate terminal clusters and the berries are bright *red*. Flowers May-July.

HABITAT: Typically in moist to wet drainage ways or on slopes with seepage at mid to upper elevations.

REMARKS: Not easily confused with any other species. OPHO is commonly associated with ATFI which can tolerate somewhat higher and more stagnant water tables. The Indians treated consumption and a dry cough with a tea make from the roots or stems. Elk relish it in spite of the spines.



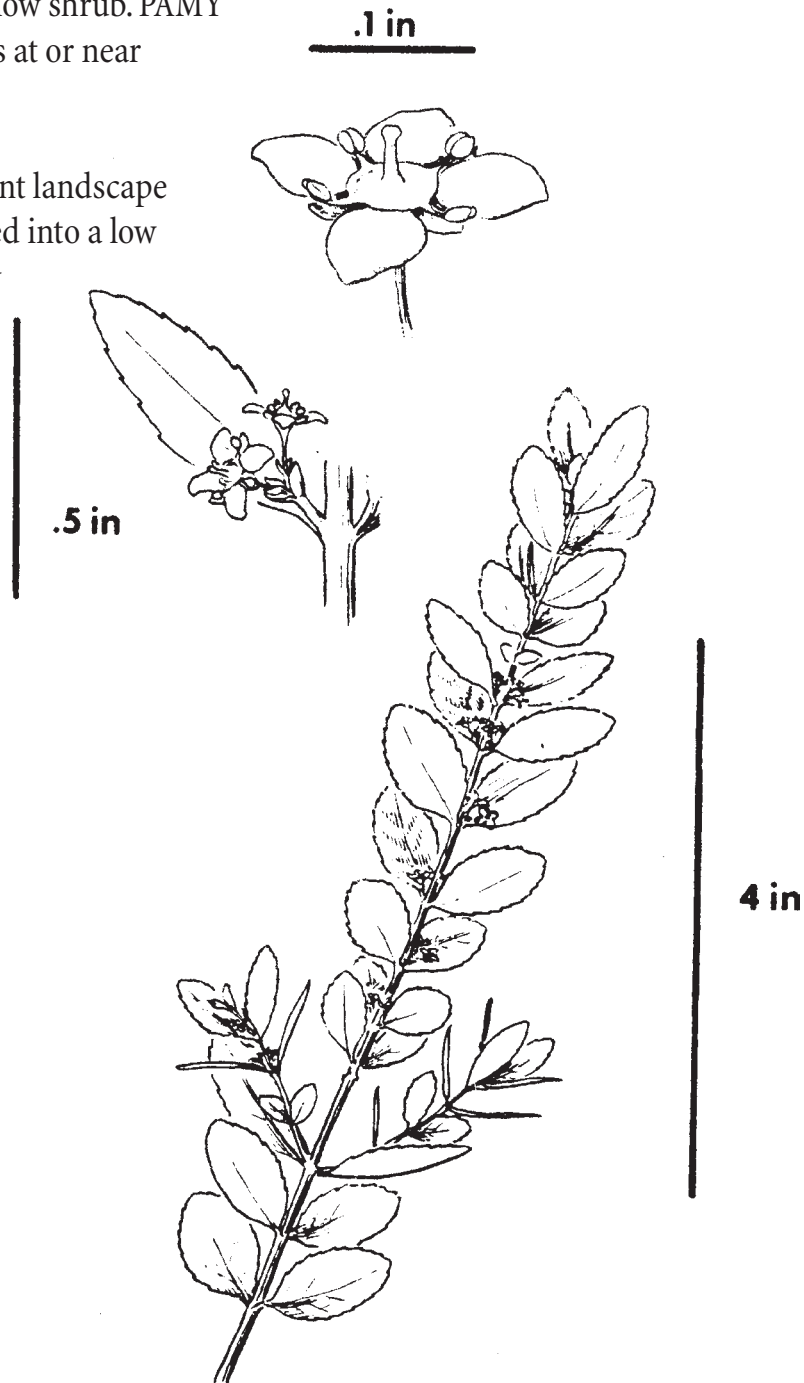
PAMY *Pachistima myrsinites*
pachistima
CELASTRACEAE

HABIT: An erect *evergreen* shrub up to 3' tall.

DESCRIPTION: Leaves are *opposite, leathery* and about 1" long and .25-.5" wide. They are glossy above and slightly *serrated*. The stems are brown and ridged. There are many small, 4-merous, maroon flowers in axillary clusters. Flowers April-June.

HABITAT: Very widespread in forested stands from open mixed PIPO and PSME types at low elevation to high elevation ABLA2 sites. It commonly occurs as a sparse multi-stemmed low shrub. PAMY is absent only from sites at or near timberline.

REMARKS: An excellent landscape plant that may be shaped into a low hedge. Present in nearly 60% of the ecology plots; PAMY is the most common shrub on the Wenatchee National Forest.



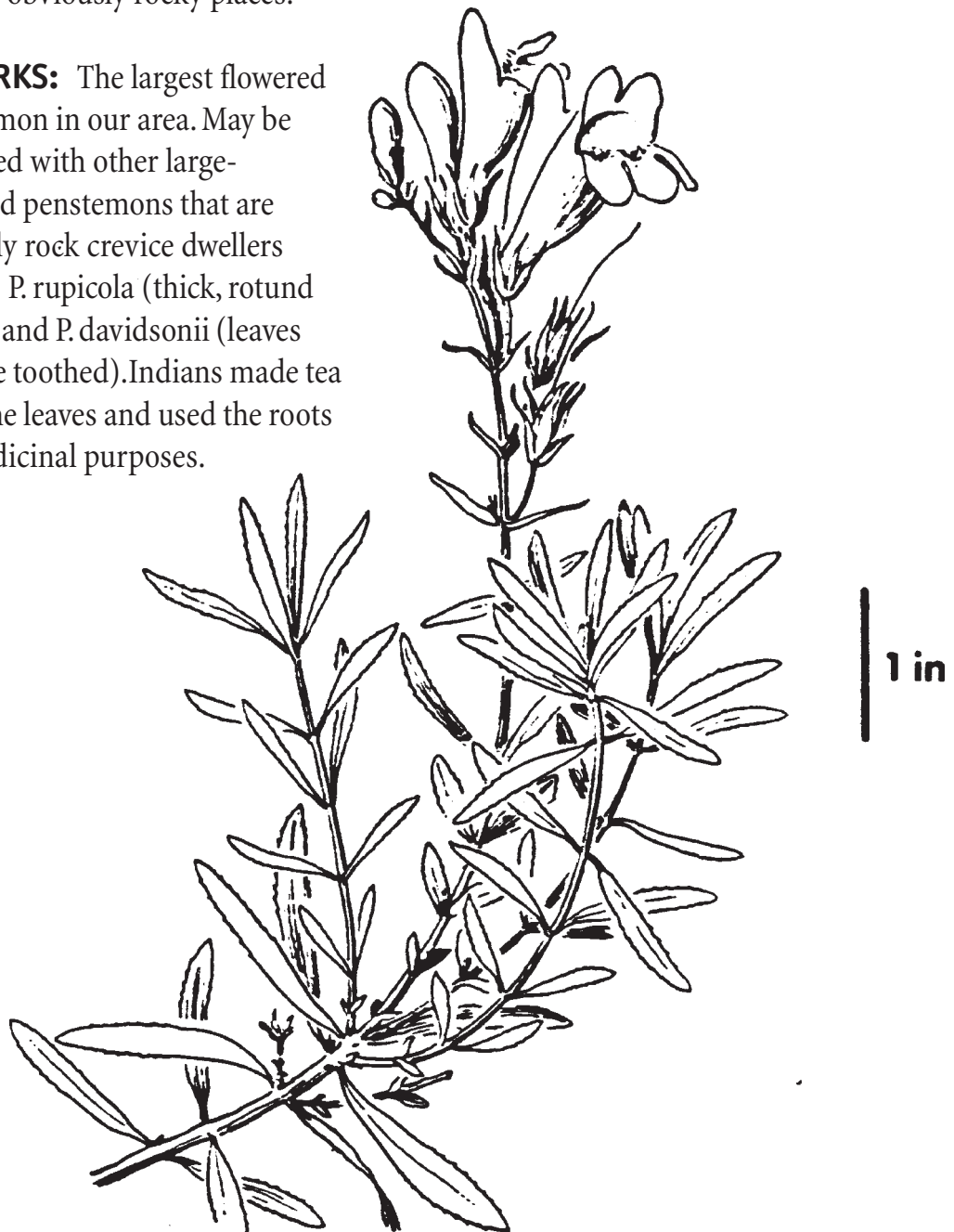
PEFR3 *Penstemon fruiticosus*
shrubby penstemon
SCROPHULARIACEAE

HABIT: A spreading to erect, bushy-branched shrub, generally less than 2' tall.

DESCRIPTION: The leaves are about 2" long with the largest tending to be crowded at the base of the current growth on sterile shoots. They are normally *dentate* and *leathery*; 2-10 times as long as wide. The *trumpet-shaped* flowers are *large* (up to 2" long) and blue-lavender to light purplish in color. Flowers May-August.

HABITAT: Typical of roadsides and open areas in hot-dry environments; often in or near obviously rocky places.

REMARKS: The largest flowered penstemon in our area. May be confused with other large-flowered penstemons that are typically rock crevice dwellers such as *P. rupicola* (thick, rotund leaves) and *P. davidsonii* (leaves lacinate toothed). Indians made tea from the leaves and used the roots for medicinal purposes.



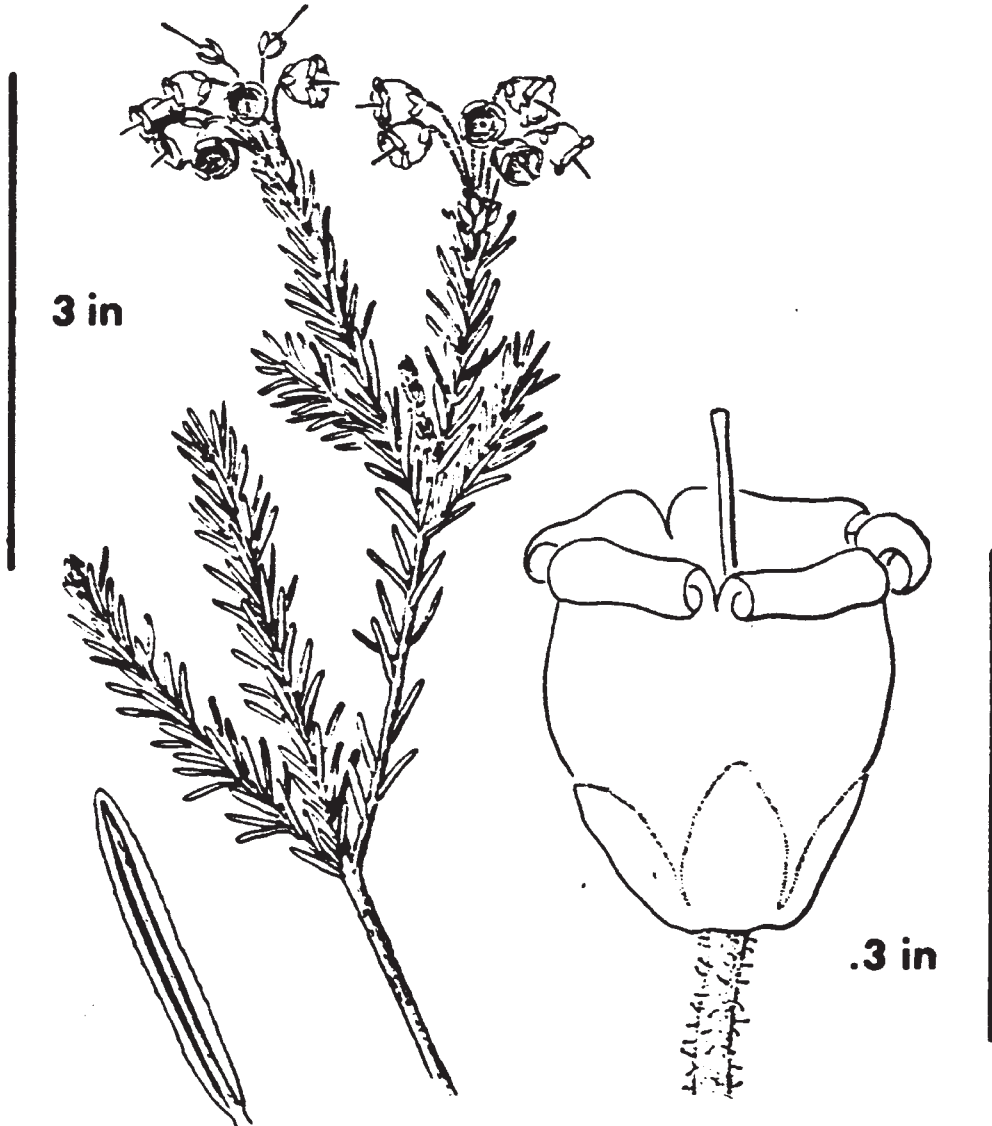
PHEM *Phyllodoce empetriformis*
red mountain heath
ERICACEAE

HABIT: A matted, many-branched, evergreen subshrub 4-16" tall.

DESCRIPTION: The leaves are *needle-like*, alternate, evergreen and about 1/2" long. They have a prominent *groove* on the under side and the leaf margins are strongly *rolled* under. The bell-shaped flowers bell-shaped, glabrous, deep pinkish-rose and clustered at the stem tips. Flowers June-August.

HABITAT: Found in *alpine* and *subalpine* environments in very cold conditions. Indicates deep, long-lasting snowpacks with severe tree regeneration and re-vegetation difficulties.

REMARKS: PHEM may hybridize and be confused with *Phyllodoce glanduliflora* (glandular greenish-yellowish urn-shaped flowers). A very attractive plant but not suitable for transplanting.



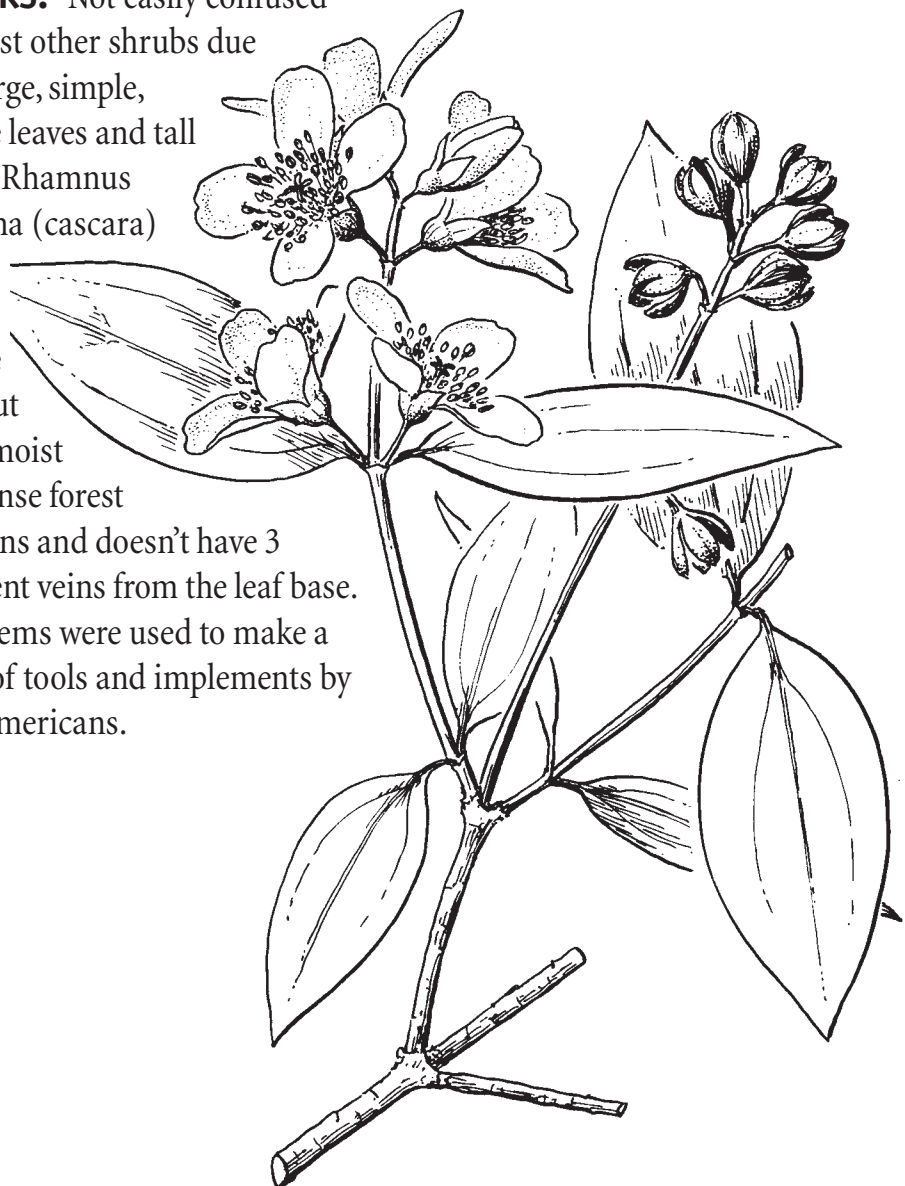
PHLE *Philadelphus lewisii*
mockorange, syringa
HYDRANGEACEAE (PHILADELPHACEAE)

HABIT: A rounded to erect medium to tall deciduous shrub, 3-10" tall.

DESCRIPTION: The opposite leaves are 1-5" long, ovate, ovate-lanceolate or elliptic and more or less toothed. 3 veins from the base on the upper leaf surface are obvious. Bark is checked becoming shredded with age. Flowers are up to 2" across with four white petals and numerous stamens. They are numerous, conspicuous, and wonderfully fragrant. The seed pods (capsules) are top-shaped, are 4-5 celled, splitting down the middle of each cell and persistent.. Flowers May-July.

HABITAT: Typically found in gullies and water courses, around talus or in road corridors both in shrub-steppe and drier open forest areas.

REMARKS: Not easily confused with most other shrubs due to the large, simple, opposite leaves and tall stature. *Rhamnus purshiana* (cascara) has simple opposite leaves but prefers moist more dense forest conditions and doesn't have 3 prominent veins from the leaf base. PHLE stems were used to make a variety of tools and implements by native Americans.



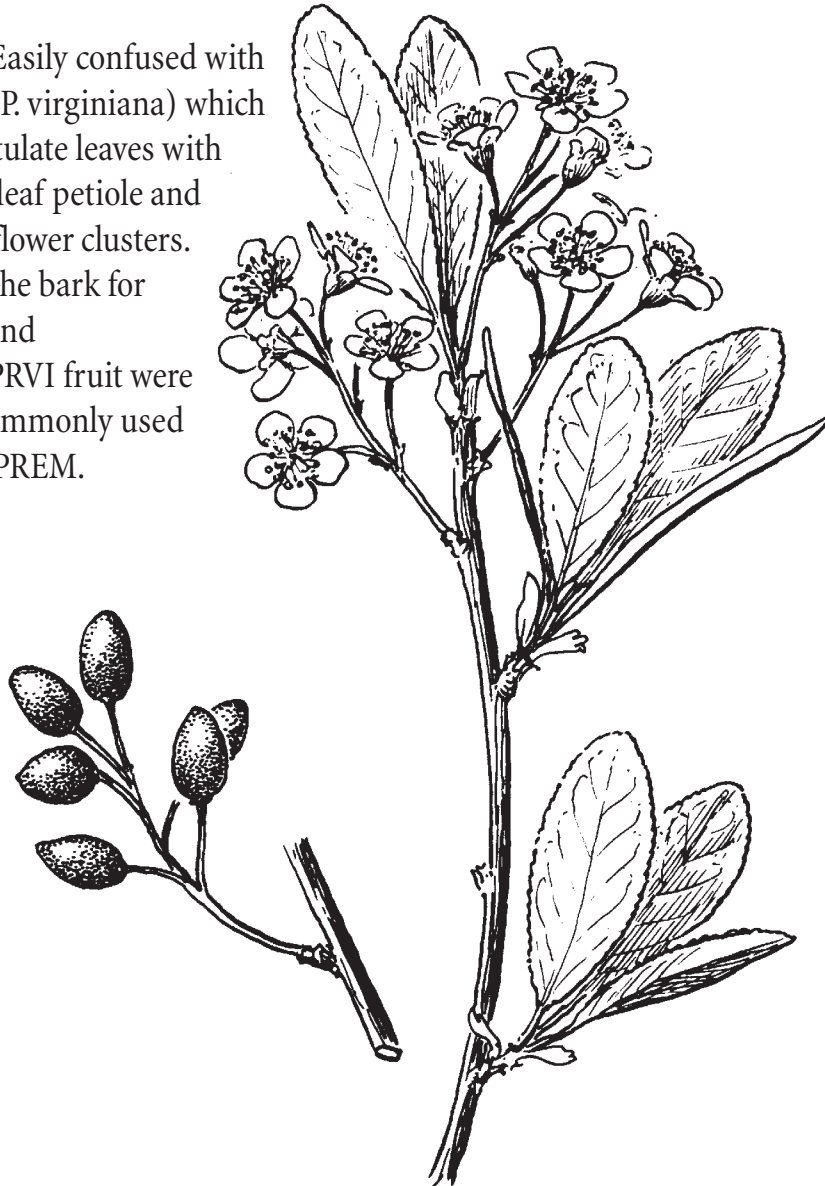
PREM *Prunes emarginata*
bittercherry
ROSACEAE

HABIT: Tall deciduous shrub to sometimes tree 3-40" tall.

DESCRIPTION: The alternate leaves are somewhat variable in shape but mostly elliptic to oblong, serrulate and 1-3" long on a .25-.5" petiole. There is a small *gland on the leaf blade* on each side and just above the petiole. The bark is *reddish brown* with conspicuous *lenticels*. The flowers are dull white in *umbrella-like* clusters (corymbose racemes). Fruits and bark are bitter. Fruits are a red-dark purple drupe up to .5" long. Flowers April-June.

HABITAT: Typically found in riparian areas or adjacent to talus areas within shrub-steppe, in open drier forest or along road corridors at low to middle elevations. Most abundant in disturbed coarse textured road shoulders.

REMARKS: Easily confused with Chokecherry (*P. virginiana*) which has larger spatulate leaves with glands on the leaf petiole and long pendant flower clusters. Indians used the bark for bow handles and decorations. PRVI fruit were much more commonly used for food than PREM.



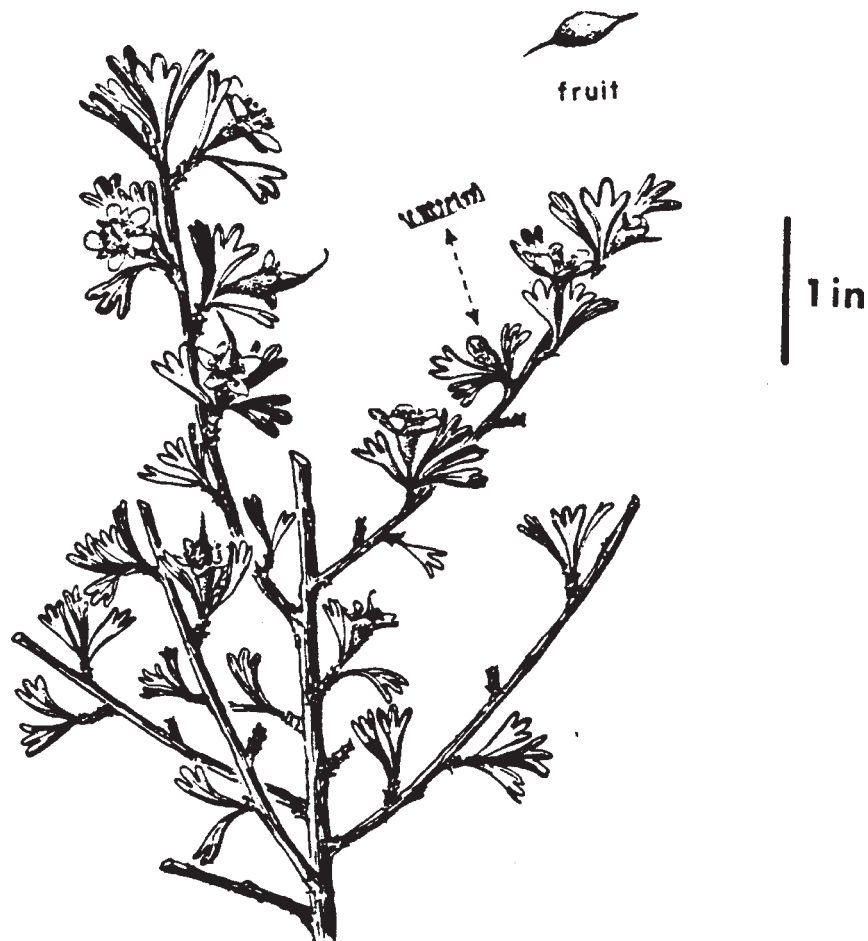
PUTR *Purshia tridentata*
bitterbrush
ROSACEAE

HABIT: An erect, stiffly branched, deciduous shrub, 2-6' tall.

DESCRIPTION: The alternate leaves are deeply *three-toothed* (tridentate), green above, *grayish-hairy* beneath and commonly *rolled* under. The stems are rigid, especially after being grazed enough to be hedged. Flowers are yellow and 1/2 to 3/4" in diameter. Flowers April-June.

HABITAT: Typifies lower forest margin communities in hot, dry environments within the PSME Series. Extends from low elevation shrub-steppe upward to dry mid-elevation sites. Most abundant on sandy soils under 4,000 feet elevation.

REMARKS: Easily confused with sagebrush at a distance, but PUTR is darker green and not aromatic. It is very sensitive to fire and does not resprout after hot fall burns and only weakly in cool spring burns. However, it is common in known fire environments so fire may be essential for long term survival. PUTR is important browse for big-game. The herbage is very bitter to the taste (hence bitterbrush). Indians used it for firewood and the bark for weaving.



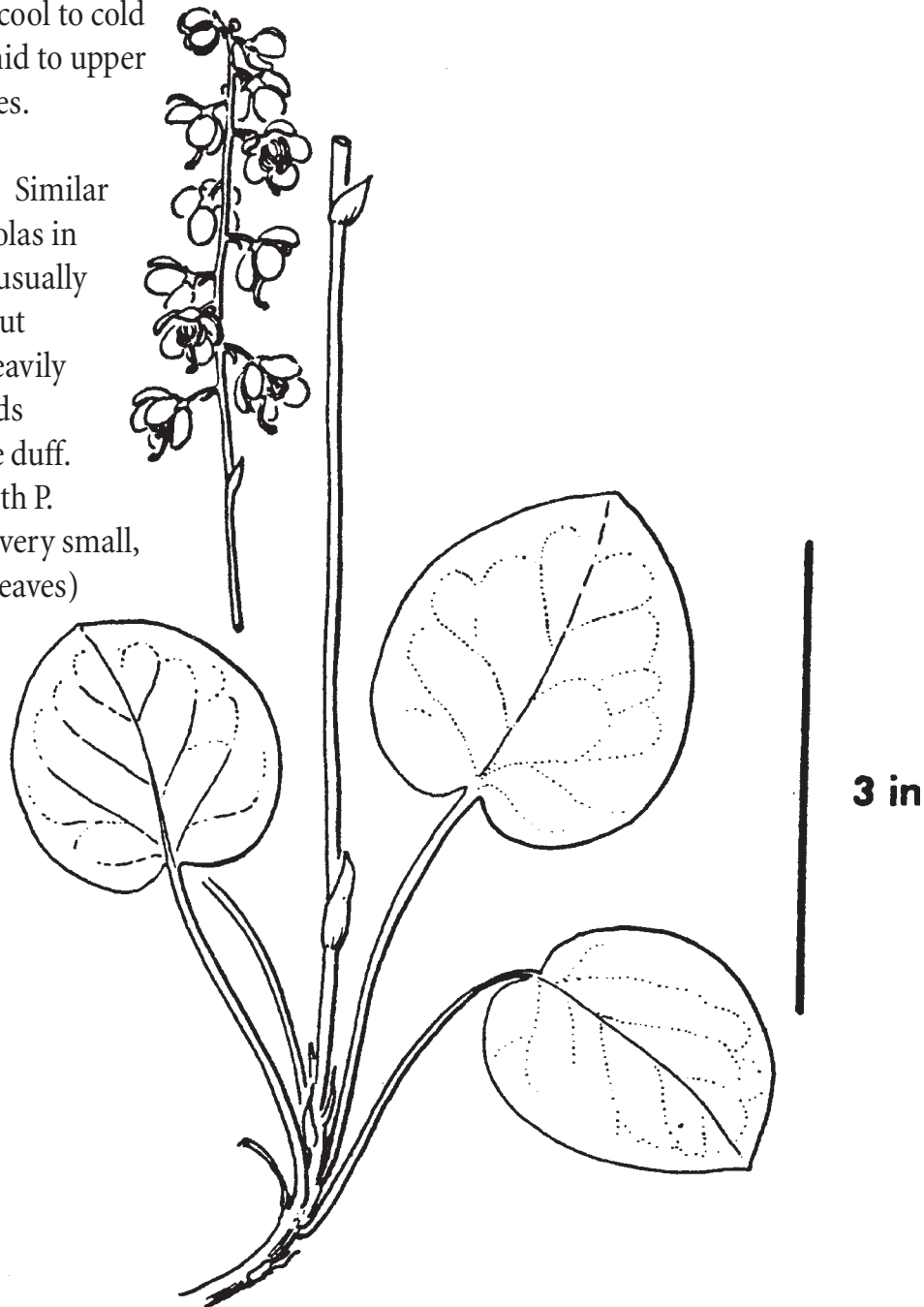
PYAS *Pyrola asarifolia*
alpine pyrola
ERICACEAE

HABIT: A rhizomatous perennial subshrub; with flowering stems 6-16" tall.

DESCRIPTION: The leaves are all basal, circular to elliptic, leathery, shiny dark green above and *purplish* beneath. They are 1-3" wide, with the petiole as long as the blade. No mottling occurs along the midvein. The 10-25 pinkish to purplish-red flowers are borne in an elongate terminal raceme. The style is *curved* and *bent* to one side. Flowers June-September.

HABITAT: PYAS is most common in cool to cold and moist mid to upper elevation sites.

REMARKS: Similar to other pyrolas in stature and usually found without flowers in heavily shaded stands rooted in the duff. Confused with *P. chlorantha* (very small, round, dull leaves)



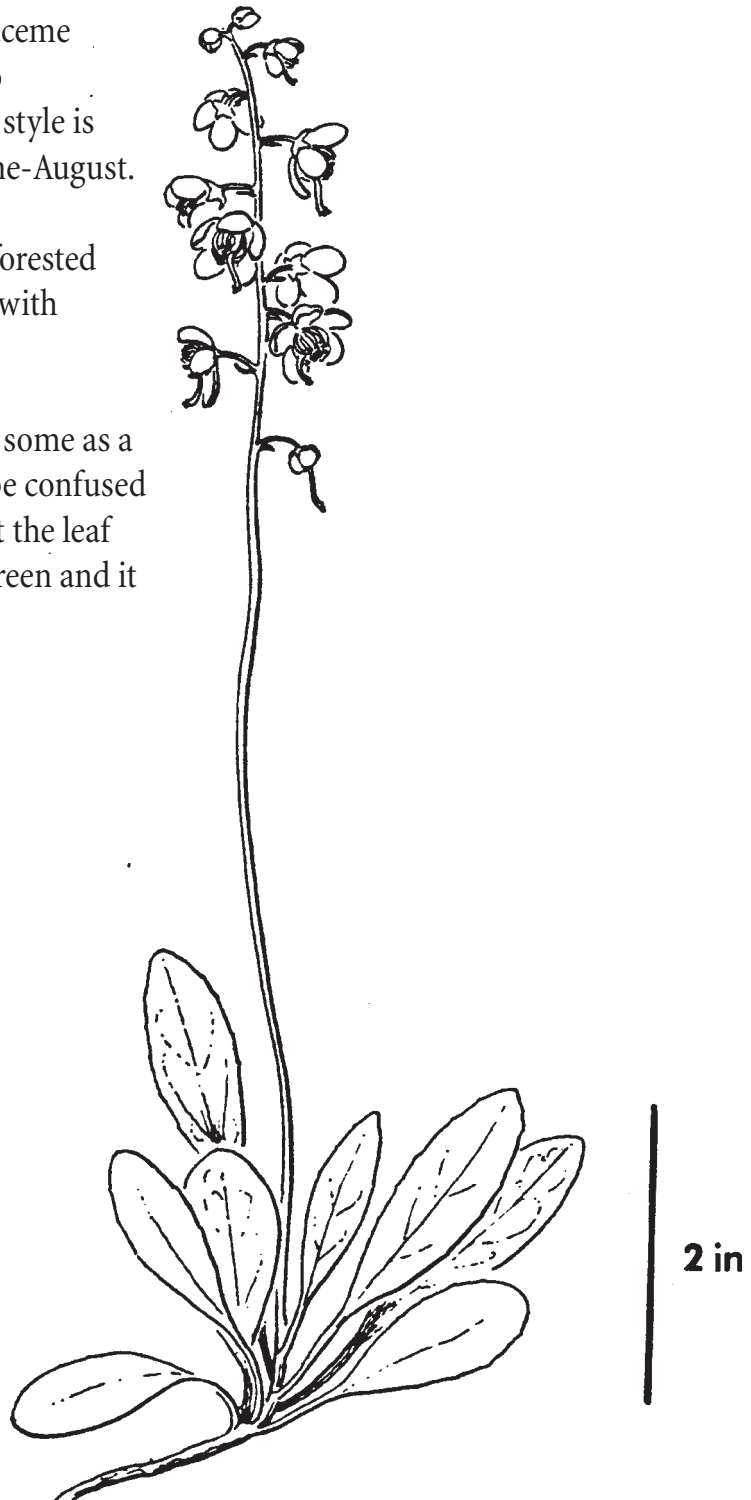
PYDE *Pyrola dentata*
toothleaf pyrola
ERICACEAE

HABIT: Low perennial subshrub from widespread slender rhizomes; the flowering stems 4-10" tall.

DESCRIPTION: The leaves are oblanceolate to elliptic, *leathery*, "milky-green" and the blades 1 to < 3" long. The margins are serrulate to entire and the area around the leaf veins is often *lighter* in color than the rest of the leaf. A raceme supports the 10-20 cream to greenish-white flowers. The style is strongly curved. Flowers June-August.

HABITAT: Warm and dry forested sites; commonly associated with PIPO.

REMARKS: Considered by some as a possible phase of and may be confused with *Pyrola picta* (PYPI) but the leaf color of PYPI is not milky green and it occurs in moist sites.



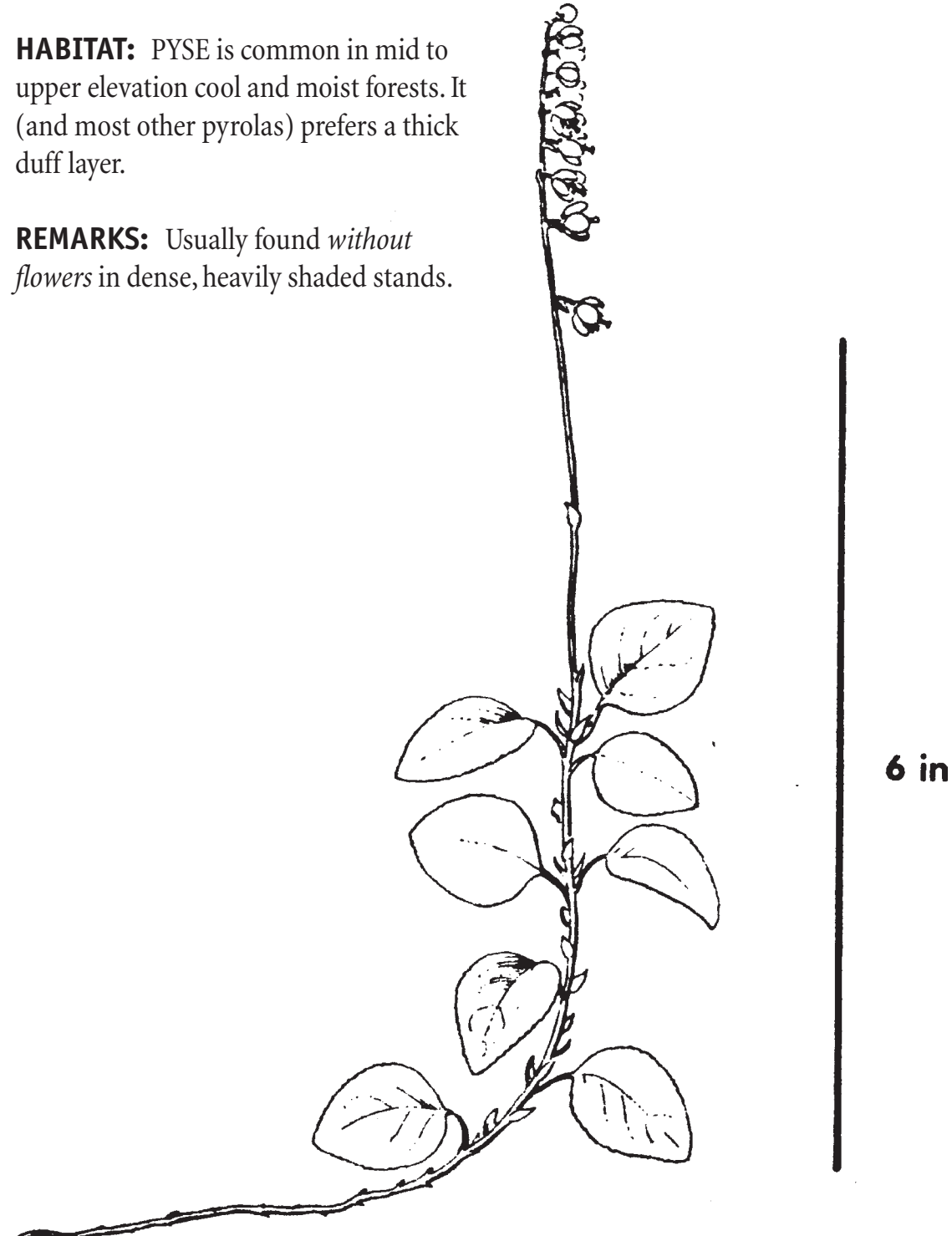
PYSE *Pyrola secunda*
sidebells pyrola
ERICACEAE

HABIT: A low, evergreen, rhizomatous subshrub with flowering stems to 6" tall.

DESCRIPTION: Leaves are numerous, about 2" long, *Serrated*, somewhat translucent; shiny green above and paler green below. There are 6-20 pale green to small whitish flowers mostly on *one side* (secund) of the single flower stalk. Flowers June-August.

HABITAT: PYSE is common in mid to upper elevation cool and moist forests. It (and most other pyrolas) prefers a thick duff layer.

REMARKS: Usually found *without flowers* in dense, heavily shaded stands.



RHAL *Rhododendron albiflorum*

Cascade azalea

ERICACEAE

HABIT: An erect to prostrate, deciduous shrub, 3-7' tall.

DESCRIPTION: The entire leaves are 2-4" long, and alternate (but appear whorled) with *reddish* hairs on the *shiny, bright green* upper surfaces. Young twigs are covered with long reddish-brown hairs. Flowers are *white*, in clusters of 3-4 and hang beneath the leaves along the stems. Flowers June-August.

HABITAT: An *upper elevation* species found mostly on cold north slopes where heavy snow packs are common.

REMARKS: Headwaters of many streams are in stands of RHAL. Often associated with MEFE on northerly slopes where they are both prostrated downslope from heavy snowpacks. It indicates cold, wet soils with low to moderate regeneration difficulty. The entire plant is *poisonous* to humans and livestock.

.3 in



2 in

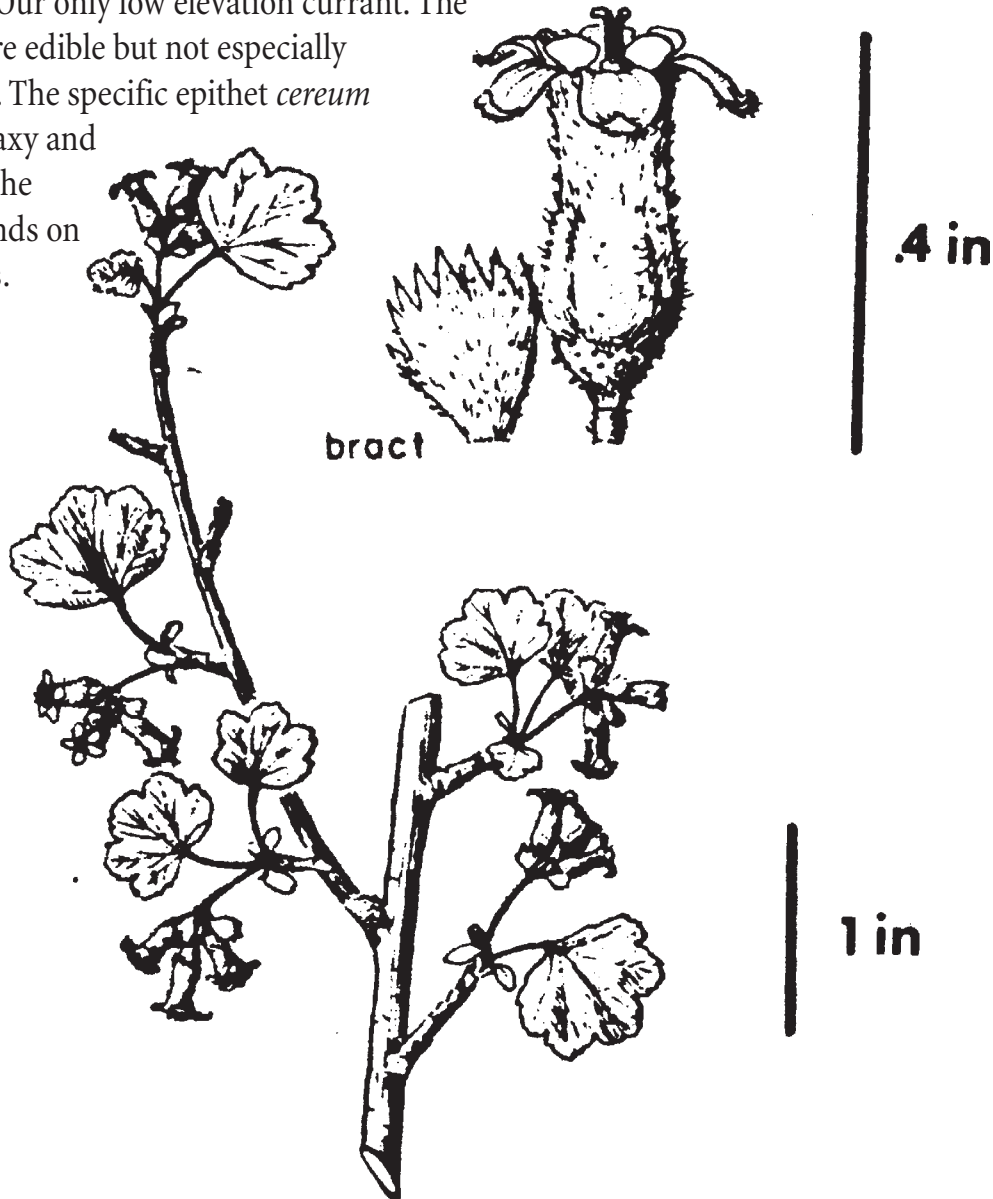
RICE *Ribes cereum*
wax currant
GROSSULARIACEAE

HABIT: An *unarmed*, much branched, deciduous shrub usually less than 6' tall.

DESCRIPTION: The numerous, *small* (3/8-1 1/4" long), *weakly* 3-5 lobed, and normally glandular leaves are *mostly* at the ends of short, spur-like twigs. The new branches are finely hairy becoming grayish to reddish-brown with age. Flowers are greenish-white, white or pinkish, and sticky in few-flowered clusters. The fruit is dull to bright red. Flowers April-June.

HABITAT: RICE is commonly found at or near the lower forest margin on hot, dry sites.

REMARKS: RICE indicates severe difficulties for regeneration because of soil drought. Our only low elevation currant. The berries are edible but not especially palatable. The specific epithet *cereum* means waxy and refers to the waxy glands on the leaves.



RILA *Ribes lacustre*
prickly currant
GROSSULARIACEAE

HABIT: An erect to spreading armed, deciduous shrub, 3-7' tall.

DESCRIPTION: The leaves are alternate, 1-2" wide, 5-lobed and maple-leaf shaped. The stems support many sharp, slender *prickles* and larger *nodal spines*. The flower petals are reddish and the fruits are small dark *purple berries* covered with *glandular hairs*. Flowers April-July.

HABITAT: An upper elevation species of cool-cold and wet environments. Indicates moist to very wet sites (another common name is swamp currant).

REMARKS: RILA is our most common currant but does not extend to lower elevation sites (RICE does). The fruits are relatively palatable (?). Indians gathered the fruits and used the dried stems to make a peppermint flavored tea for colds and diarrhea.



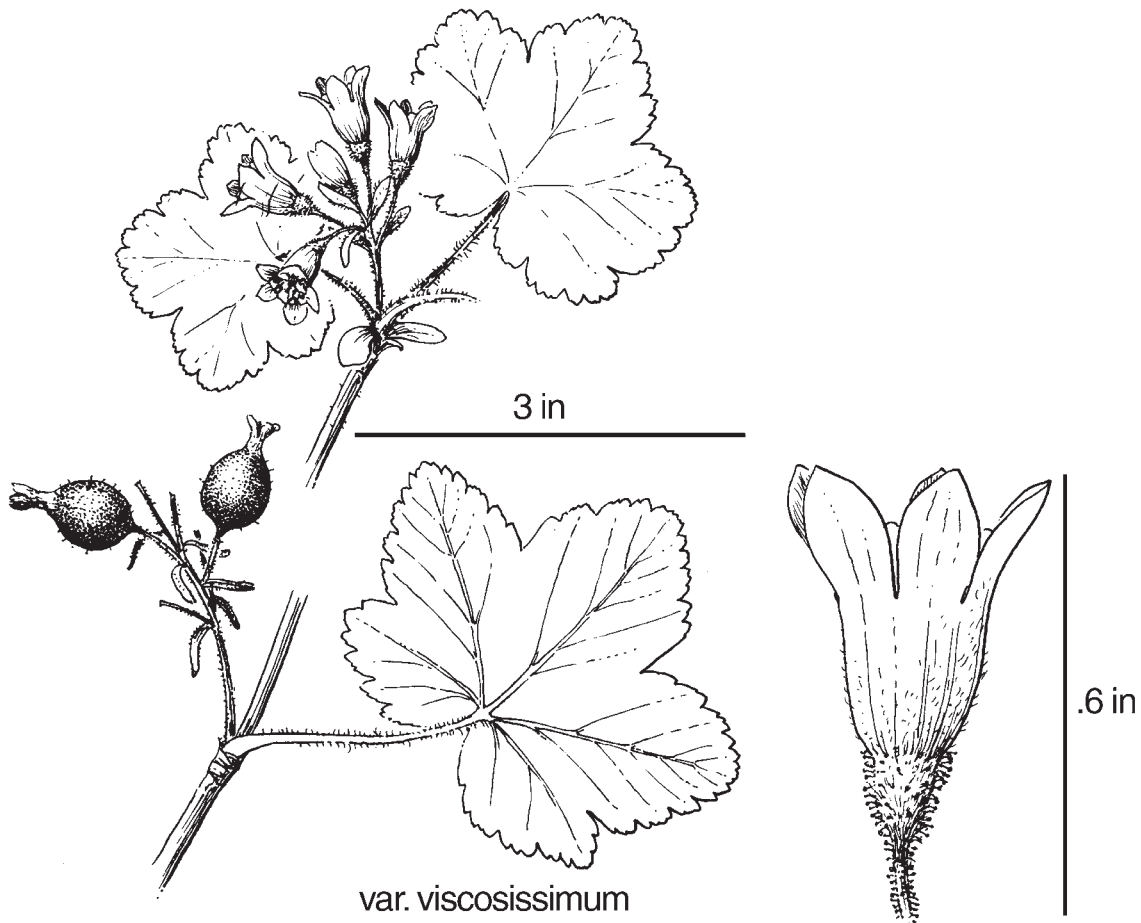
RIVI *Ribes viscosissimum*
sticky currant
GROSSULARIACEAE

HABIT: An erect to spreading, often straggly, unarmed deciduous shrub up to 7' tall.

DESCRIPTION: The leaves are 1-3" broad, alternate, 3-5 lobed, coarsely toothed and covered with soft *sticky* hairs on both surfaces. The stems are hairy and *sticky* when young aging to dark reddish-brown with shredded bark when old. The 10-12 flowers are bell-shaped, *sticky*, about 1/2" long, greenish-white with a pink tinge and borne in a raceme. The fruits consist of a few *black* berries (currants) covered with *short stiff* hairs. Flowers May-June.

HABITAT: Very widespread species from rather dry sites within the PSME series to near timberline.

REMARKS: RIVI is an aggressive pioneer species in some areas. It is moderately resistant to fire and regenerates to pre-burn levels from seeds and stem sprouts in 3-5 years (Patterson, et al. 1985). An alternate host for white pine blister rust. The berries are apparently edible but unpalatable. Ours is the variety *viscosissimum*.



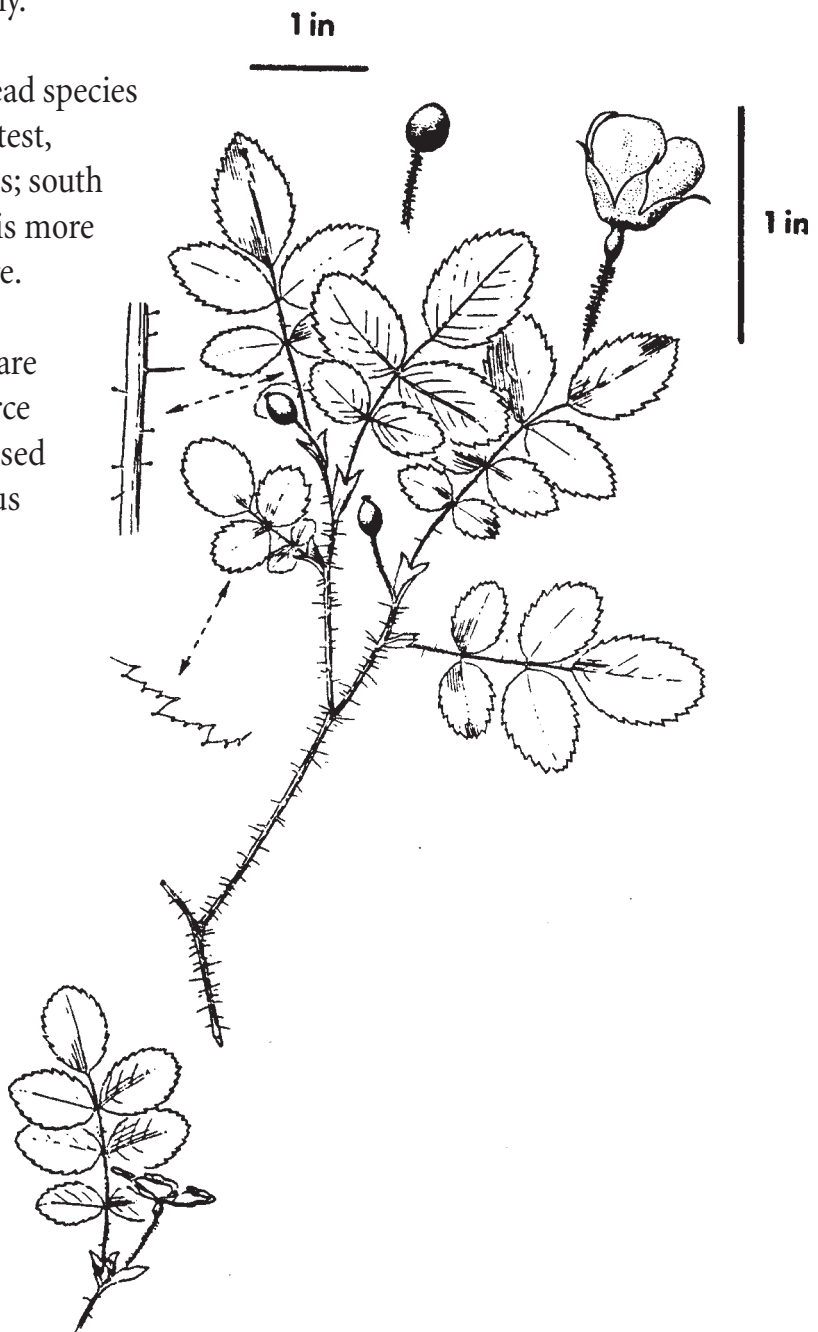
ROGY *Rosa gymnocarpa*
baldhip rose
ROSACEAE

HABIT: An erect slender unarmed to weakly-armed deciduous shrub, 1-4' tall.

DESCRIPTION: Leaves are alternate and compound with 5-9 leaflets 1/3 to 3/4" long. The *petioles* are commonly glandular as are the *teeth* of the doubly serrate *leaflet margins*. Stems are very bristly with many weak infrastipular bristles to occasionally unarmed. On young stems the prickles are noticeably reddish. The relatively *small flowers* are light pink to deep rose; normally borne singly at the ends of the branches. The fruit is small and green; becoming scarlet or reddish when mature. The *sepals* are *deciduous* from the maturing fruit (unlike all other local roses). Flowers June-July.

HABITAT: A widespread species found in all but the hottest, coldest and wettest sites; south of the Entiat River but is more restricted north of there.

REMARKS: The hips are considered a good source of vitamin C. Indians used rose species for religious purposes.



RONU *Rosa nutkana*

Nootka rose

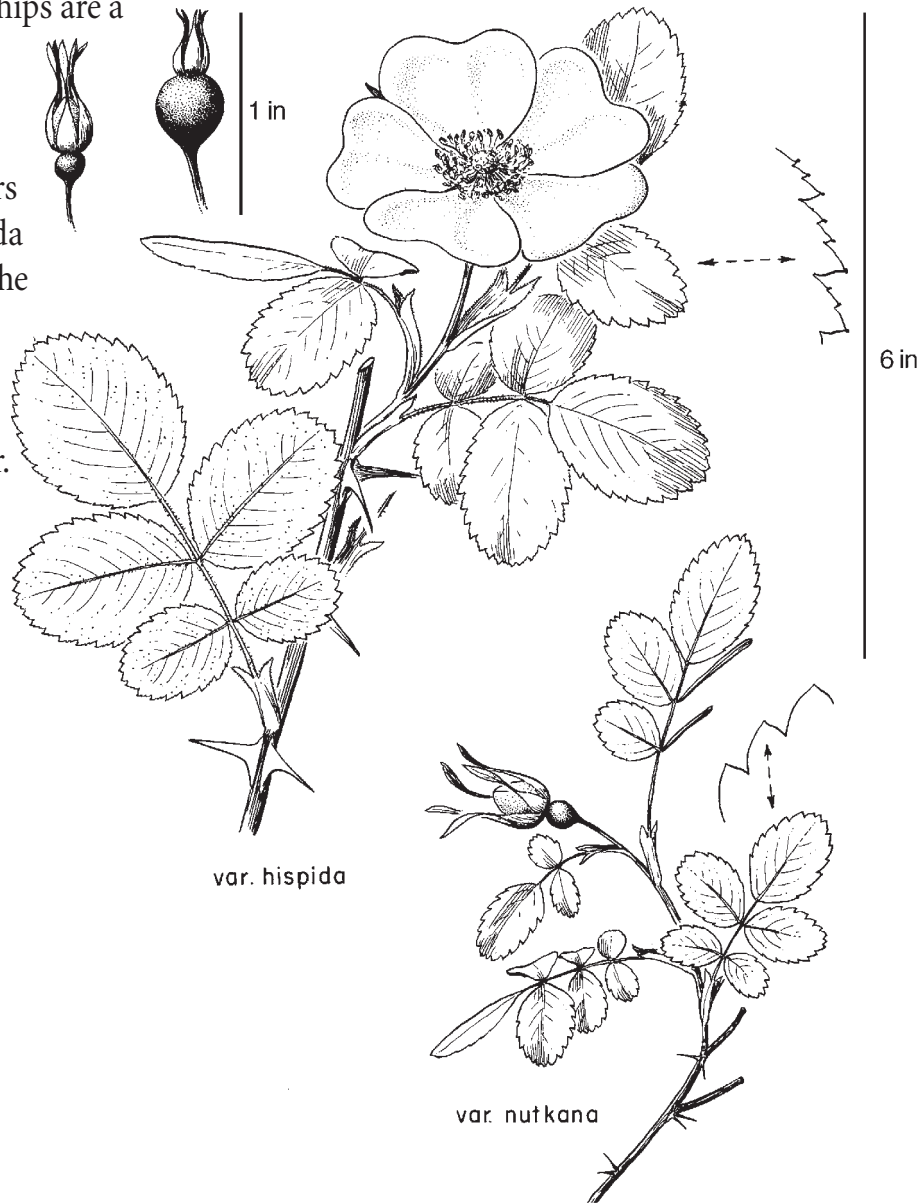
ROSACEAE

HABIT: An armed, erect, deciduous shrub, 3-7' tall.

DESCRIPTION: The leaves are alternate and pinnately compound with an odd number (5-7 of leaflets). The leaflets are 1-3" long, green above, paler beneath and are *serrate* or *doubly serrate*. The stems are armed with pairs of straight to curved, *stout*, flattened, infrastipular *prickles*. The flowers are 2-3" across (largest of the common roses) and are usually solitary at the ends of branches. It has large hips and persistent sepals. Flowers May to July.

HABITAT: Common along streams at lower elevation. Typical of warmer sites than ROGY. May grow mixed with ROWOU.

REMARKS: Rose hips are a good source of vitamin C and are commonly used in jellies and teas. Ours is the variety *hispida* except perhaps in the strong maritime climatic areas where the variety *nutkana* may occur.

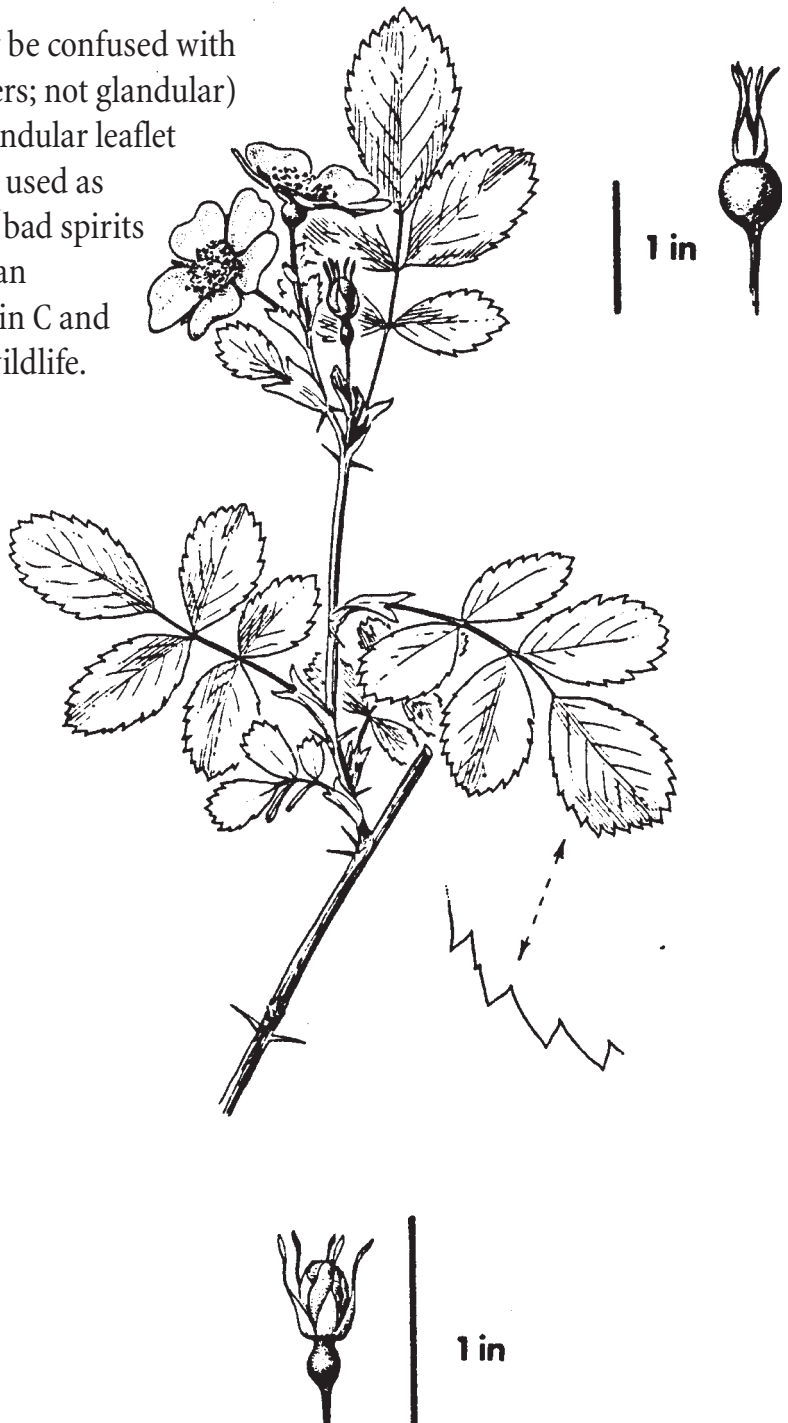


ROWOU *Rosa woodsii* var. *ultramontana*
woods rose
ROSACEAE

HABIT: A strongly armed to nearly unarmed deciduous shrub, up to 10' tall.

DESCRIPTION: Leaves are *glandular* to *glabrous* with 5-9 leaflets that are *singly serrate* (normally). The teeth are not *gland tipped* and the stems usually have straight to slightly curved infrastipular prickles. The flowers are larger than those of ROGY but smaller than RONU and are seldom solitary. The fruits (hips) have *persistent sepals*. Flowers May-July.

REMARKS: ROWO may be confused with RONU (large single flowers; not glandular) and ROGY (baldhips; glandular leaflet margins). *Rosa* spp. were used as protective agents against bad spirits by Indians. The hips are an excellent source of vitamin C and are extensively used by wildlife.



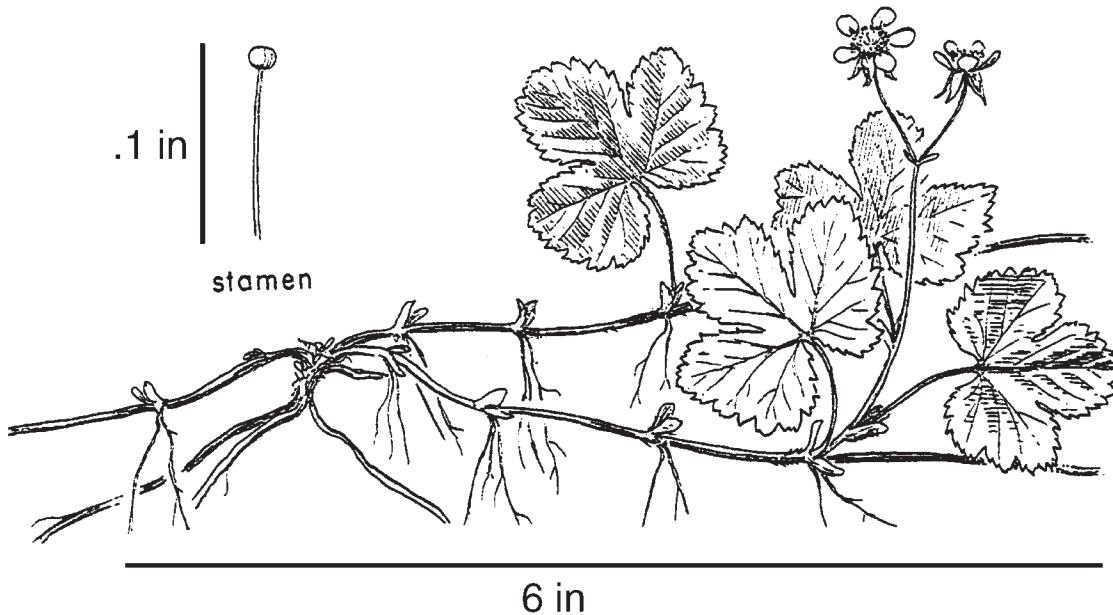
RULA *Rubus lasiococcus*
dwarf bramble
ROSACEAE

HABIT: An unarmed, trailing, perennial subshrub with stoloniferous, freely rooting stems.

DESCRIPTION: The *strawberry-like leaves* are 1-2.5" across, shallowly to deeply 3-lobed and doubly serrate. The 1-2 white flowers occur on a flowering stem about 4" long. The fruit is an aggregation of a few semi-coherent, densely puberulent red drupelets. Flowers June-August.

HABITAT: Middle to upper elevation sites in moderate to moist conditions. Especially common with ABAM and TSME where snowpacks are high and persistent.

REMARKS: It may be confused with RUPE but the latter has leaflets in fives. RULA makes a good ground cover and is easily established. The berries are edible but tart.



RUPA *Rubus parviflorus*
western thimbleberry
ROSACEAE

HABIT: An erect, stongly rhizomatous, unarmed, deciduous shrub, 2-7 feet tall.

DESCRIPTION: The alternate leaves are best described as large, *soft*, and *fuzzy*! They are 2-6" across, normally *5-lobed* and doubly dentate-serrate. Mature stems are gray-brown with shredding bark. The *large, white* flowers are in terminal clusters of 3-11 on glandular-hairy stalks. The fruit is bright *red* and *thimble-shaped*. Flowers May-July.

HABITAT: Cool and moist environments at mid elevations. Usually above the PSME series.

REMARKS: Not easily confused with any other shrub in our area. The juicy berries were eaten fresh by the Indians and the leaves and roots used to treat acne.



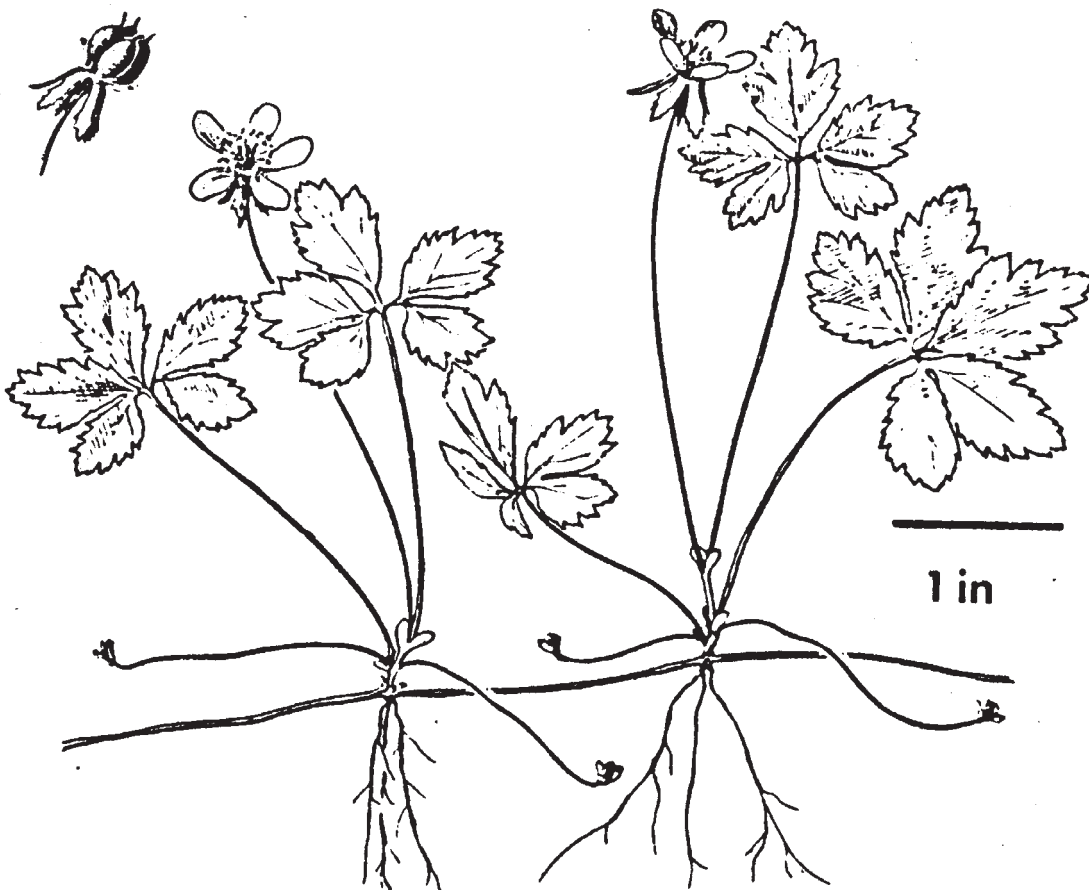
RUPE *Rubus pedatus*
five-leaved bramble
ROSACEAE

HABIT: A mat-forming, unarmed, trailing, perennial subshrub, less than 10" tall.

DESCRIPTION: The leaves resemble those of strawberries except that the leaflets are usually in *fives* or at least appear so. The leaflet margins are doubly serrate-dentate. The stems are semi-woody, strongly stoloniferous and root at the nodes. The flowers are white on *slender* stalks, *solitary* and have a reflexed calyx. The fruit is a very small red berry (actually an aggregate of 3-6 drupelets). Flowers May-early July.

HABITAT: A plant of cool to cold and moist environments especially within the TSHE TSME, ABLA2 and ABAM series.

REMARKS: May be confused with RULA (which has 3-lobed *entire* leaves). RUPE tends to be on warmer sites (less persistent snowpack) than RULA but they may grow on the same sites. RUPE is an excellent ground cover especially for shady areas. Also known as strawberry bramble.



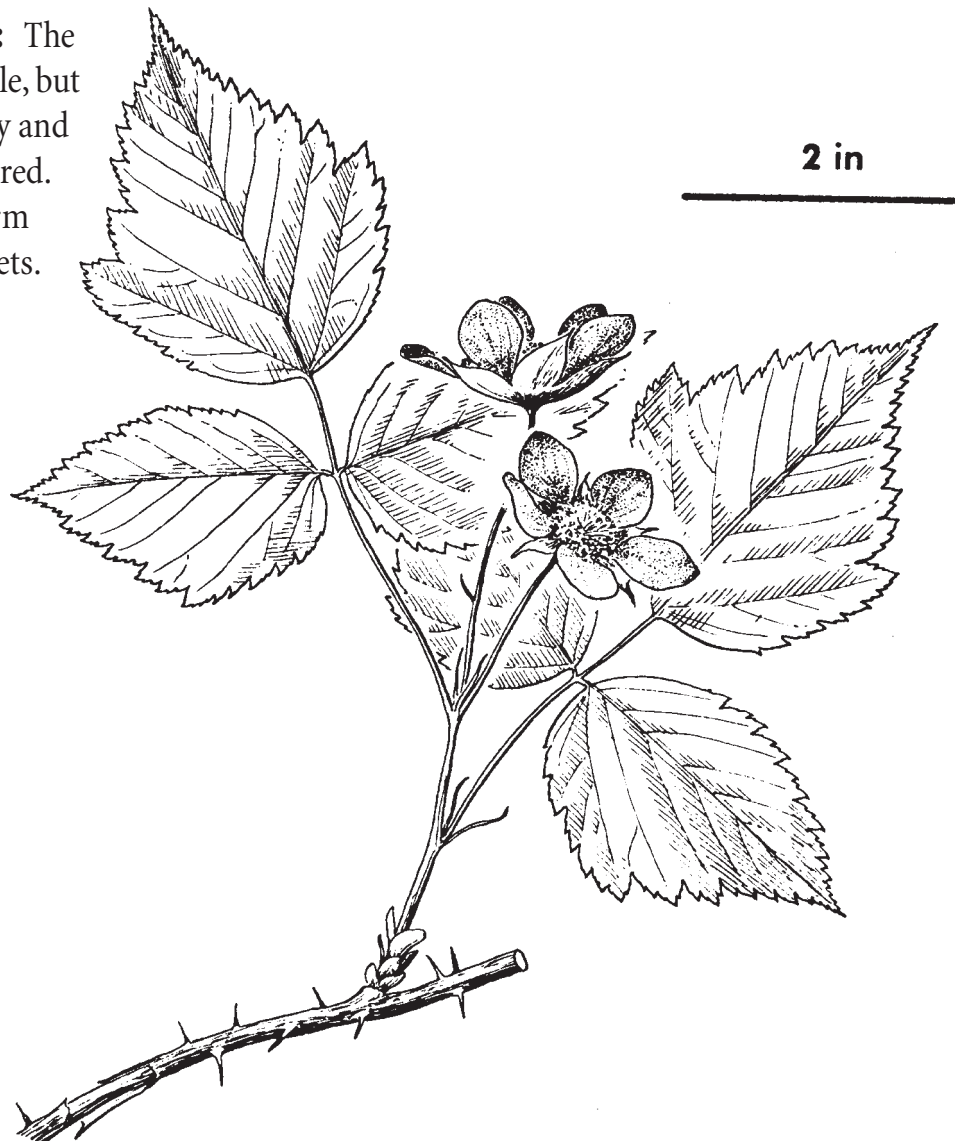
RUSP *Rubus spectabilis*
salmonberry
ROSACEAE

HABIT: An *erect*, weakly armed, stongly rhizomatous, shade tolerant shrub 3-10' tall.

DESCRIPTION: The leaves are deciduous, pinnately compound with 3 ovate leaflets that are 1-3" long and acute to acuminate. The leaflets are shiny dark green above and paler with pubescence along the veins beneath. The margins are doubly serrate. Stems, rachises, petioles and midveins are usually armed with relatively weak prickles. RUSP has *light brown stems* and *shredding bark*. It has single, pink to dark *red flowers*. The fruit is a raspberry-like *yellow to reddish berry* (aggregation of drupelets).

HABITAT: Middle elevations in moist forests and areas with subsurface water; usually within the ABAM and TSHE series. Most common on Cle Elum District.

REMARKS: The fruit is edible, but often watery and poorly flavored. Tends to form dense thickets.



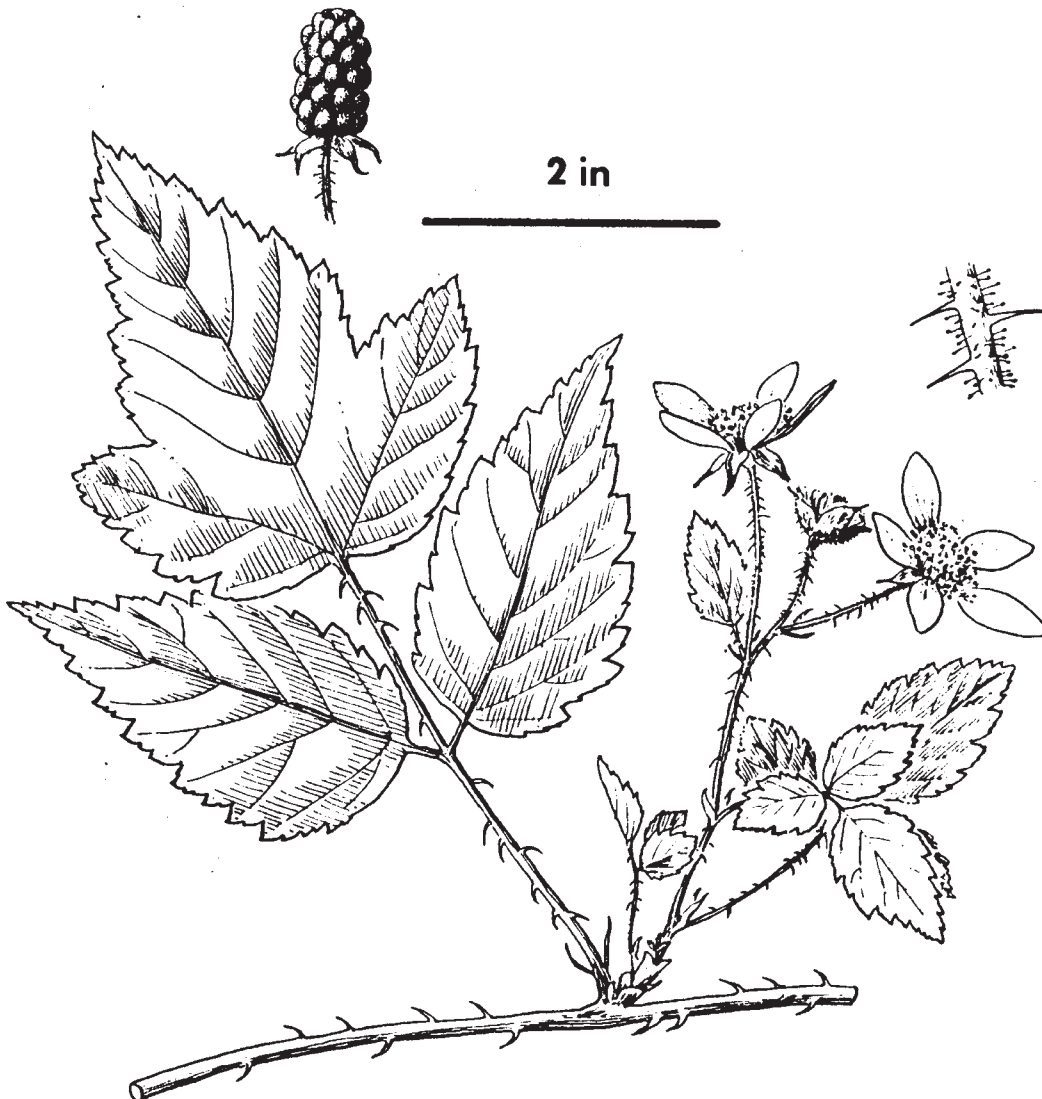
RUUR *Rubus ursinus*
Pacific blackberry
ROSACEAE

HABIT: A dioecious, *trailing armed* perennial shrub with terminally rooting canes to nearly 20'.

DESCRIPTION: The leaves are trifoliolate and the leaflets are doubly serrate and pointed. The leaves are dark green above and pale beneath. The stems are glaucous and armed with *hooked prickles*. The flowers are large with free *white petals*. The fruit is an elongate blackberry up to 1" long. Flowers April to early August.

HABITAT: Most common and abundant in moist, moderate conditions at middle elevations within the TSHE series but is also found in similar environments in the ABGR and ABAM series'.

REMARKS: Increases dramatically with disturbance. Our only native blackberry. The berries are excellent fare.



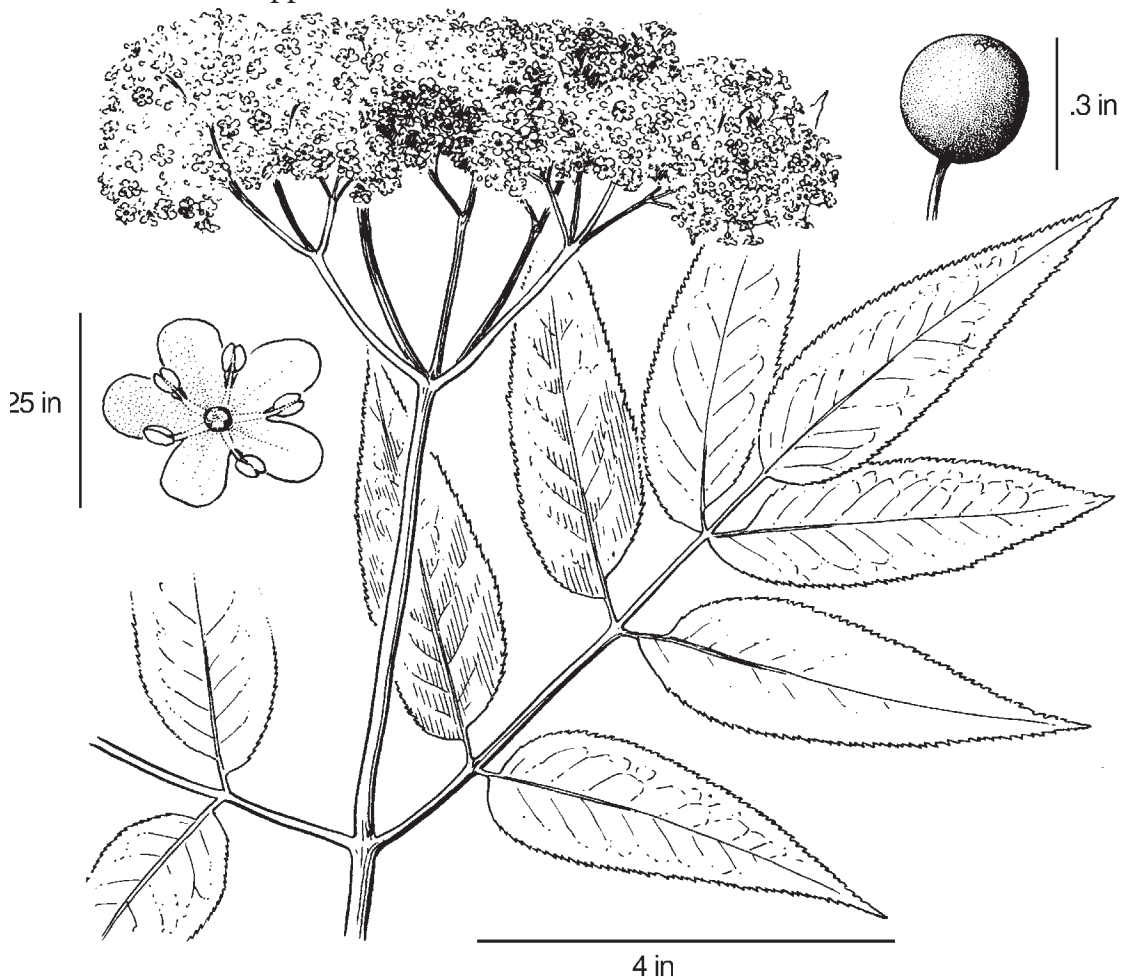
SACE *Sambucus cerulea*
blue elderberry
CAPRIFOLIACEAE

HABIT: A multi-stemmed, deciduous shrub or small tree, 7-20' tall.

DESCRIPTION: The opposite leaves are compound with 5-9 sharply serrate leaflets. Leaflets are acuminate, 2-6" long and 1-2.5" wide and whitened (glaucous) beneath. Flowers are creamy white in a flat-topped inflorescence up to 10" across. Fruits are about .3" across and glaucous blue in dense clusters. Stems are hollow and pithy in clusters with older stems having fissured bark.

HABITAT: A low to mid elevation species often found in riparian areas below tree line or in open forest.

REMARKS: This is a common shrub does not form stands. The fruit makes excellent jelly and wine. Big game find this species highly palatable and many wildlife species relish the berries. Fruits were used by Indians and stems for musical instruments. Stems and leaves are poisonous. *Sambucus racemosa* can be confused but it is found at middle to upper elevations, and has non-whitish red berries in round topped clusters.



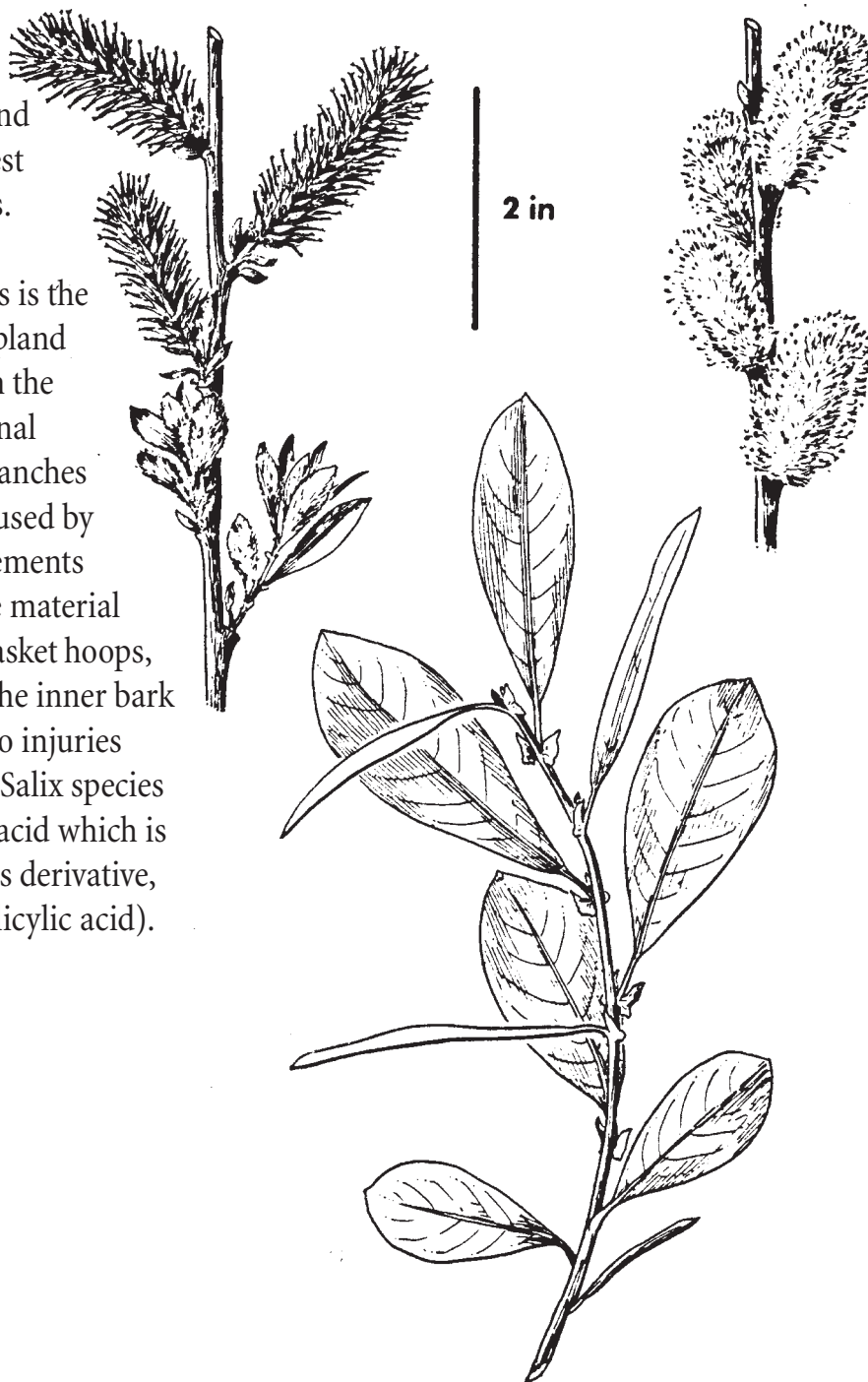
SASC *Salix scouleriana*
Scouler willow
SALICACEAE

HABIT: A tall, deciduous shrub or small tree, 7-30' tall.

DESCRIPTION: The alternate leaves are usually entire and *spatulate*. Mature leaves are dark green and glabrous above while *glaucous* with reddish hairs below. They are acute to obtuse (most common). Younger leaves may be lighter in color and larger. Twigs are sparsely to densely *Ray-hairy* and the catkins appear *before* the leaves.

HABITAT: A mid elevation species often found in all but the driest PSME series sites.

REMARKS: This is the most common upland willow species on the Wenatchee National Forest. Willow branches were commonly used by Indians for implements requiring flexible material (e.g. fish traps, basket hoops, canoe frames). The inner bark applied directly to injuries speeded healing. Salix species contain salicylic acid which is used much like its derivative, aspirin (acetylsalicylic acid).



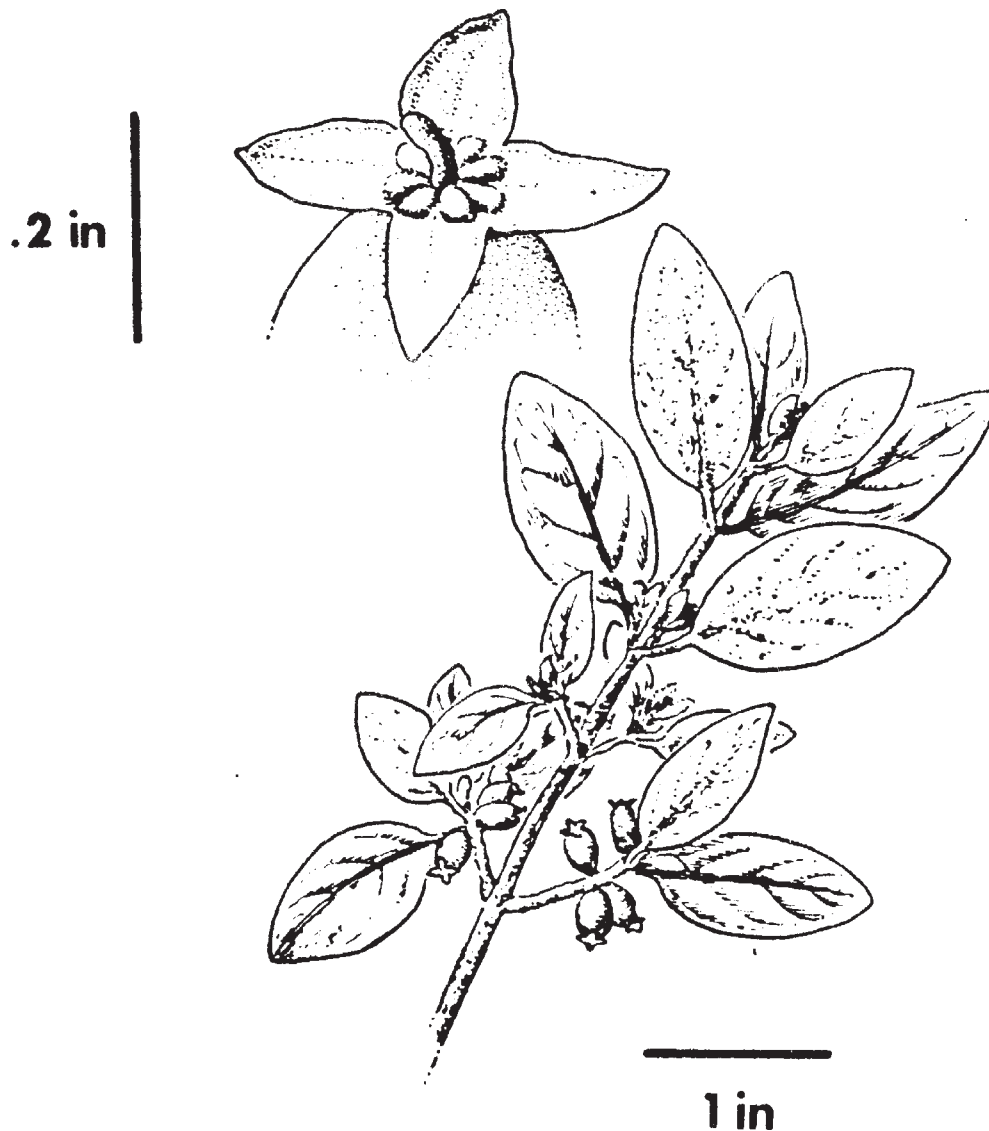
SHCA *Shepherdia canadensis*
russet buffaloberry
ELAEAGNACEAE

HABIT: A spreading, deciduous, unarmed shrub, 3-13 feet tall.

DESCRIPTION: The *opposite* leaves are *entire*, ovate, and 1-3" long. The upper leaf surface is dark green with silvery white hairs while the lower surface is *whitish* and *scurfy* with *rusty brown spots*. The older stems are brown and the younger twigs are *reddish scurfy*. The very small yellow flowers appear with or before the leaves; the male flowers are on one plant and the female flowers on another (dioecious). The fruit is an orange to red, very juicy, *translucent* berry. Flowers May-July.

HABITAT: Typical of mid to upper elevation sites. SHCA prefers open stands and commonly indicates past fires. More common on Chelan and Entiat Districts.

REMARKS: The crushed berries can be beaten in water to create a froth called "Indian ice cream". Strawberries or serviceberries were added for sweetener.



SOSC2 *Sorbus scopulina*
mountain ash
ROSACEAE

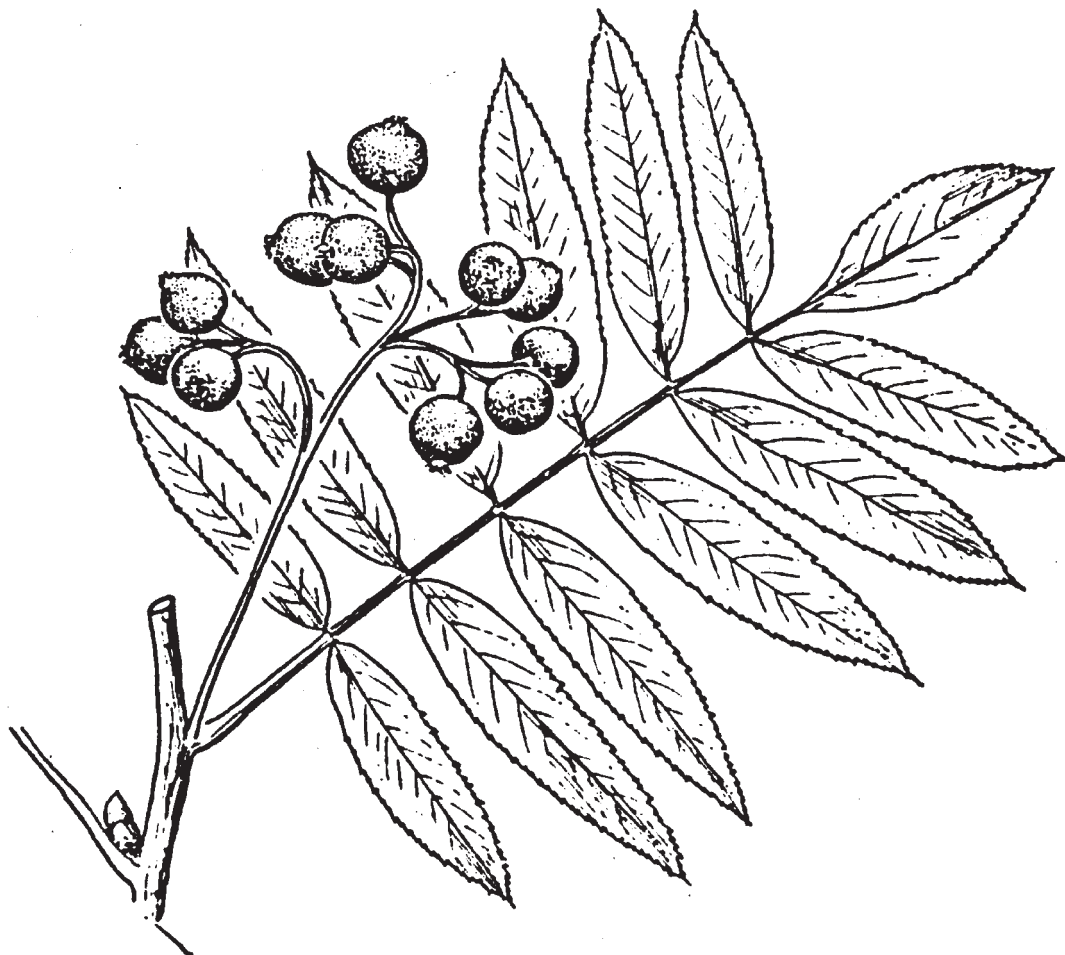
HABIT: An erect, deciduous, several-stemmed shrub, 3-13 feet tall.

DESCRIPTION: The leaves are compound with 9-13 leaflets, pinnately arranged. The leaflets are *pointed*, finely *serrate* nearly their full *length*, 1-3" long, glabrous and dark green (above). The *sticky* buds and new growth are covered with *whitish* hairs. There are 70-200 white flowers in a *flat-topped* cluster. The fruit is an orange to red berry (pome) just under 1/2" in diameter. Flowers May-early July.

HABITAT: Most common and abundant in cool to cold and moist environments within the THPL, TSHE and ABLA2 series

REMARKS: SOSC2 may be confused with SOSI which has rufous pubescence, unpointed leaflets serrate < 3/4 of their length and rounded flower clusters. Birds relish the berries while humans find them edible but relatively unpalatable. They are more palatable after a frost and have been used for jellies, jams and wines.

3 in



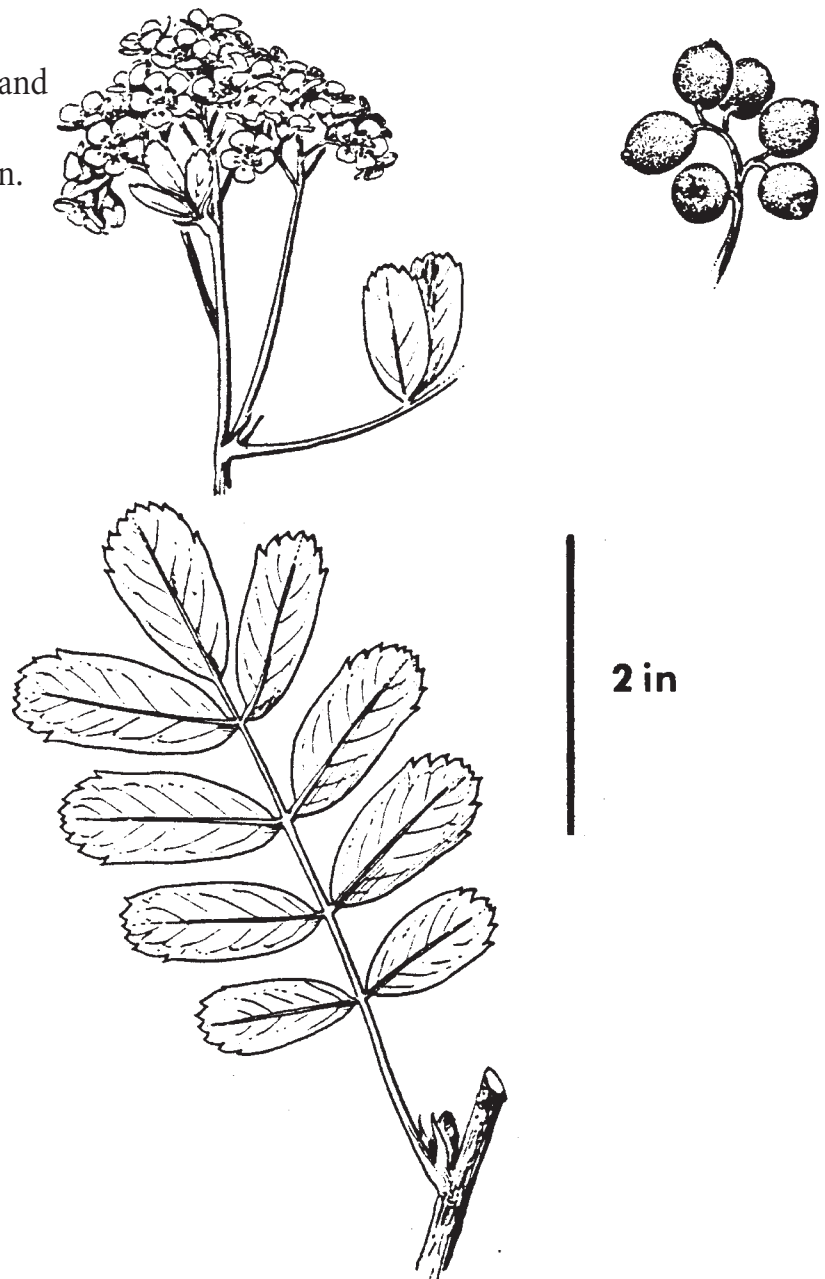
SOSI *Sorbus sitchensis*
Sitka mountain ash
ROSACEAE

HABIT: An erect multi-stemmed deciduous shrub to over 12 feet tall.

DESCRIPTION: The leaves have 7-11 odd-pinnate leaflets that are bluish-green, 1-2" long, *rounded* at the tip and *coarsely serrate* for < 3/4 their length. Under surfaces of leaflets are *often rufous hairy*. Buds are also rufous hairy. The flowers are white in round-topped clusters of less than 80 flowers. The fruit is an orange-red to red berry (pome) about 1/2" in diameter. Flowers June-July.

HABITAT: Similar sites as SOSC2 except that SOSI is more restricted to upper elevational ranges.

REMARKS: May be confused with SOSC2 and the two can hybridize. See SOSC2 information.



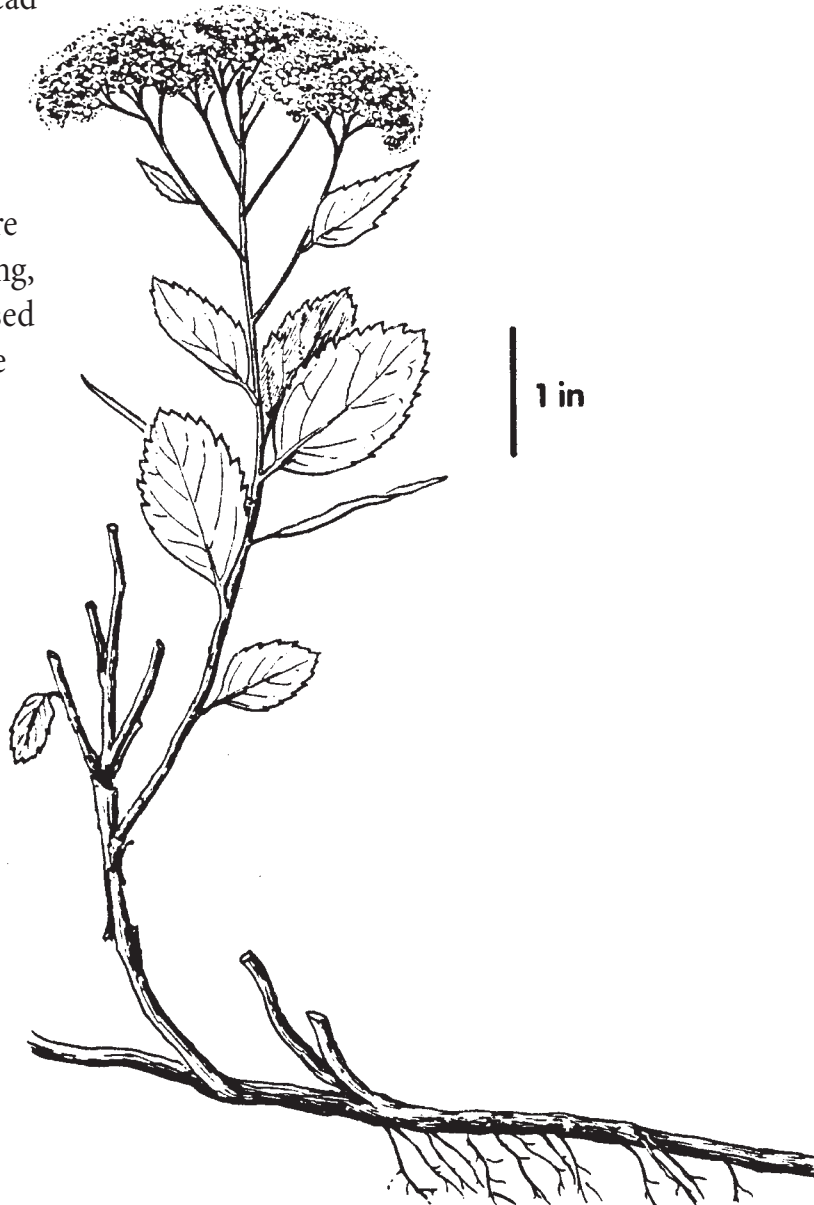
SPBEL *Spirea betulifolia* var. *lucida*
shiny leaf spirea
ROSACEAE

HABIT: A deciduous, strongly rhizomatous shrub, 8-24 inches tall.

DESCRIPTION: The alternate leaves are 1-3" long, *toothed* above the middle, dark green above and paler below. They generally resemble birch *leaves* (hence *betulifolia*). The glabrous and erect stems are light yellowish-brown, aging to reddish-brown. The small white flowers are borne in a dense *flat-topped cluster*, 1-3" across. Flowers June-July.

HABITAT: Not found in extremely hot, dry or very cold and wet sites. It indicates moderate temperature conditions without excess water in the root zone.

REMARKS: Widespread and increases after moderate disturbance. May be confused with young AMAL but leaf color and serrations are different. After flowering, the whole plant was used by the Indians to make tea for a general tonic.



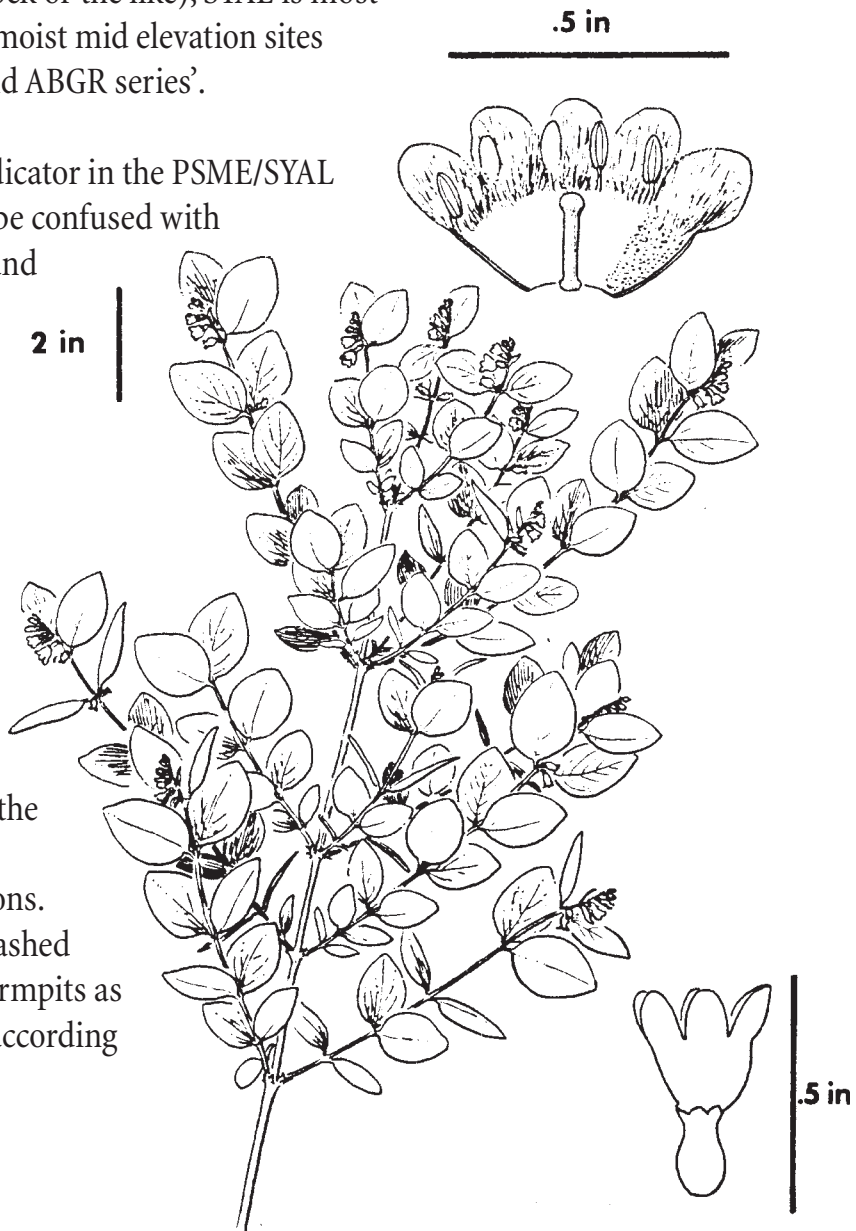
SYAL *Symphoricarpos albus*
common snowberry
CAPRIFOLIACEAE

HABIT: An erect to slightly spreading, deciduous, rhizomatous shrub, 2-7' tall.

DESCRIPTION: The leaves are *opposite*, elliptic, 1-2" long and entire (except on young shoots where the leaves are larger, variably shaped and often coarsely lobed). The mature stems are *hollow* and have shredding grayish bark. The sucker shoots are commonly yellowish-brown with smooth bark. The bell-shaped, white to pinkish flowers are up to 1/2" long. The floral tube is *densely hairy* above the level of the anthers. The fruit is white and berry-like, commonly in clusters and persists into wintertime. Flowers May-July.

HABITAT: Uncommon on hot-dry sites (except where it can get its roots down into fractured bedrock or the like), SYAL is most common on dry to moist mid elevation sites within the PSME and ABGR series'.

REMARKS: An indicator in the PSME/SYAL (OKAN) type. May be confused with SYOR (solid stems and non-rhizomatous, SYMOH (trailing; fine hairs on upper leaf) and LOU (large leaves; solid white pith). The berries are considered by some to be poisonous, but other authors do not believe it to be so. Indians used the plant in a variety of medicinal applications. The berries were mashed and rubbed in the armpits as an anti-perspirant according to one reference.



SYMOH *Symphoricarpos mollis* var. *hesperius*
creeping snowberry
CAPRIFOLIACEAE

HABIT: A low, trailing, deciduous shrub, 1-2 feet tall.

DESCRIPTION: The opposite leaves are entire, elliptic and about 1" long. But leaves on new shoots tend to be larger and variably lobed. All leaves have fine hair above. Stems root at the nodes and have solid brownish pith. Twigs are very fine. The flowers are bell-shaped and pinkish in short, dense terminal racemes. The fruit is a round, waxy, white berry about 1/4" across. Flowers June-July.

HABITAT: Moderate to moist sites; most common within the ABGR series.

REMARKS: May be confused with SYAL (erect hollow pith and glabrous above), SYOR (erect, non-rhizomatous) and LOU (solid white pith; large leaves). See SYAL for uses.



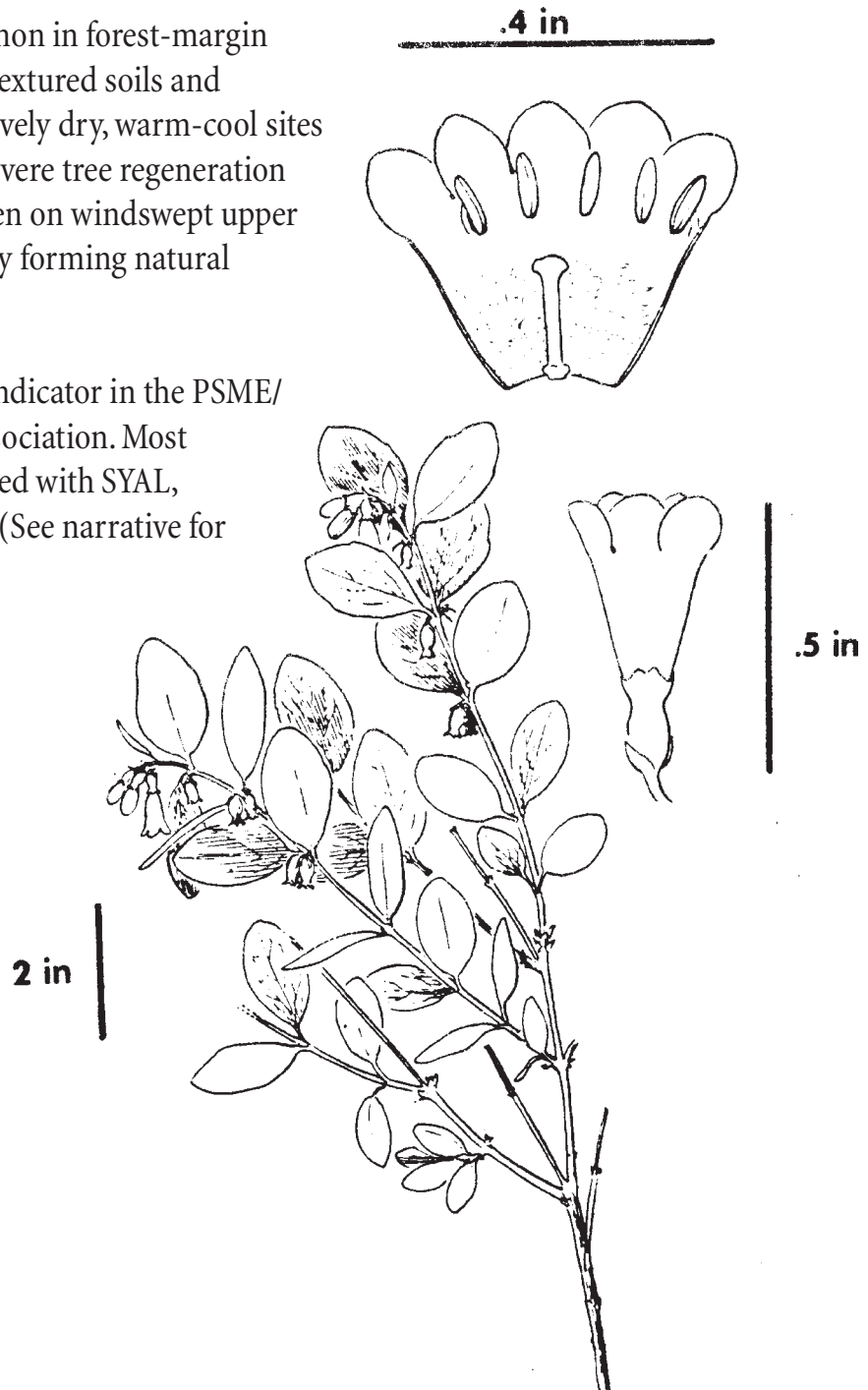
SYOR *Symphoricarpos oreophilus*
mountain snowberry
CAPRIFOLIACEAE

HABIT: An erect, *non-rhizomatous*, deciduous shrub, 2-5' tall.

DESCRIPTION: The leaves are *opposite*, elliptic or elliptic-ovate, 1/2-1 1/2" long and dark *green* (making the leaf veins more visible than in SYAL). The bushes are conspicuously *solitary*. The mature stems are *solid* (not hollow) and the flowers are commonly pinkish-red. The floral tube is hairy or glabrous below the level of the anthers. Flowers June-August.

HABITAT: Common in forest-margin stands on coarse textured soils and indicative of relatively dry, warm-cool sites with difficult to severe tree regeneration problems. It is often on windswept upper slopes occasionally forming natural shrublands.

REMARKS: An indicator in the PSME/SYOR (OKAN) association. Most commonly confused with SYAL, SYMOH or LOU (See narrative for those species.)



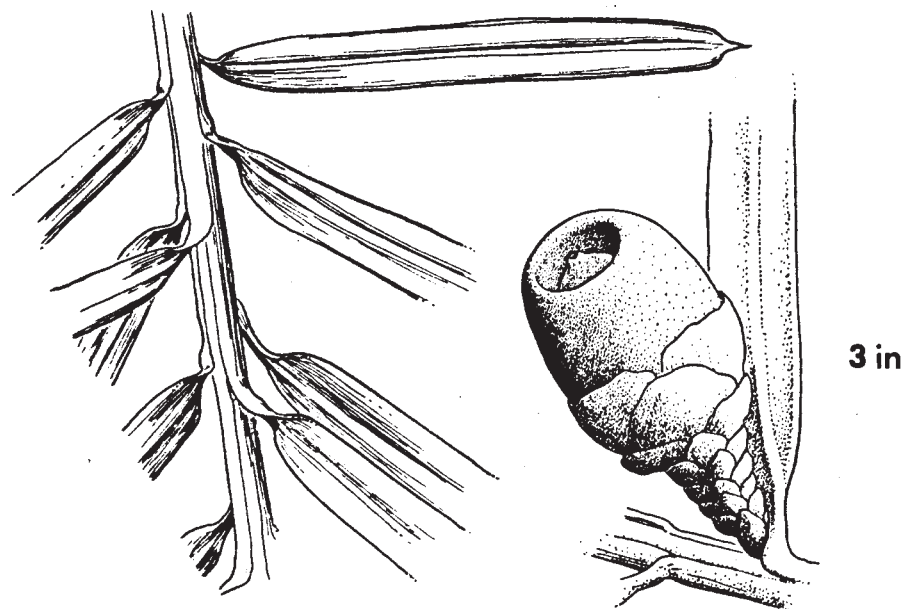
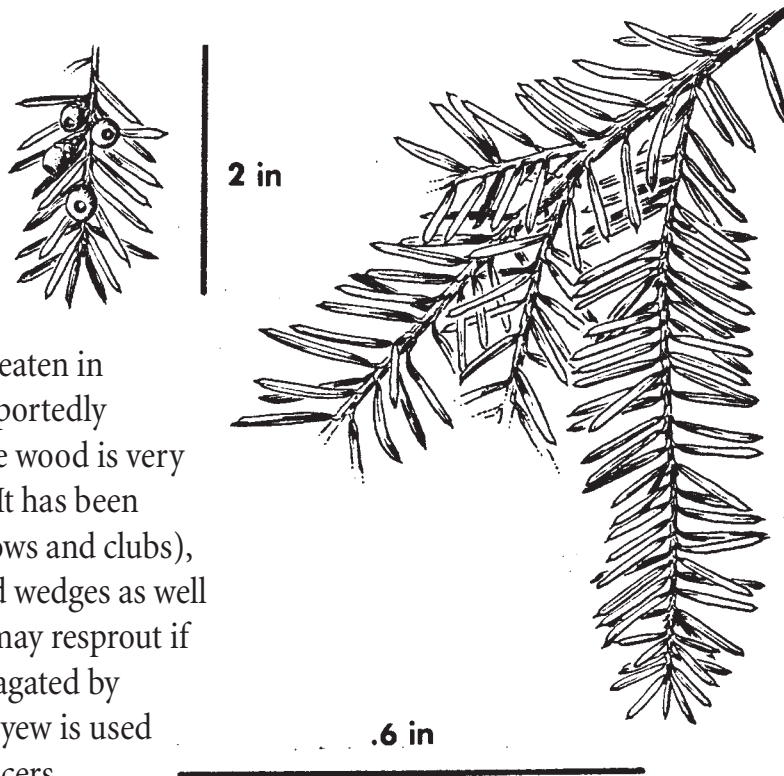
TABR *Taxus brevifolia*
Pacific yew
TAXACEAE

HABIT: A very tolerant large shrub to small tree; 5 to 30 feet tall. TABR is often prostrated.

DESCRIPTION: The evergreen leaves are .5-1" long, linear, dark green above, lighter below and pointed. They are in a plane; appearing two-ranked. The bark is very thin and purplish to reddish with outer scales but new twigs are green. The fruit is a bright red, berry-like aril.

HABITAT: Cool, moist sites mostly within the ABAM, TSME and TSHE series.

REMARKS: The fruit is poisonous if eaten in quantity, though reportedly sweet when ripe. The wood is very strong and durable. It has been used as weapons (bows and clubs), utensils, paddles and wedges as well as furniture. TABR may resprout if cut and can be propagated by cuttings. Taxol from yew is used in treating some cancers.



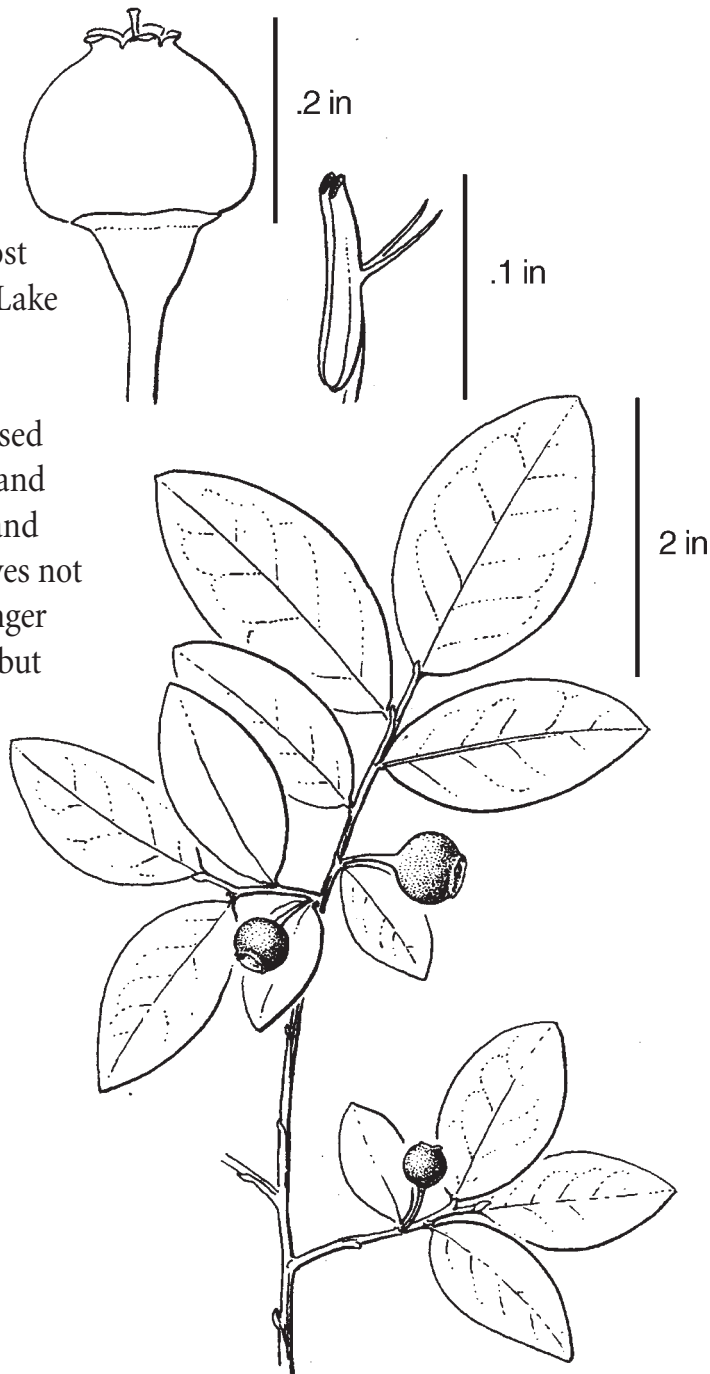
VAAL *Vaccinium alaskense*
Alaska huckleberry
ERICACEAE

HABIT: Alternate-leaved, deciduous shrub up to 4' tall.

DESCRIPTION: The leaves are sparsely glandular, ovate-elliptic, *entire* to *slightly serrulate* and 1-2.5" long. There are small *hairs* on the *underside midvein*. The young twigs are yellow-green and somewhat angled. VAAL flowers when the leaves expand; the flowers are single on straight pedicels and are bronzy-pink. The fruit is a glaucous bluish-black to non-glaucous purplish-black berry about 1/4" in diameter. Flowers May to June.

HABITAT: Cool, moist sites at middle to upper elevations, often in association with VAME. Most common on Cle Elum and Lake Wenatchee Districts.

REMARKS: May be confused with VAME (more pointed and distinctly serrated leaves) and *Vaccinium ovalifolium* (leaves not glandular beneath, with longer pedicels). Berries are tasty but tart and noticeably more acid than those of VAME.



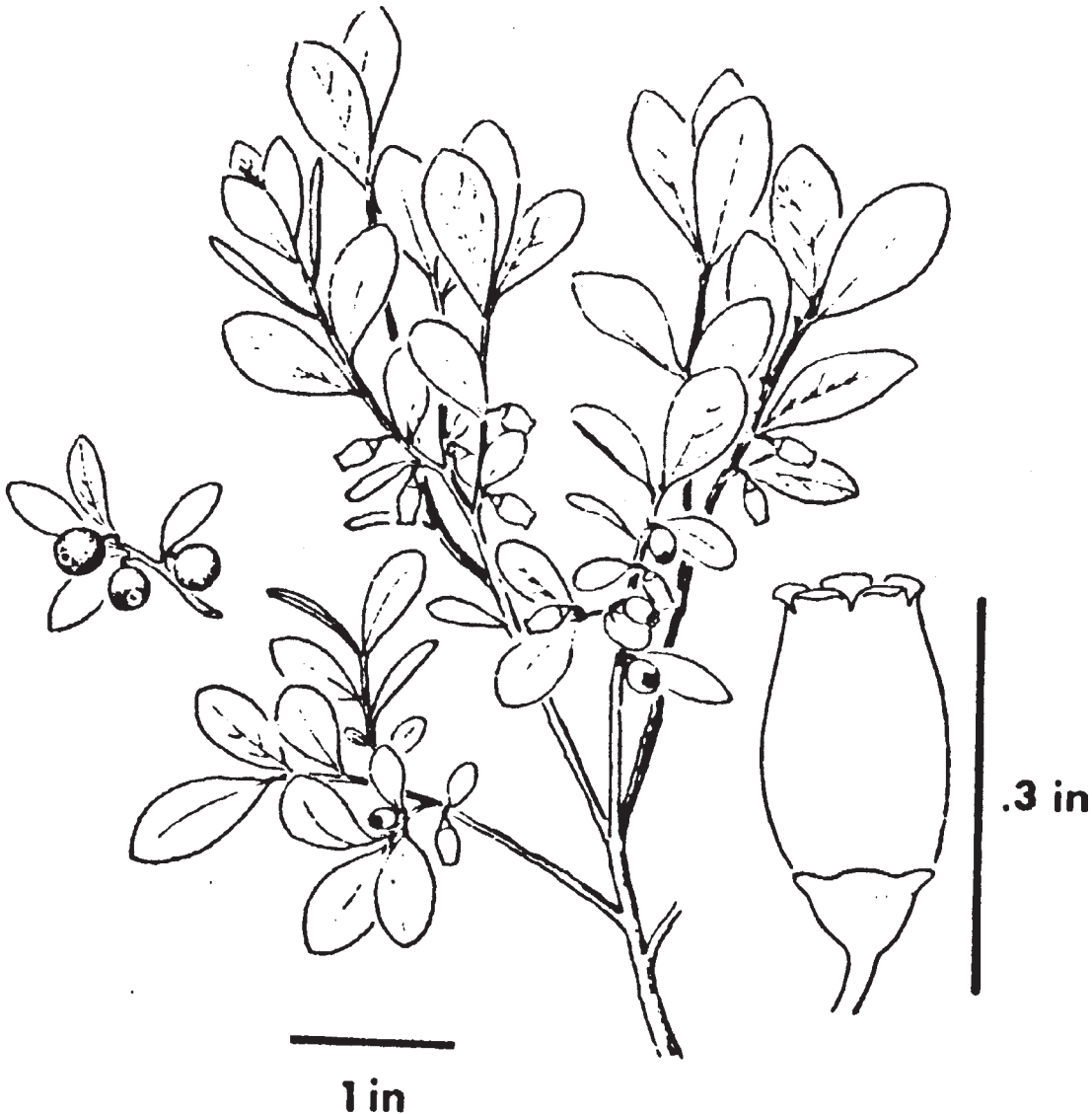
VACA *Vaccinium caespitosum*
dwarf huckleberry
ERICACEAE

HABIT: A widely spreading, deciduous, dwarf shrub, 6-12" tall.

DESCRIPTION: The leaves are *widest near the tip*, alternate, *light green*, serrate and about 1" long. The stems are round, hairy, somewhat angled, and yellowish-green to *reddish-brown*. The flowers are whitish to pink and narrowly *urn-shaped*. The fruit is a glaucous-blue berry. Flowers May-July.

HABITAT: VACA is restricted to cool, frosty environments. It often indicates frost pockets.

REMARKS: The berries are edible and sweet. VACA may be confused with the other *Vaccinium* species but can usually be distinguished by its size and leaf shape. VADE is most similar but has generally larger, bluish, glaucous leaves and grows at very high elevations.



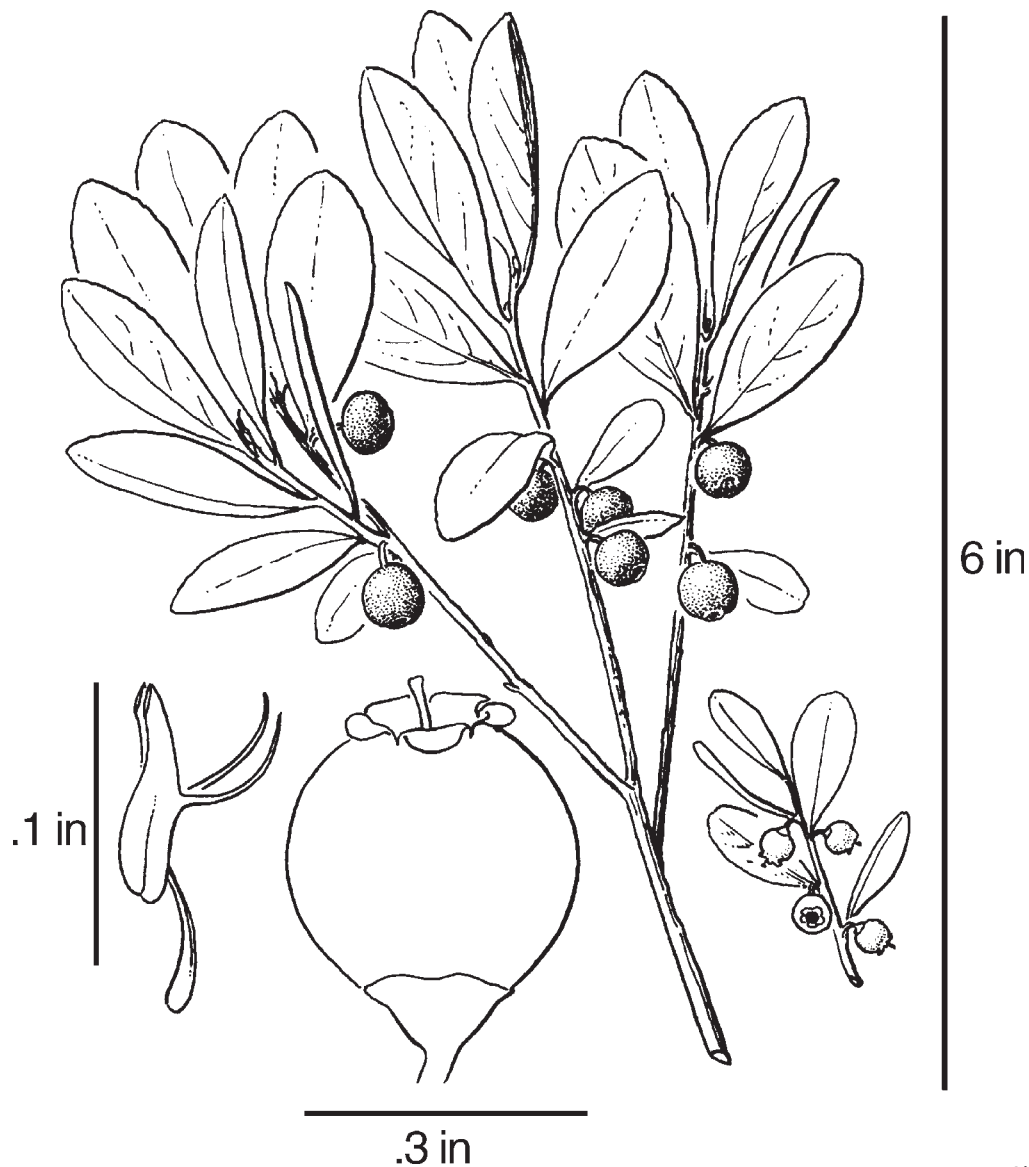
VADE *Vaccinium deliciosum*
Cascade huckleberry
ERICACEAE

HABIT: Low, matted, deciduous shrub; 6-16" in height.

DESCRIPTION: The leaves are alternate, obovate to oblanceolate, 1/2-2" long and bluish to pale green. They are *glaucous* beneath and serrulate on the upper 1/2-2/3. The branches are inconspicuously angled. The pinkish flowers are single in the axils and about 1/4" long and the fruit is a subglobular shaped glaucous-blue berry. Flowers May-June.

HABITAT: Upper to high elevations, commonly in subalpine openings. Indicates cold to very cold sites with difficult to severe regeneration problems.

REMARKS: The berry is very tasty. VADE may be confused with VACA so see that description for differences. VACA generally occurs at lower elevations.



VAME *Vaccinium membranaceum*
big huckleberry
ERICACEAE

HABIT: An erect, alternately branched, deciduous shrub, 1-3' tall.

DESCRIPTION: The thin leaves are ovate, *pointed, serrate* and 1-2" long. The older stems have grayish and *shredded* bark while the young twigs are yellowish-green and somewhat angled. The flowers are yellow-pink, about 1/8" long and urn-shaped. The berries are purple or dark purplish-reddish and about 1/4" in diameter. Flowers April-June.

HABITAT: A widespread mid to upper elevation species of cool-cold and moist environments.

REMARKS: May be confused with other huckleberry species but the large, thin, pointed leaves of VAME are usually distinctive. Can form dense stands, particularly in old cutting units. The berries are excellent raw or cooked and were an important food source for the Indians.



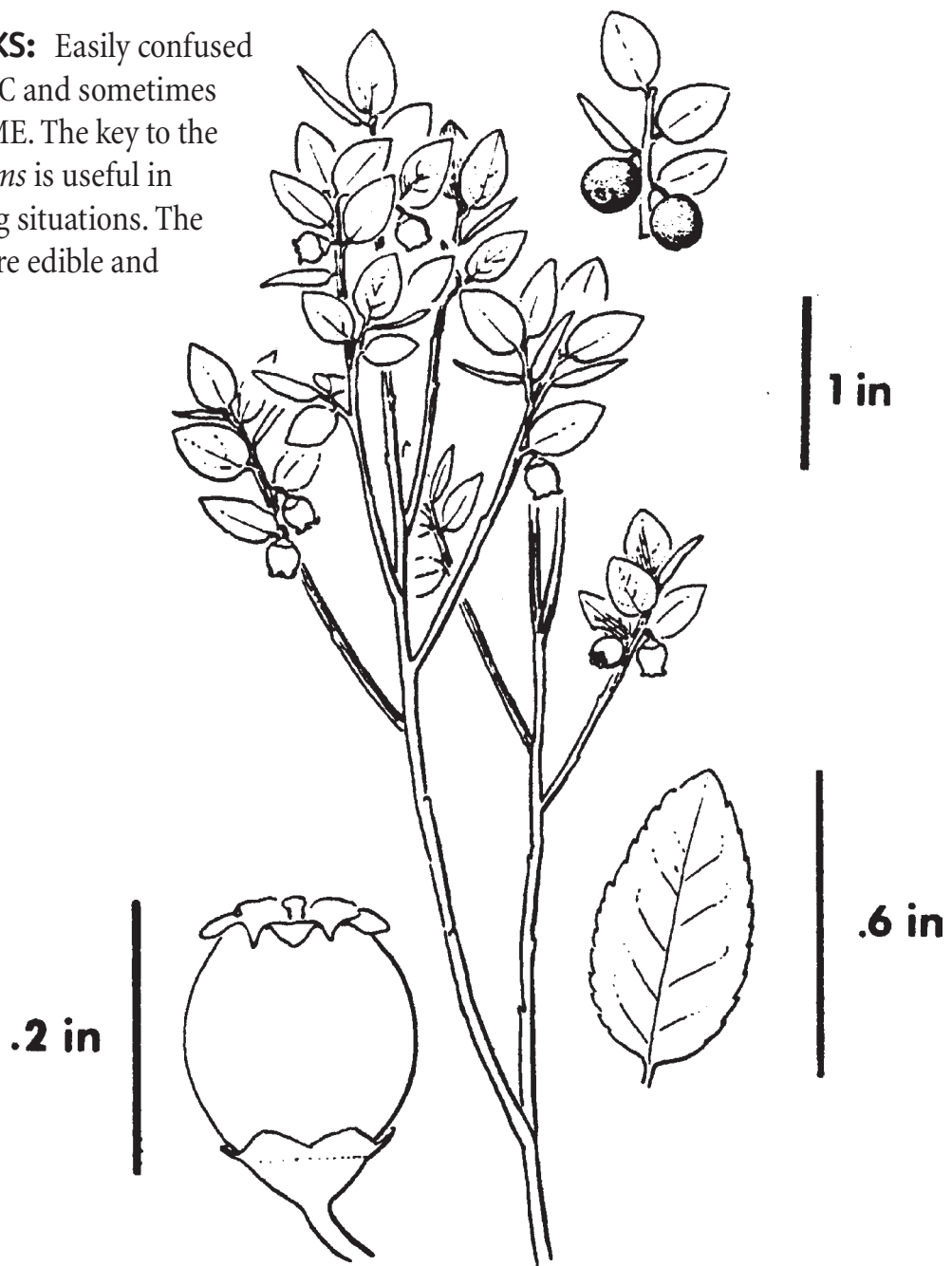
VAMY *Vaccinium myrtillus*
low huckleberry
ERICACEAE

HABIT: A low, deciduous shrub, 8-12" tall.

DESCRIPTION: The leaves are 1/2-1" long, light green, ovate, glabrous, and sharply *toothed*. The stems are sharply angled, usually puberulent and greenish but not *broom-like*. The flowers are pinkish and urn-shaped. The berries are *dark red* to *bluish-black*. Flowers May-August.

HABITAT: A mid to upper elevation species with a range similar to that of VASC except VAMY does not extend as high in elevation or to as cold of sites.

REMARKS: Easily confused with VASC and sometimes with VAME. The key to the *Vacciniums* is useful in confusing situations. The berries are edible and sweet.



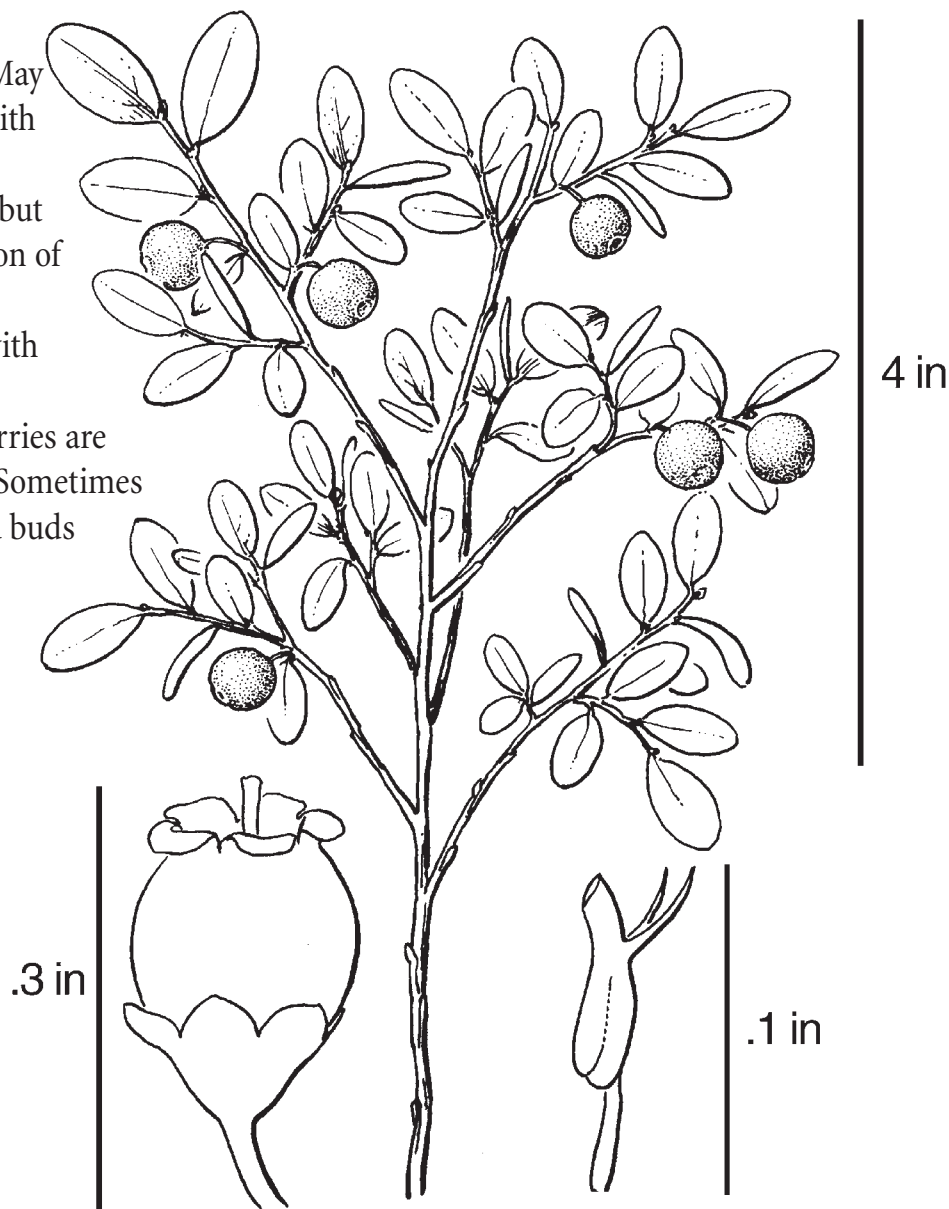
VAPA *Vaccinium parvifolium*
red huckleberry
ERICACEAE

HABIT: An *erect*, alternately branched, deciduous shrub, *l-10'* tall.

DESCRIPTION: The alternate leaves are about *1/2-1"* long and usually entire but can be dimorphic with serrate leaves on low creeping branches. They are dark green above; paler beneath and have a petiole about *1/8"* long. The *twigs* are *green*, prominently angled and ribbed. The flowers are small and green ish-white to read ish. The fruit is a translucent red berry about *1/4"* in diameter. Flowers April-June.

HABITAT: Rarely abundant but most common in moist, cool, maritime conditions on Cle Elum and Lake Wenatchee Districts. Not found at high elevations or on cold, frosty sites.

REMARKS: May be confused with other huckleberries but the combination of a tall, erect huckleberry with green stems is distinctive. Berries are tasty but tart. Sometimes the foliage and buds may be red.



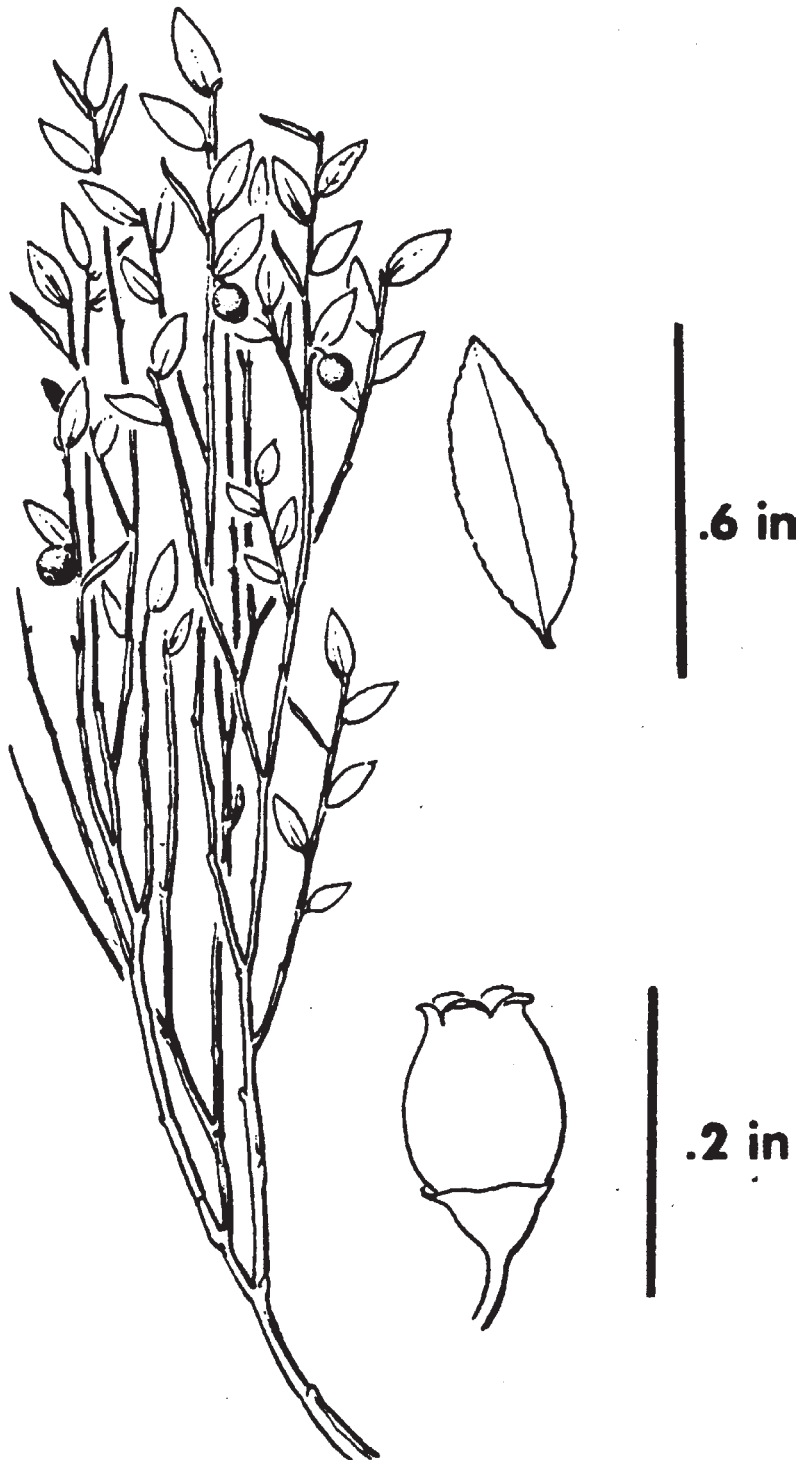
VASC *Vaccinium scoparium*
grouse huckleberry
ERICACEAE

HABIT: A low, *broom-like*, deciduous shrub, 2-10" tall.

DESCRIPTION: The leaves are *small* (less than 1/2"), finely serrate and dark to light-green. There are many slender, strongly *angled* and greenish or yellowish-green branches. The flowers are pinkish and the berries are small and *bright red*. Flowers May-August.

HABITAT: A mid to high elevation species typical of cold, frosty conditions. When abundant (> 10% cover) it indicates high potential for frost and few nesting opportunities for ground nesting birds.

REMARKS: An indicator in many associations. Easily confused with VAMY. The berries excellent but very small.



KEY TO VACCINIUMS

- 1 a. Stems green and leaves ovate 2.
 - 2a. Plant over 2' tall VAPA p. 44
 - 2b. Plant under 2 ft. tall 3.
 - 3a. Plant broom-like; berries bright red; stems bright green and strongly angled; leaves are usually < 1/2" long VASC p. 56
 - 3b. Plant not broom-like; berries dark red to blue-black; most leaves > 1/2" long VAMY p. 56
- 1b. Stems brown and/or leaves oblanceolate 4.
 - 4a. Plant over 2 ft. tall and/or leaves are widest below the midpoint (ovate) 5.
 - 5a. Leaves sharply serrulate nearly full length; thin textured and pointed VAME p. 43
 - 5b. Leaves entire or lightly serrulate; most or all serrulations on basal half of leaf; with relatively thick and rounded leaves (VAOV if no glands on under leaf surfaces) VAAL p. 43
 - 4b. Plant under 2 ft. tall and/or leaves widest above the midpoint (oblanceolate) 6.
 - 6a. Leaves bluish in color; glaucous but not glandular beneath VADE p. 5
 - 6b. Leaves not bluish; glabrous to puberulent; above and glandular but not glaucous beneath VACA p. 5

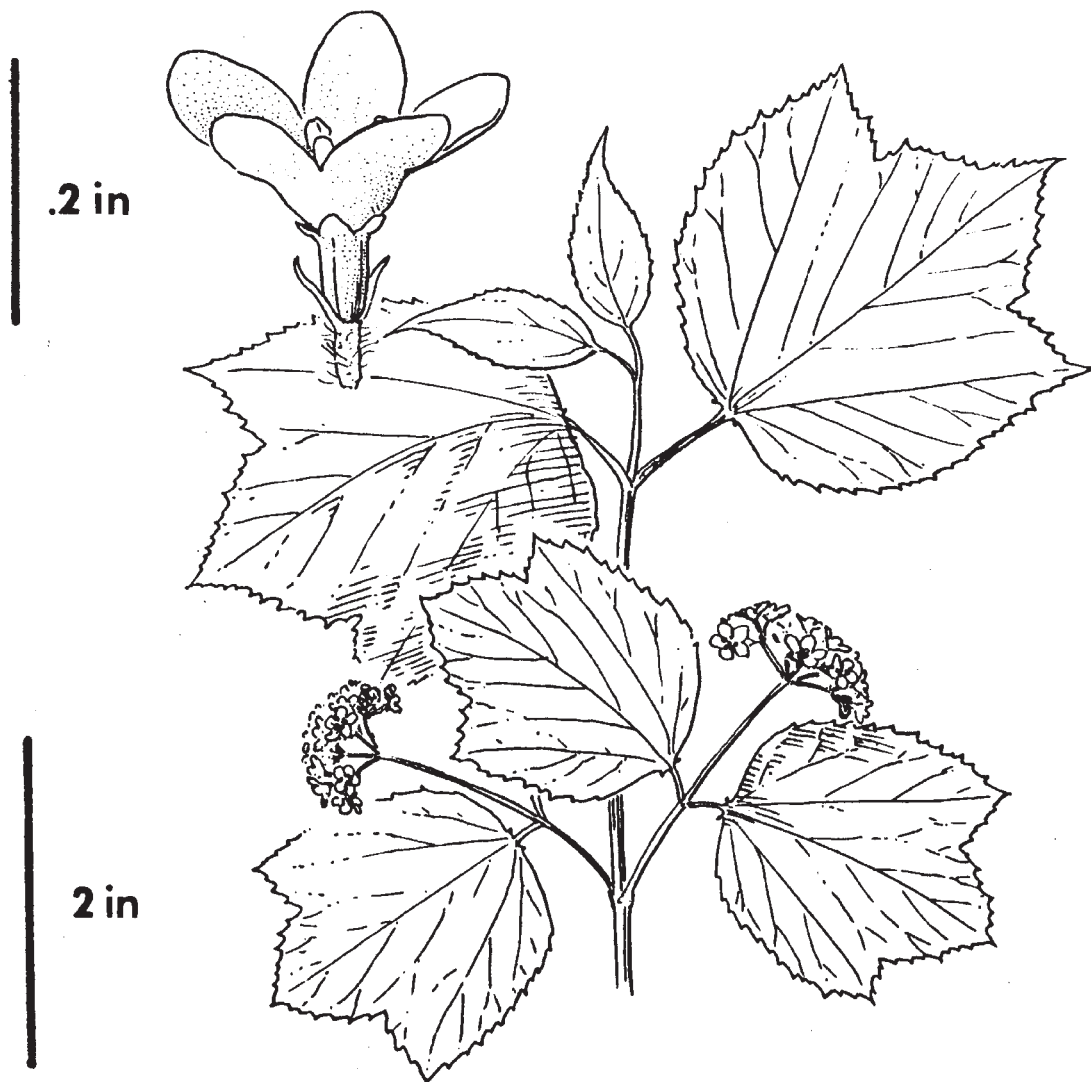
VIED *Viburnum edule*
moosewood viburnum

HABIT: A straggling to suberect, opposite-leaved shrub, 1.5-9' tall.

DESCRIPTION: The uniquely shaped leaves are shallowly *3-lobed*, sharply toothed, *hairy beneath* and 1-4" long. Commonly there are a pair of glandular teeth where the petiole meets the leaf. The flowers occur in few-flowered clusters on axillary shoots bearing a single pair of leaves. The fruit is a red or orange berry-like drupe. Flowers May to July.

HABITAT: Moist to wet environments often with poor drainage at middle to upper elevation. It is widespread but rarely abundant.

REMARKS: The juicy berry is edible although acid and tart. Autumn foliage is brilliant making this a good species for possible cultivation. It is sometimes called high-bush cranberry.



XETE *Xerophyllum tenax*
beargrass
LILIACEAE

HABIT: An evergreen, superficially grass-like, perennial subshrub with flower stalks up to 5' tall.

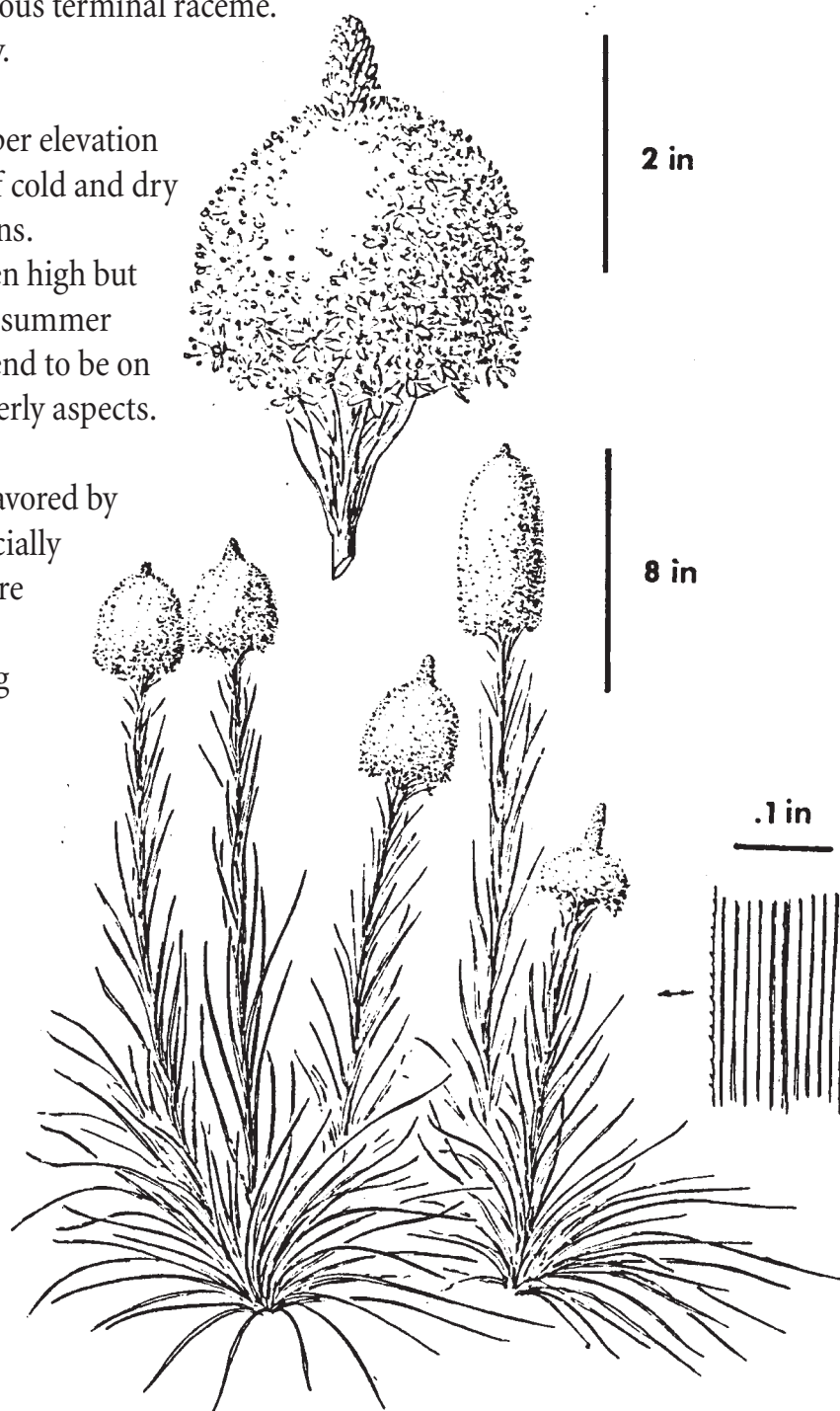
DESCRIPTION: The leaves are *coarse* and *tough*, the basal ones occurring in *dense grass-like* clumps. The leaf margins have small sharp teeth and the under leaf surfaces have white *grooves* their full length. The flower stalks are stout, persistent and very leafy with the leaves reduced upward. The fragrant flowers are *cream* to *white* in a conspicuous terminal raceme.

Flowers March-July.

HABITAT: An upper elevation species (usually) of cold and dry (to moist) conditions.

Snowpacks are often high but the sites tend to be summer dry because they tend to be on southerly and westerly aspects.

REMARKS: It is favored by disturbances, especially fires. The leaves were widely used by the Indians for weaving baskets.



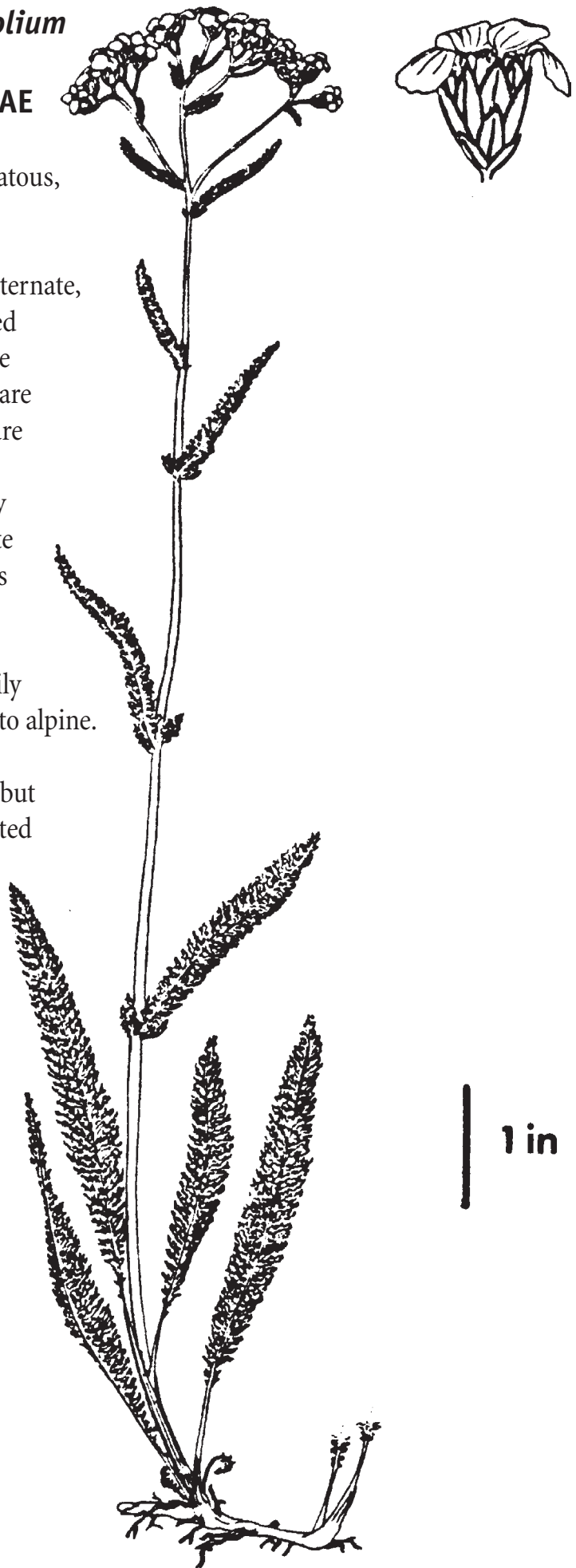
ACMI *Achillea millefolium*
yarrow
COMPOSITAE, ASTERACEAE

HABIT: An aromatic, rhizomatous, perennial forb, 4-40" tall.

DESCRIPTION: Leaves are alternate, slender and pinnately dissected (*fern-like*). The basal leaves are petiolate but the cauline ones are sessile. The stems and leaves are usually densely white *woolly* (lanulose) and always strongly *aromatic*. The flowers are white in flat-topped clusters. Flowers April-October.

HABITAT: Occurs on primarily open sites from shrub-steppe to alpine.

REMARKS: Very widespread but not found on sites with saturated soils or in densely shaded stands. The dried leaves, seeds and flowers can be used to make a tea. The Indians placed the stems and leaves on hot coals to keep away mosquitoes and the tea was used medicinally.



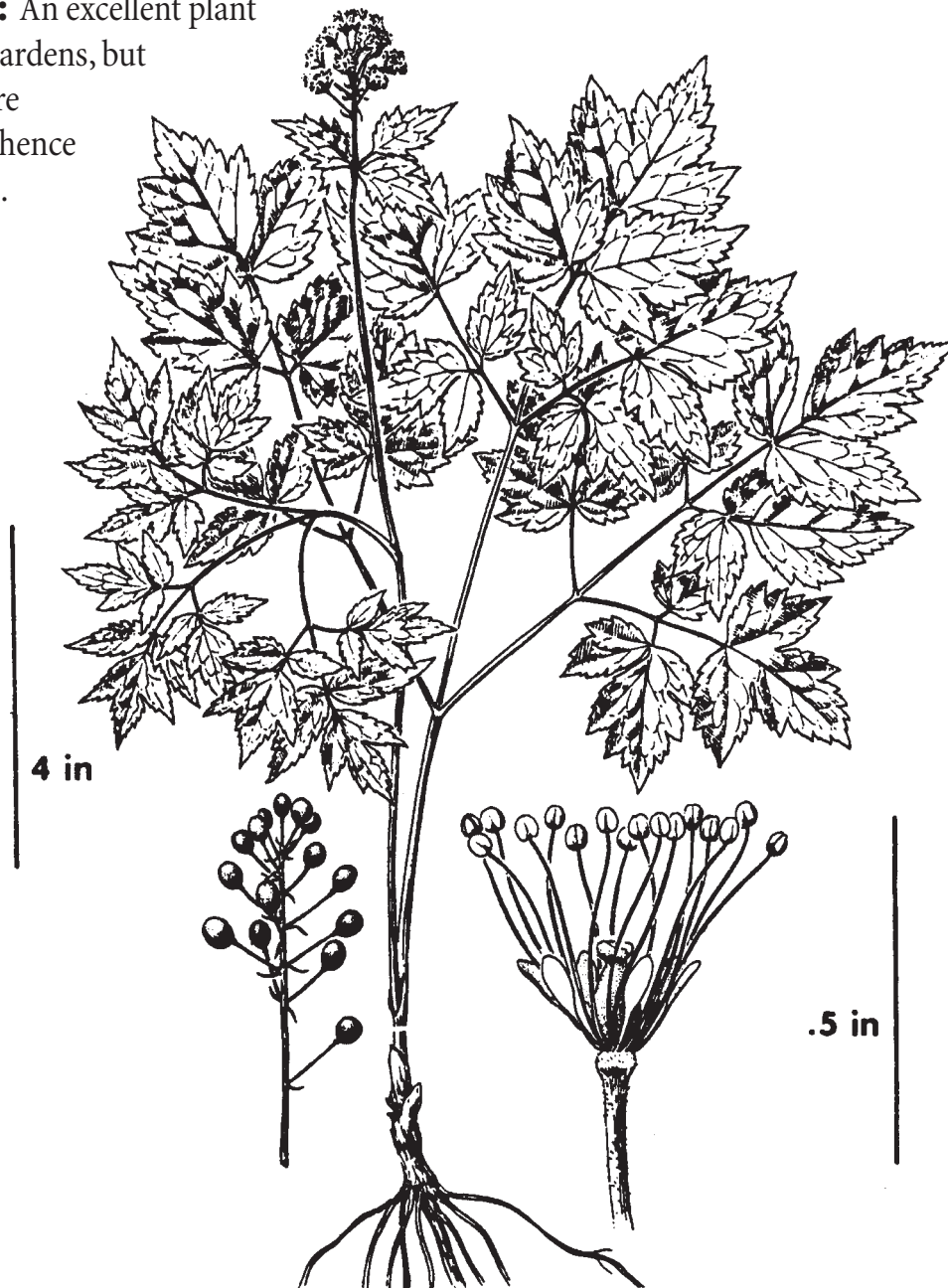
ACRU *Actaea rubra*
baneberry
RANUNCULACEAE

HABIT: An erect, branched (normally), perennial herb; 1-3' tall.

DESCRIPTION: Leaves are few, but their compound structure gives the plant a leafy appearance. They are alternate, cauline, 2-3 times divided, 1-4" long, sharply toothed and lobed. The flowers are *white*, with a "frilly" appearance (because the stamens exceed the petals) in terminal or axillary clusters. The fruit is a white to red *berry* occurring in clusters. Flowers May-July.

HABITAT: Occurs on cool and moist to wet forested bottom sites at mid elevation.

REMARKS: An excellent plant for flower gardens, but the fruits are *poisonous* (hence baneberry).



ACTR *Achlys triphylla*
vanilla leaf
BERBERIDACEAE

HABIT: A *rhizomatous*, spreading herb with *horizontally* arranged leaves; to 12" tall.

DESCRIPTION: The leaves are glabrous, *3-foliolate* and up to 8" across. The petioles are 4-12" long. The flowers are on slender scapes, 8-16" tall, and lack both *calyx* and *corolla*. The fruits are clustered on the scape, small and reddish-purple. Flowers April-July.

HABITAT: Moist sites, commonly in areas where excess topographic moisture is available; most common in the TSHE, ABAM and ABGR series.

REMARKS: The dried leaves have a pleasant scent. Excellent addition to the woodland garden. *triphylla* indicates that the terminal whorl has three leaves.



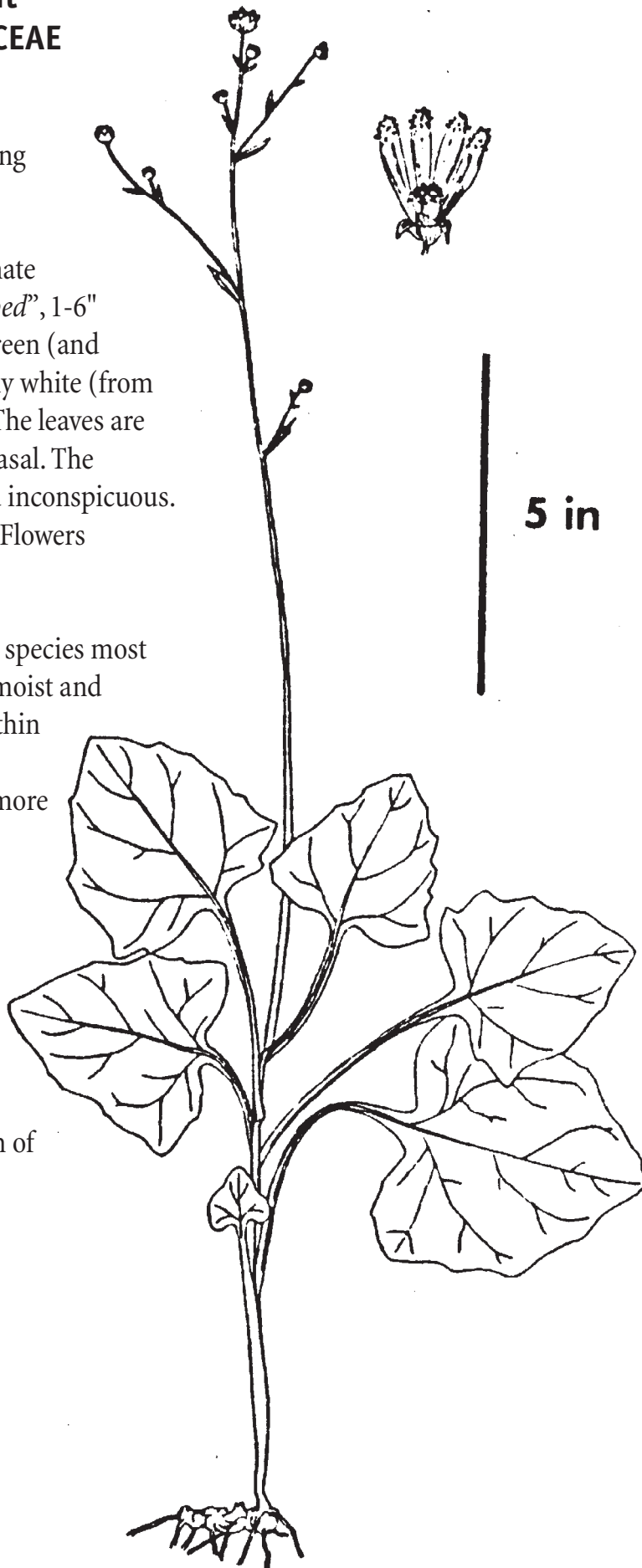
ADBI *Adenocaulon bicolor*
pathfinder, trail plant
COMPOSITAE, ASTERACEAE

HABIT: A slender, erect, perennial herb with flowering stem up to 3' tall.

DESCRIPTION: The alternate leaves are, "arrowhead shaped", 1-6" wide, "bicolored" i.e. dark green (and glabrous) above while nearly white (from dense white hair) beneath. The leaves are long petiolate and mostly basal. The flowers are small, white and inconspicuous. The fruit is a sticky achene. Flowers June-September.

HABITAT: A mid elevation species most common and abundant in moist and moderate environments within and above the ABGR series. Occurs sporadically in the more moist PSME sites.

REMARKS: "Pathfinder" comes from the characteristic of this plant to show its highly visible underside when disturbed; often with the leaf tip pointing the way of the path of disturbance.

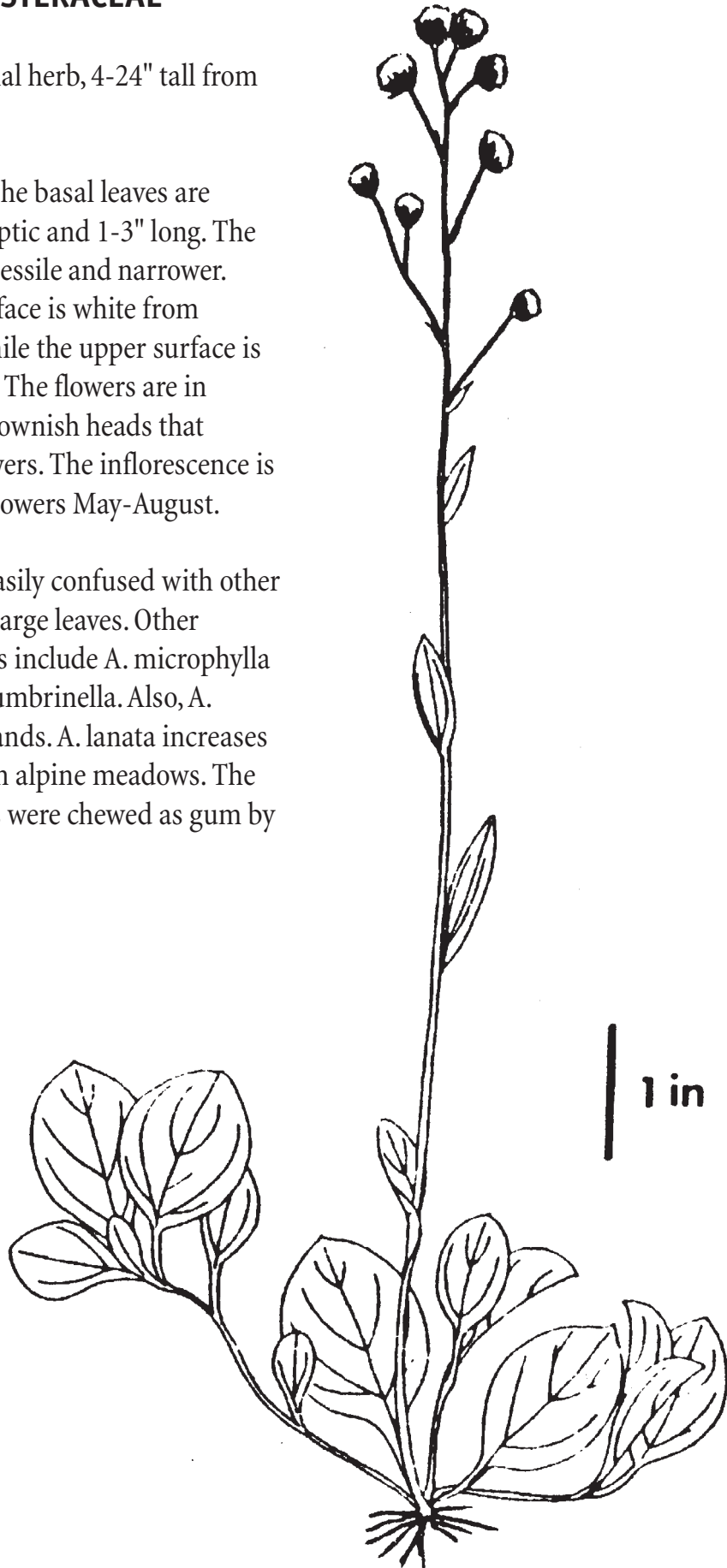


ANRA *Antennaria racemosa*
raceme pussytoes
COMPOSITAE, ASTERACEAE

HABIT: A perennial herb, 4-24" tall from leafy stolons.

DESCRIPTION: The basal leaves are short petiolate, elliptic and 1-3" long. The cauline leaves are sessile and narrower. The under leaf surface is white from cotton-like hair while the upper surface is smooth and green. The flowers are in greenish to pale brownish heads that contain no ray flowers. The inflorescence is an open raceme. Flowers May-August.

REMARKS: Not easily confused with other species due to the large leaves. Other common pussytoes include *A. microphylla*, *A. neglecta* and *A. umbrinella*. Also, *A. flagellaris* in scablands. *A. lanata* increases with disturbance in alpine meadows. The stalks of pussytoes were chewed as gum by the Indians.



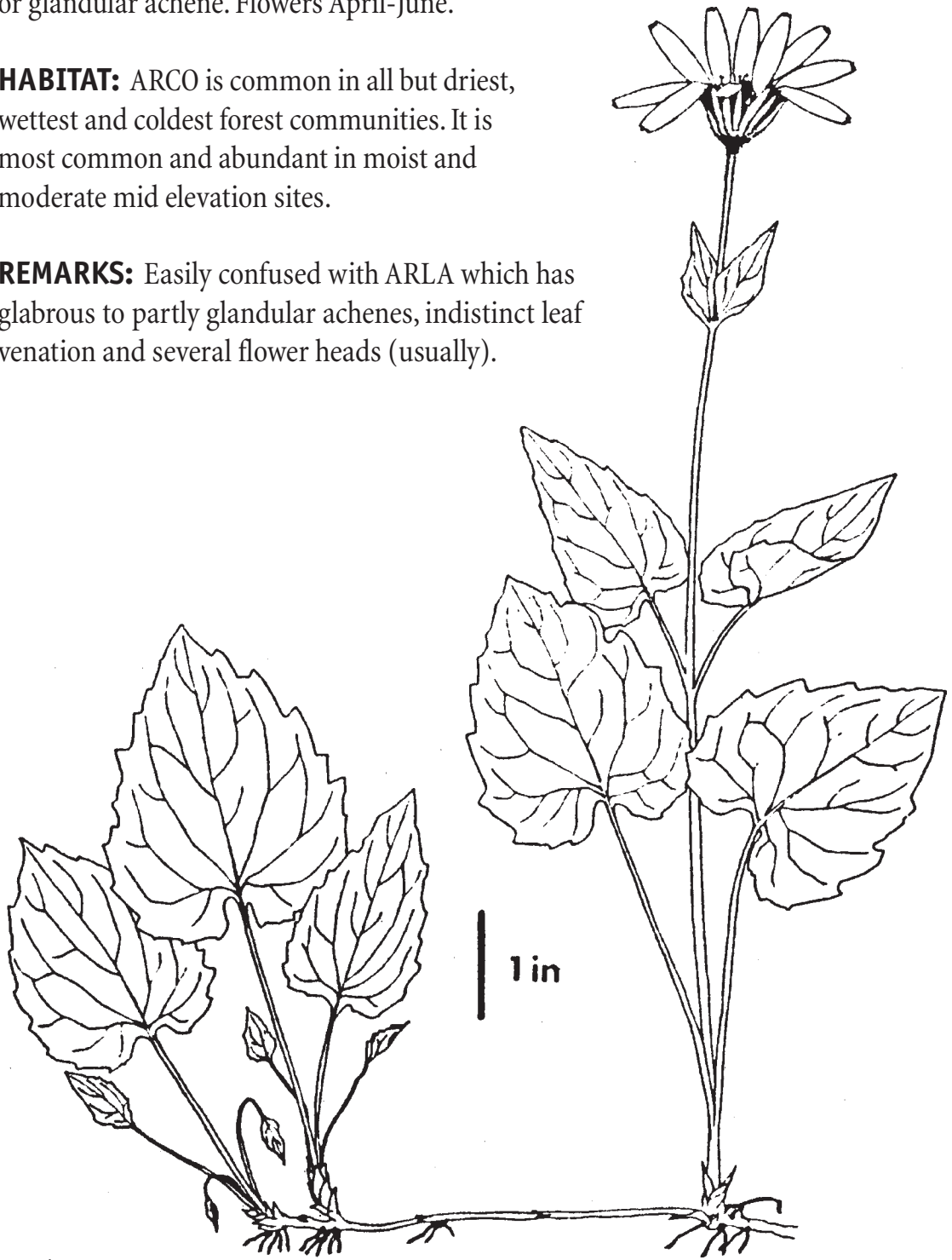
ARCO *Arnica cordifolia*
heartleaf arnica
COMPOSITAE, ASTERACEAE

HABIT: A perennial herb from long, nearly naked rhizomes; 4-24" tall.

DESCRIPTION: Leaves are opposite, heart-shaped (hence cordifolia), fuzzy, usually toothed and 2-5" long. The upper leaves and petioles are much reduced. The leaf *veins* are *prominent*. The yellow flower heads are usually *solitary*, with densely hairy floral tracts. The fruit is a *uniformly* short-hairy or glandular achene. Flowers April-June.

HABITAT: ARCO is common in all but driest, wettest and coldest forest communities. It is most common and abundant in moist and moderate mid elevation sites.

REMARKS: Easily confused with ARLA which has glabrous to partly glandular achenes, indistinct leaf venation and several flower heads (usually).

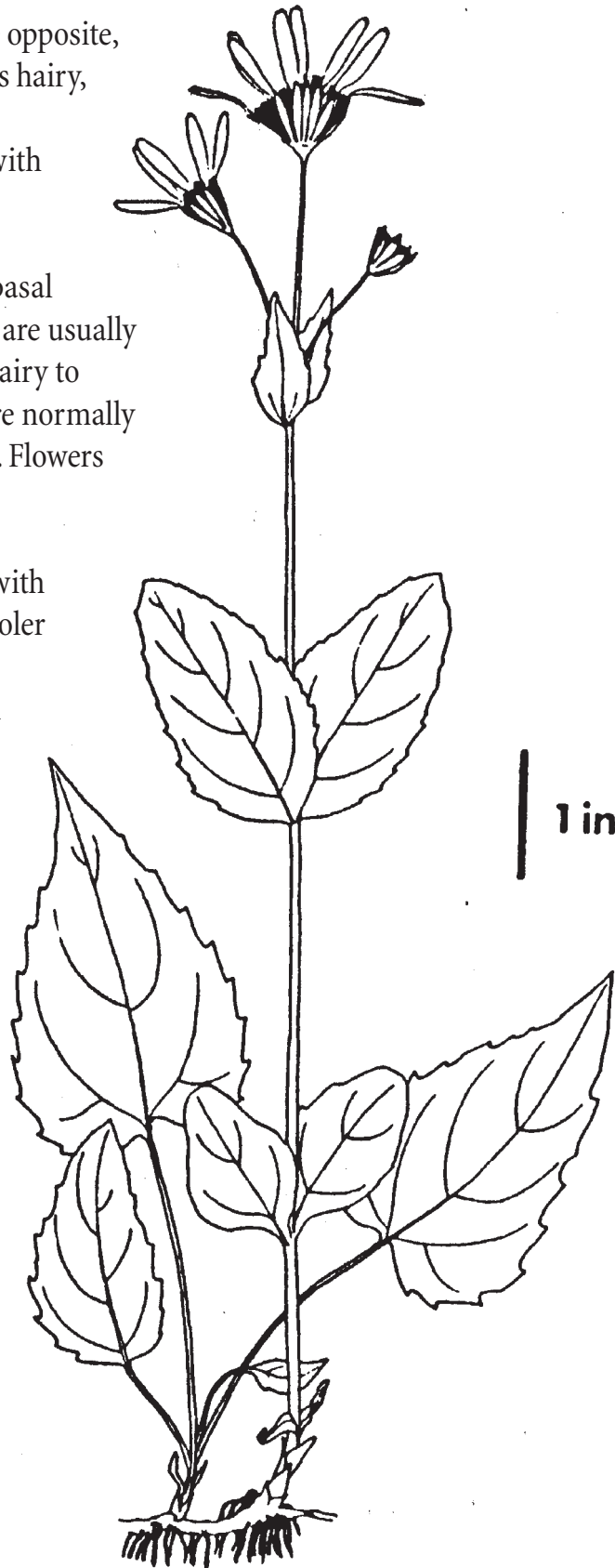


ARLA *Arnica latifolia*
broadleaf arnica
COMPOSITAE, ASTERACEAE

HABIT: A perennial herb 4-24" tall from a fibrous rhizome.

DESCRIPTION: The leaves are opposite, normally *glabrous* to sometimes hairy, toothed, broadly lance-shaped (rarely cordate) and 1-6" long with inconspicuous venation. The middle stem leaves have no petioles but are as *large* as the basal leaves. The yellow flower heads are usually *several* per stem, with slightly hairy to glabrous bracts. The achenes are normally *glabrous* to slightly hairy above. Flowers June-July.

REMARKS: May be confused with ARCO but usually occurs on cooler sites and ARLA has thin more smooth and narrow leaves with multiple flower heads. Indians used Arnica flowers for various medicinal purposes, one of which involved steeping the flower heads in water and applying the liquid to cuts and wounds.



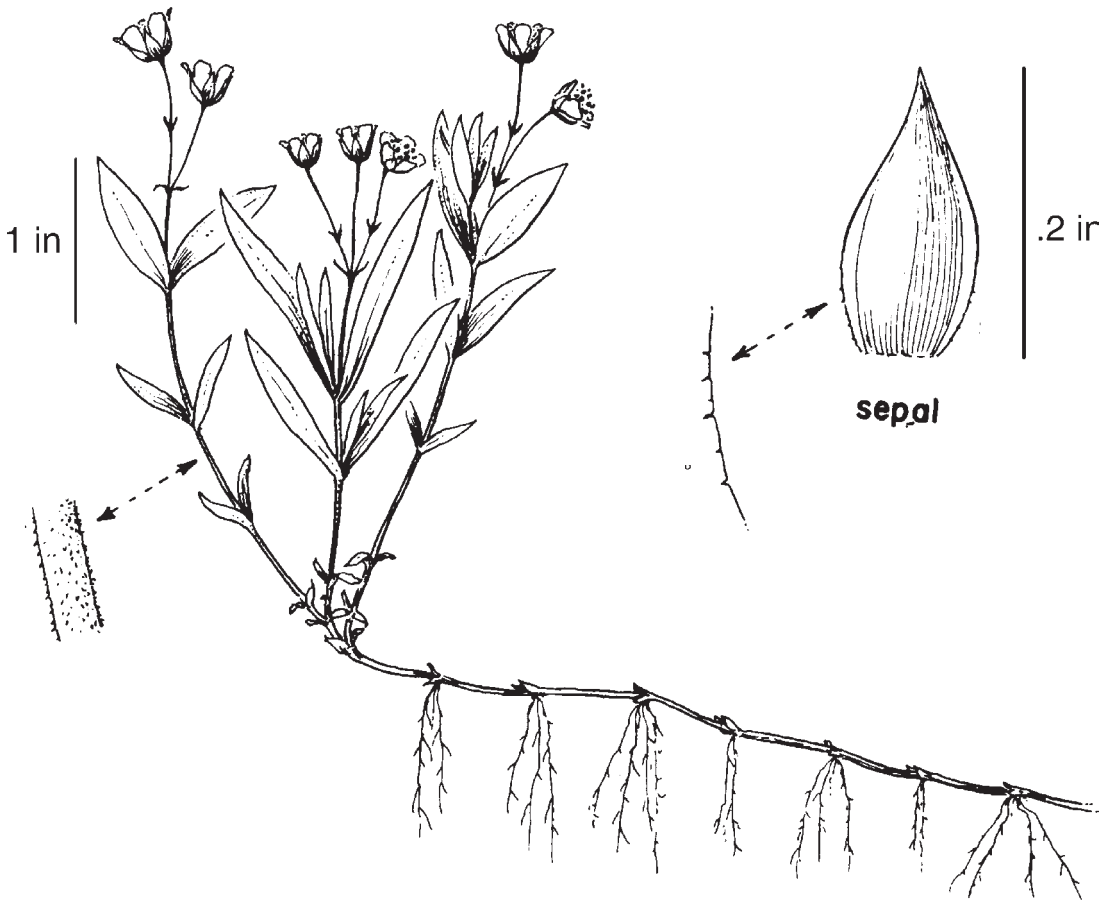
ARMA3 *Arenaria macrophylla*
bigleaf sandwort
CARYOPHYLLACEAE

HABIT: A prostrate, deciduous, perennial herb with slender rhizomes. It often forms loosely matted patches.

DESCRIPTION: The simple, lanceolate leaves are 1-2" long and opposite with swollen nodes. The stems are terete to 4-angled, scabrid-puberulent, decumbent to erect and branched. The 2-5 flowers are white borne on long slender peduncles in terminal or lateral cymes. The sepals are pointed with scabrid-ciliate margins. The fruit is a globose-ovate capsule. Flowers May-August.

HABITAT: Most commonly on sites towards the dry end of the ABGR series.

REMARKS: May be confused with *Silene menziesii* (SIME) which has a calyx with the sepals joined into a tube and *Stellaria jamesiana* (STJA) which has two-lobed petals, a glandular inflorescence and always has 4-angled stems.



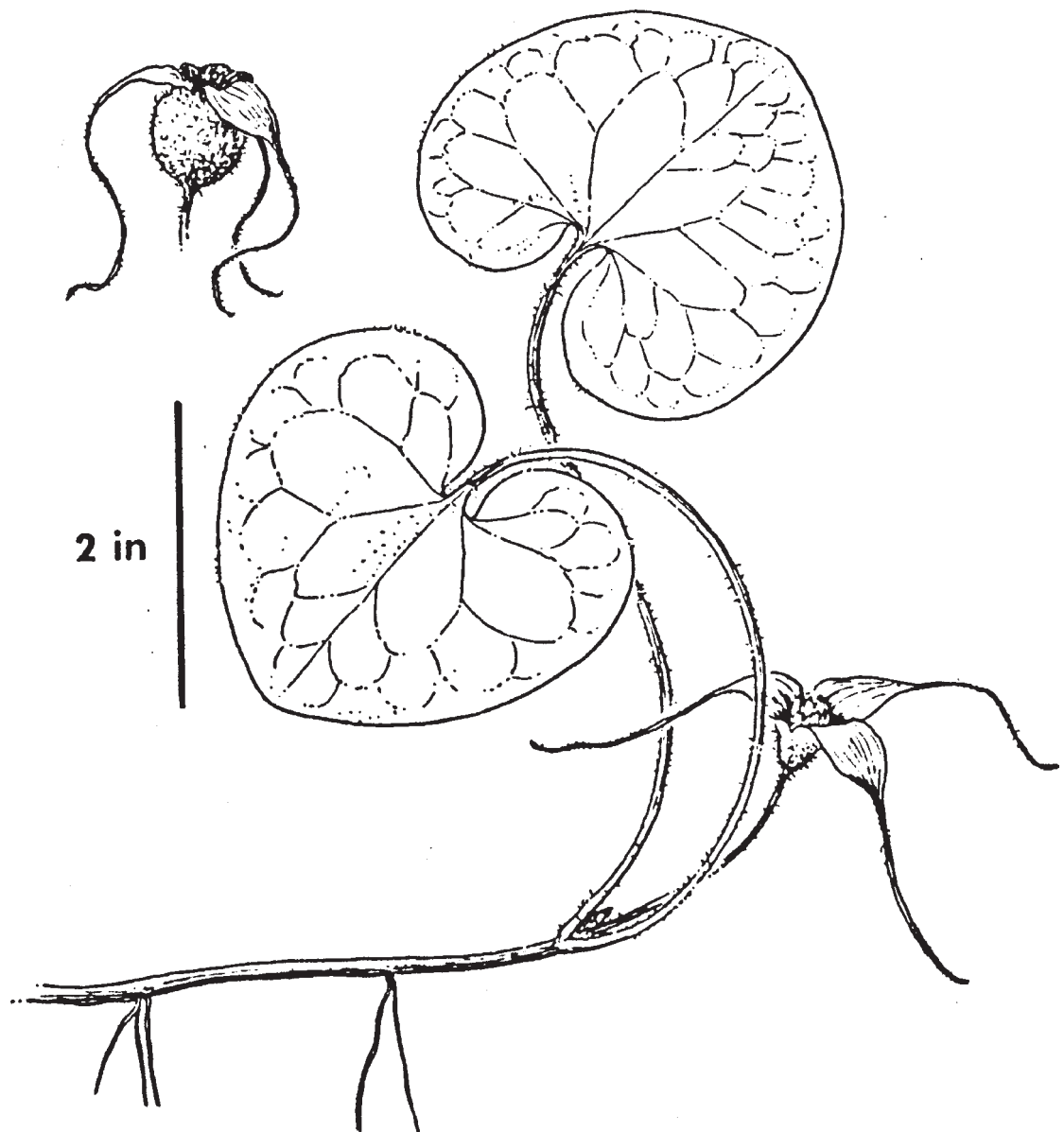
ASCA3 *Asarum caudatum*
wild ginger
ARISTOLOCHIACEAE

HABIT: A low, mat-forming, evergreen, perennial herb from extensive rootstocks.

DESCRIPTION: The “heart-shaped” (actually cordate-reniform), long petiolate leaves occur in twos from each node and are 2-4" in diameter. The unusual flowers are brownish-purple with three long sepals from a bell-shaped base and occur singly at or near the ground. Flowers April-July.

HABITAT: A mid elevation species of moist to wet environments. Commonly associated with CLUN, TIUN and GYDR.

REMARKS: The crushed foliage has a “ginger” scent. The root stalk is edible fresh or can be dried and then ground as a ginger substitute.



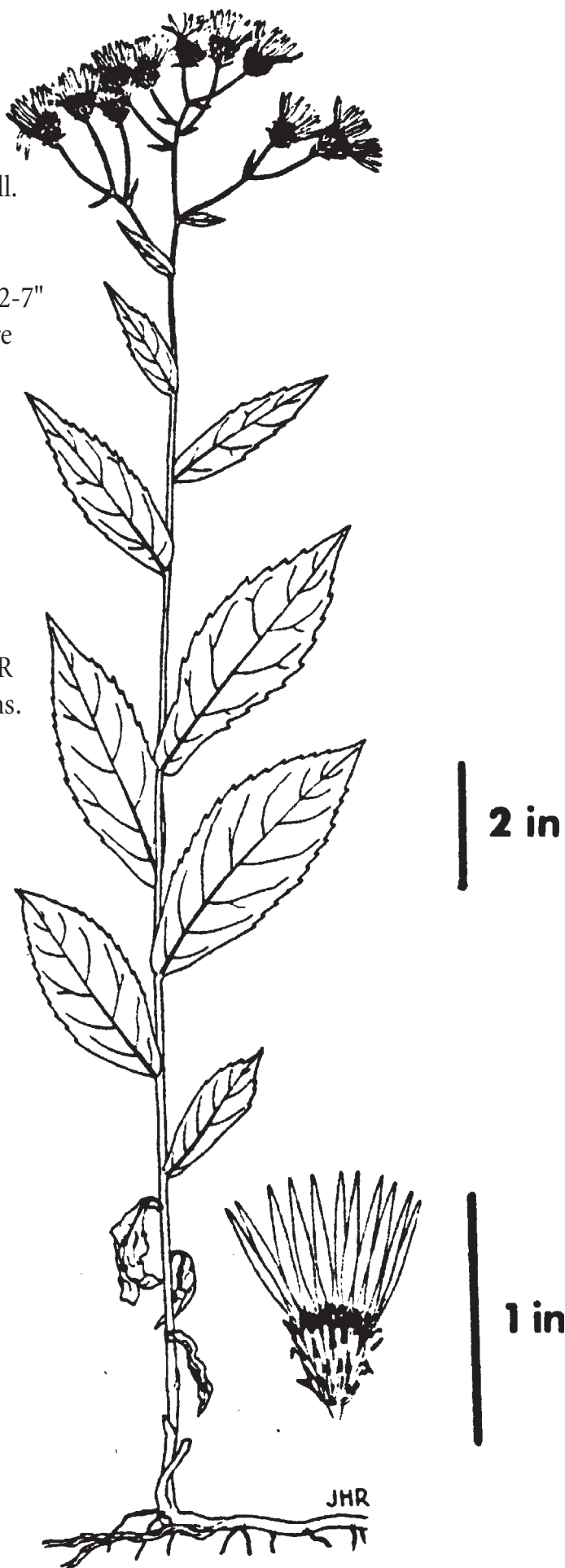
ASCO *Aster conspicuus*
showy aster
Compositae, Asteraceae

HABIT: A stout, perennial from creeping rhizomes; 1-3' tall.

DESCRIPTION: Leaves are deciduous, alternate and large (2-7" long). Those on the mid stem are the largest and are sharply *toothed*. Flower heads are few in an open inflorescence with blue-violet rays and a densely glandular involucre. Flowers July-September.

HABITAT: Most common on sites within the PSME and ABGR series at low to middle elevations.

REMARKS: ASCO is the *largest* and most common aster in our area. May be confused with *A. foliaceus* (which has smaller leaves). A liquid obtained from soaking the root in water was used by Indians for washing sores and other skin problems. Toothache was treated by direct application of the root.



ATFI *Athyrium filix-femina*
ladyfern
Polypodiaceae

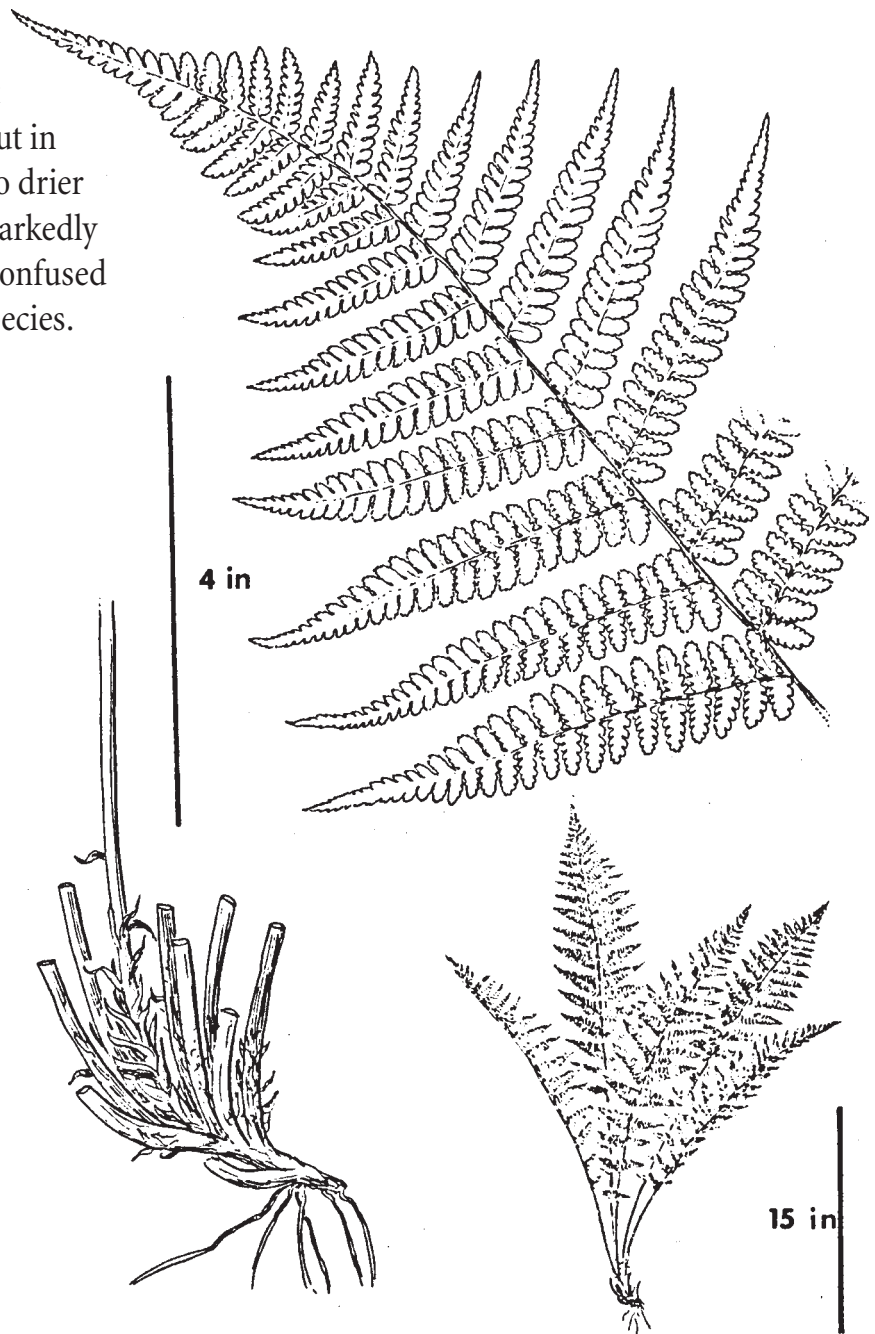
HABIT: A large (up to about 3' tall), tufted perennial fern from a scaly rhizome.

DESCRIPTION: The leaves (fronds) are clustered in a *vase-like* tuft and are 1-7' long. The leaf petioles are shorter than the blades and have many *blackish scales* at the base. The fronds are *tapered* at *both* ends. The kidney shaped sori are borne beneath the leaves near the margins.

HABITAT: Wet to sometimes moist sites; commonly in or near running water. ATFI is a distinctive indicator of wet or riparian conditions.

REMARKS:

A large and robust fern on wet sites but in sites transitional to drier types the size is markedly reduced. May be confused with *Dryopteris* species.



BASA *Balsamorhiza sagittata*
arrowleaf balsamroot
Compositae, Asteraceae

HABIT: A robust, perennial herb with a deep-seated, woody taproot; 8-30" tall.

DESCRIPTION: The *arrow-head* shaped leaves are *very* large (up to 12" long) with a long petiole and arise from a basal clump. They are milky-green in color and covered with whitish, felt-like hair. The *yellow* flower heads are showy, sunflower-like and 2-3" in diameter. Flowers April-July.

HABITAT: BASA characterizes relatively warm and dry sites on southerly aspects typically on rocky and coarse-textured soils. BASA is found most commonly at or near the lower forest margin and indicates severe tree regeneration problems because of drought and excessive heat.

REMARKS: It is not easily confused with any other herb in our area although it grades into *B. carryana* toward the south end of the Forest. The Indians used young shoots, roots and seeds for food. Commonly associated with the bunch form of AGSP or AGIN.



CEDI *Centaurea diffusa*
diffuse knapweed
Compositae, Asteraceae

HABIT: A biennial or short-lived perennial; 4-24" tall.

DESCRIPTION: It has milky-green, rough, hairy and *pinnatifid* leaves. The numerous, small white or purple flower heads have *spine-tipped* and laterally *spinose* floral bracts .

HABITAT: Found at low elevations near the forest margin in open disturbed conditions or in open areas to upper elevations. It is especially abundant on abandoned croplands and areas subjected to excessive grazing. Dense stands indicate areas of past severe disturbance. CEDI increases dramatically with disturbance and is difficult to eradicate once established.

REMARKS: An introduced noxious weed considered an invader. It is unpalatable and can cause mechanical injury to livestock. May limit growth or germination of other plants by chemicals leached from it (allelopathic).



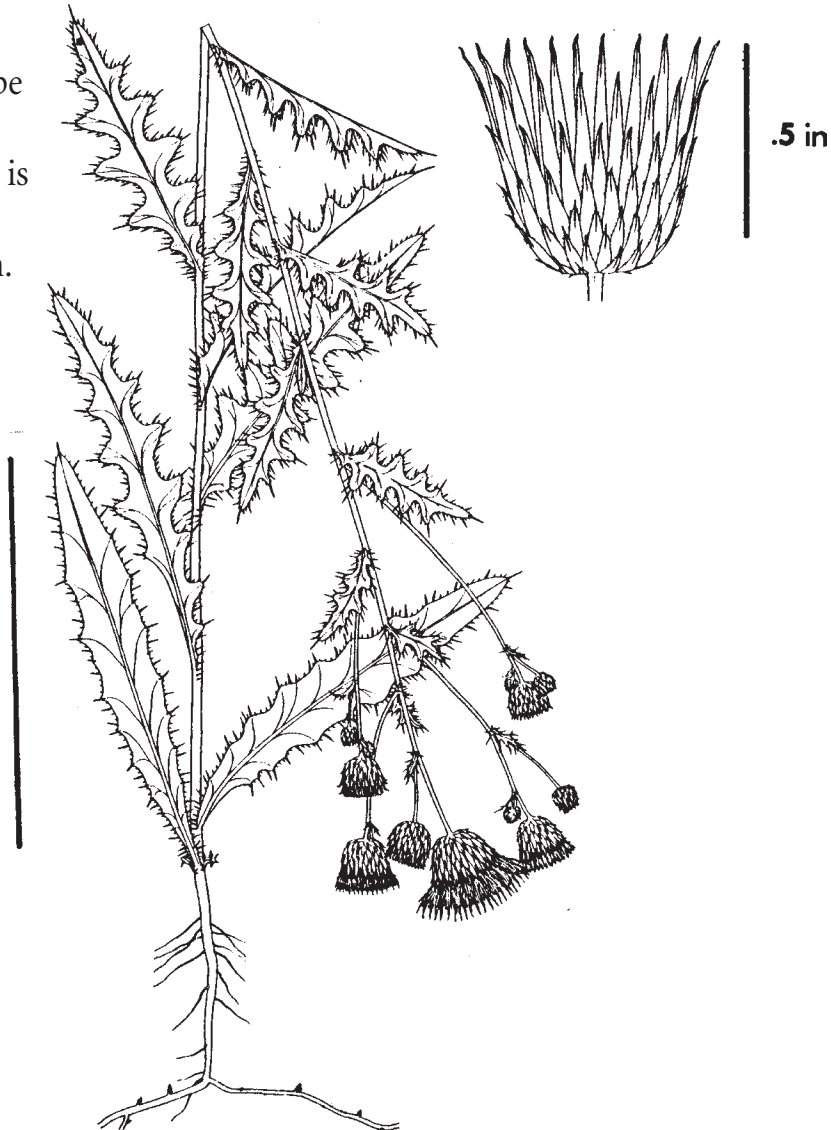
CIAR *Cirsium arvense*
Canada thistle
COMPOSITAE, ASTERACEAE

HABIT: A noxious, perennial herb, 1-5' tall; branched above and forming dense colonies from deep-seated creeping roots.

DESCRIPTION: The leaves are alternate, 1 1/2-8" long, and divided into deep, irregular, very spiny lobes with the upper leaves reduced. They are stem-less, *shiny green* above and *white woolly* beneath. The flower heads are numerous at the ends of the branches, unisexual and relatively small (compared to other *Cirsiums*). The flowers are generally lilac colored. The seeds support white feathery pappus. Flowers July-August.

HABITAT: Low to middle elevation, un-shaded disturbed areas. It spreads aggressively by seed and by roots. Clearcuts often provide excellent habitat for this weed.

REMARKS: A native of southeastern Europe and Asia; not Canada. The variety *horridum* is applied to the more common prickly form. Sterile colonies of CIAR are not uncommon. The roots are edible raw, boiled or roasted and the peeled stems can also be cooked as greens (Kirk, 1970).



CIVU *Cirsium vulgare*
bull thistle
COMPOSITAE, ASTERACEAE

HABIT: A very spiny, noxious biennial weed, 1 to several feet tall.

DESCRIPTION: Young rosette leaves are often small, *un-lobed* and *wool* while mature basal leaves are *deeply lobed*, *shined* and up to 1' long. The leaves are very coarse *hairy* on the upper surface. The flower heads are up to 2" *across* and the bracts mostly armed with stout spines. The flowers are purple and up to 1" long. The seeds have long feathery white hairs (pappus) on the top; providing an excellent means for wind dispersal. Flowers July-September.

HABITAT: Waste and disturbed places from low to middle elevations. Often common to abundant along roads and in recent clearcuts. It is not considered a threat to tree regeneration. It normally dies out in a few years unless the site has frequent disturbance.

REMARKS: A native of Eurasia, this thistle is well established in N. America. The roots are edible raw, boiled or roasted and the peeled stems can also be cooked as greens (Kirk, 1970).



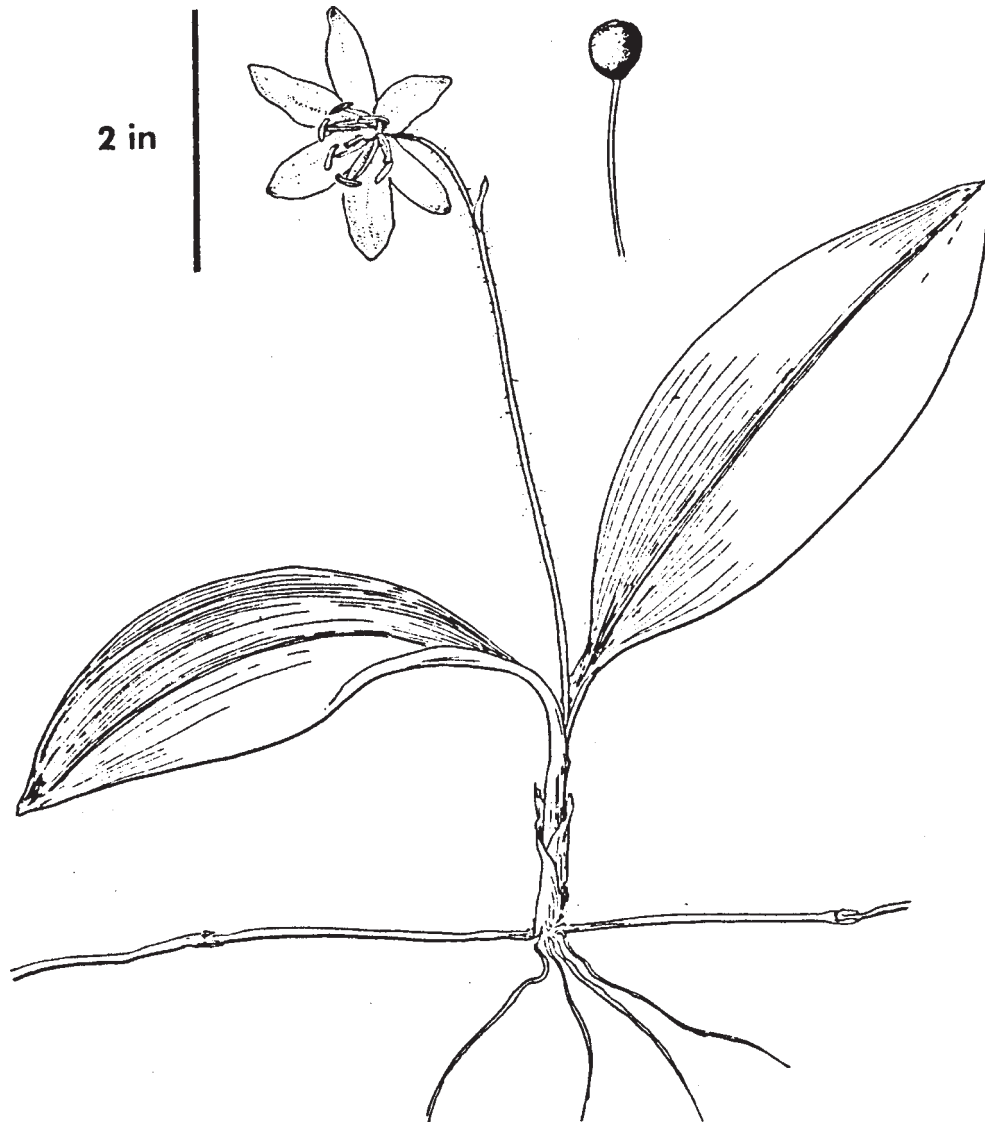
CLUN *Clintonia uniflora*
queencup beadlily
LILIACEAE

HABIT: A widely rhizomatous perennial herb with flower stalk to 10" tall.

DESCRIPTION: The 2-3 leaves are all basal, 3-6" long and slightly fleshy with long *silvery* hairs beneath and on the margins. The flowers are *solitary, white* and about 1 1/2" across. The fruit is a *lustrous, metallic blue berry*. Flowers June-July.

HABITAT: Indicative of moist, moderate forest environments with excellent potential for natural regeneration.

REMARKS: CLUN may be confused with *Habenaria (Platanthera)* spp. (HABEN) or *Erythronium grandiflorum* (ERGR); neither of which is hairy or has large single white flowers. Occurs on sites at least moist enough to support the ABGR series (absent from the PSME series). The berry is edible but not very palatable.



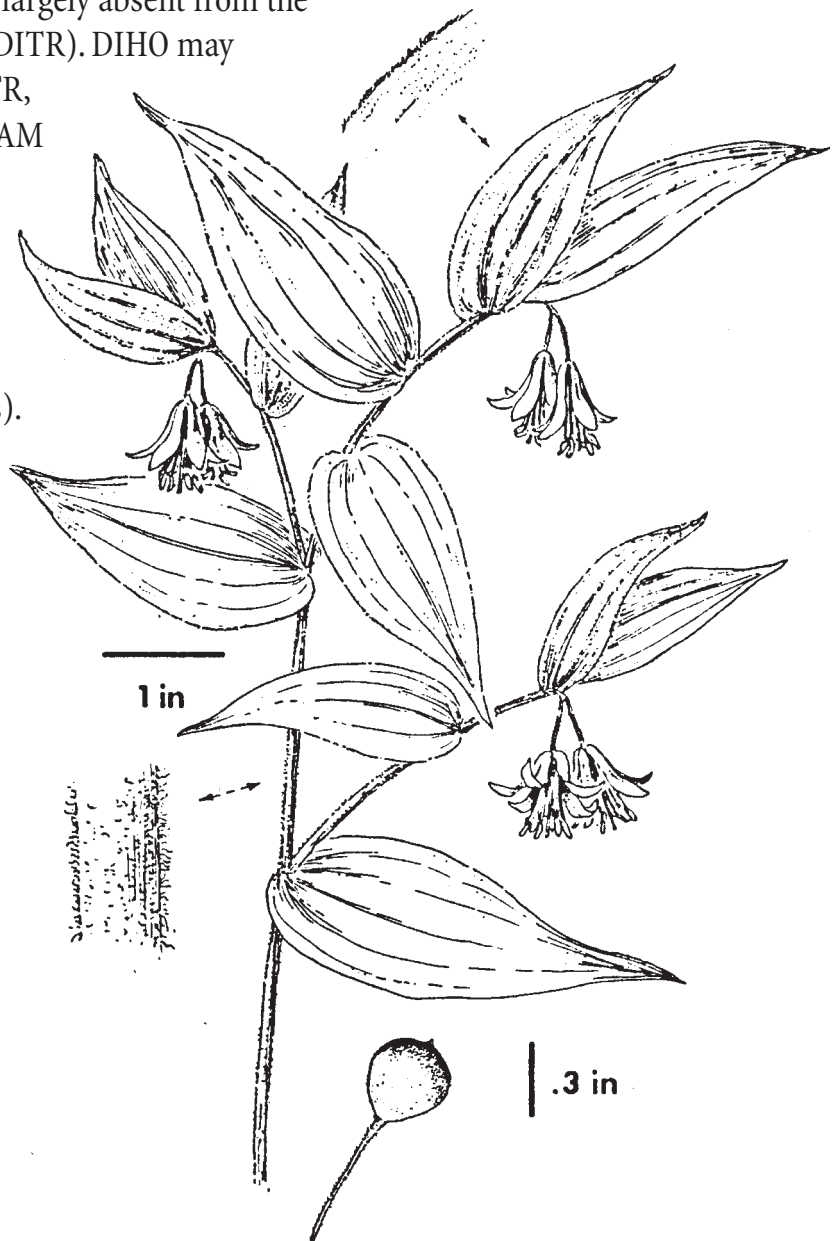
DIHO *Disporum hookeri*
Hooker fairybells
LILIACEAE

HABIT: A rhizomatous, branched, perennial herb up to 3' tall.

DESCRIPTION: The leaves are pointed, 2-6" long, *prominently veined* and the margins have *forward-pointing cilia*. The stems are *brown, hairy* and sparingly *branched*. The creamy white, bell-shaped flowers are at the ends of the branches on straight stalks hanging below (and often concealed by) the leaves. The fruit is a *smooth berry*, pointed on the end and whitish, maturing to red. Flowers April-July.

HABITAT: Moist and moderate environments above the PSME series; commonly associated with CLUN. Occurs in more moist habitats than DITR.

REMARKS: DIHO is largely absent from the PSME series (unlike DITR). DIHO may be confused with DITR, SMST, SMRA, and STAM (see descriptions for each taking special note of stem color, branching, leaf cilia and shape, fruit and flower characteristics).



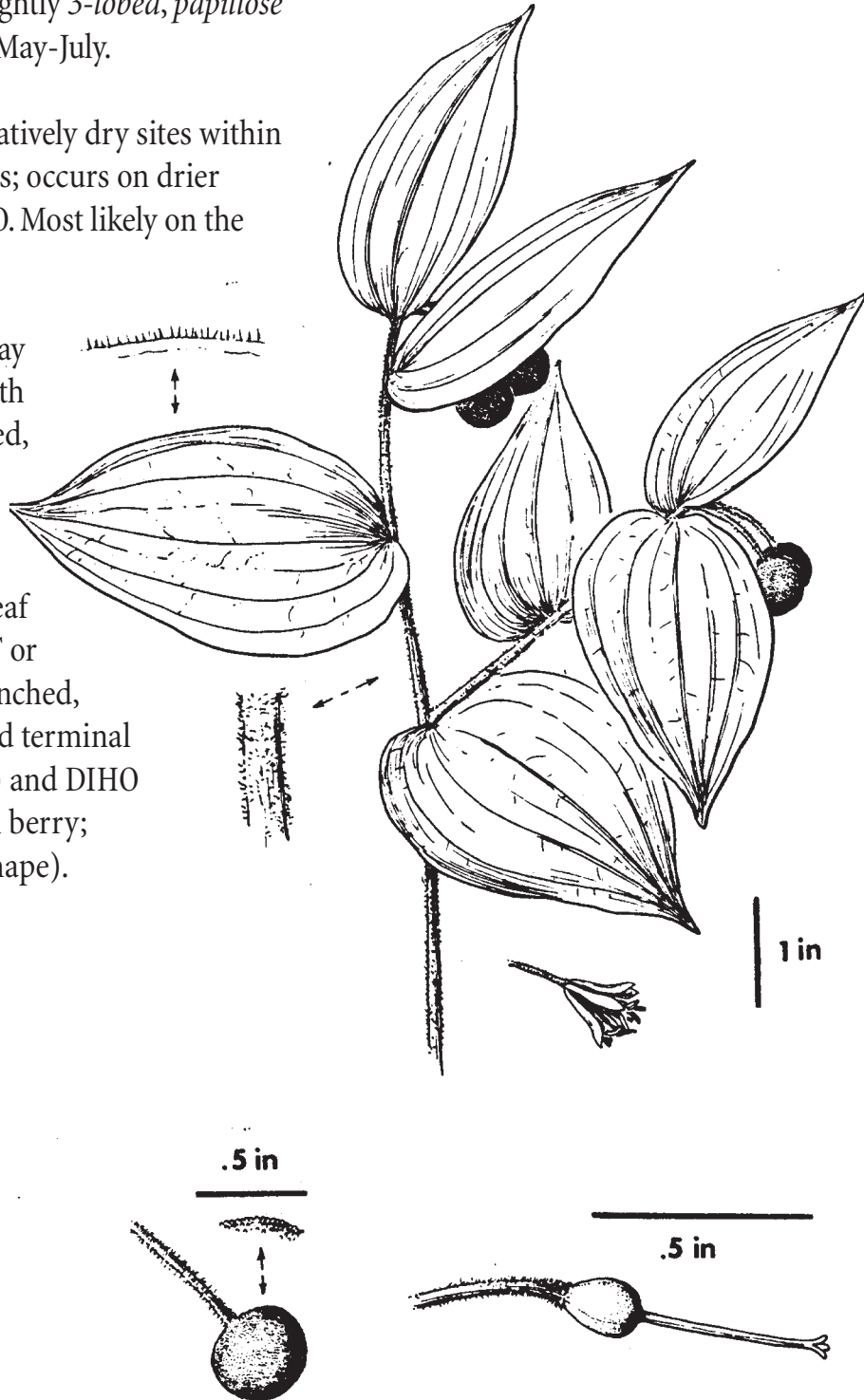
DITR *Disporum trachycarpum*
fairybells
LILIACEAE

HABIT: A rhizomatous, *sparingly branched*, perennial herb, 12-24" tall.

DESCRIPTION: The leaves are oval-elliptic and *prominently veined* with *spreading cilia*. Stems are *branched, brownish to purplish* and crisp-pubescent. The creamy-white flowers are bell-shaped and hang on straight stalks in groups of 1 or 2 below the leaves on hairy pedicels from the branch ends. The green, yellow or red fruit is a slightly *3-lobed, papillose* berry. Flowers May-July.

HABITAT: Relatively dry sites within the PSME series; occurs on drier sites than DIHO. Most likely on the Chelan RD.

REMARKS: May be confused with STAM (branched, green stems, flowers on kinked stalks beneath each leaf axil) and SMST or SMRA (un-branched, green stems and terminal flower clusters) and DIHO (fruit a smooth berry; different leaf shape).



EQAR *Equisetum arvense*
common horsetail
EQUISETACEAE

HABIT: Rhizomatous perennial with jointed stems and terminal cones.

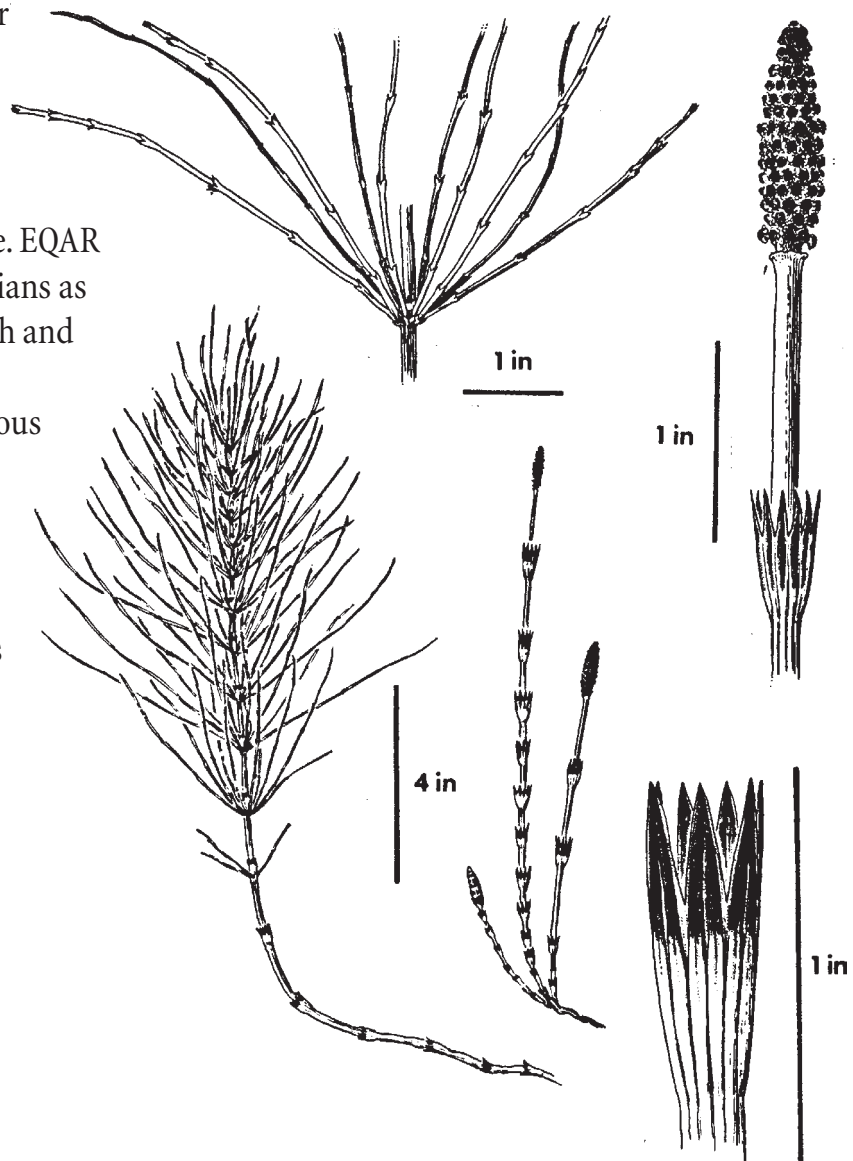
DESCRIPTION: *Leafless* with *unlike* fertile and sterile forms both with *hollow* annual stems. Fertile stems are *jointed*, *ephemeral*, whitish to brownish and unbranched with a long-stalked, *blunt cone* at the top. These stems are up to 12" tall (about 1/4" thick) and *jointed* with *sheaths* at each joint. The annual sterile stems are from 6-24" in height and green with *whorls* of branches below the sheaths at each joint.

HABITAT: Plants of very moist to wet sites, typical of coarse textured substrates even in disturbed areas.

REMARKS:

A common indicator on road shoulders and railroad right-of-ways of excessive moisture.

Difficult to eradicate. EQAR was used by the Indians as sandpaper to smooth and polish tools and implements. Poisonous to livestock but the sweet inner pulp may be eaten by humans once the tough outer tissue is peeled away. Should probably be eaten sparingly.

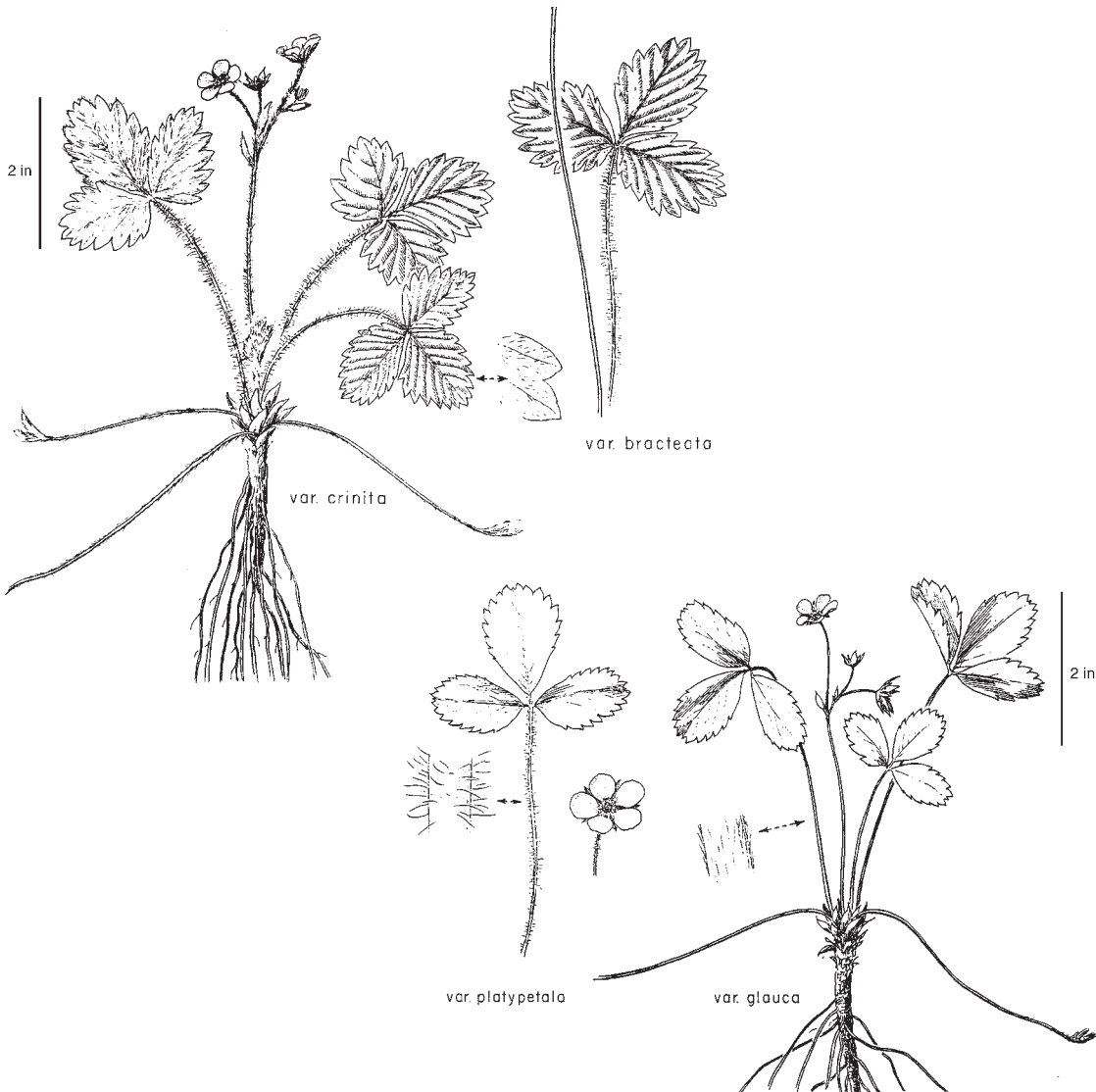


FRAGA *Fragaria* spp.
strawberry species
ROSACEAE

HABIT: Strongly stoloniferous, low perennial herbs.

DESCRIPTION: The leaves are all basal with long petioles and are *trifoliate*. FRVI has *bluish-green*, smooth and *glaucous*, serrated leaflets that end in a very small *terminal tooth*. FRVE leaflets are yellowish-green with obvious surfaces *veins* and a *larger terminal tooth*. The flowers are white or pinkish; the inflorescence is shorter than the leaves in FRVI and longer than the leaves in FRVE. The fruit is a small red “strawberry”. FRVE flowers April-June; FRVI May-August.

REMARKS: We have grouped the two common strawberries as we found little ecological basis to separate them; and their distinguishing characters are highly variable. They increase with grazing and do best in open sunny areas. The berries are excellent and were an important food source for the Indians.



GATR *Galium triflorum*
sweetscented bedstraw
RUBIACEAE

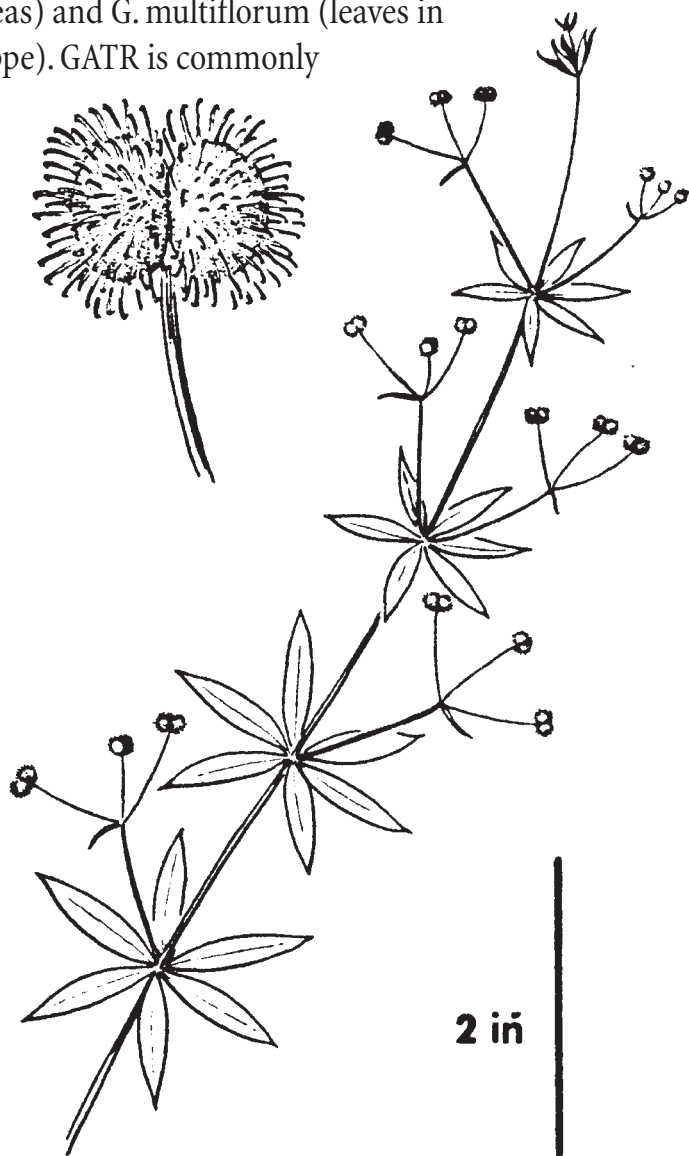
HABIT: A rhizomatous, usually prostrate, perennial herb; 6-30" tall.

DESCRIPTION: The leaves are stalk-less, usually in *whorls of six*, 1/2-2" long and *vanilla scented*. Stems are *four-angled* with stiff, downward-pointing, hooked hairs. The small white flowers are four merous are borne in threes (hence *triflorum*) from pedicels at the leaf axils. The fruits are covered with *hooked hairs*. Flowers June-August.

HABITAT: GATR occupies cool and moist sites above the PSME series. It suggests good to excellent PSME, LAOC and PICO sites with good potential for natural regeneration.

REMARKS: May be confused with 2 other bedstraws including *G. aparine* (a scabrid annual of disturbed areas) and *G. multiflorum* (leaves in whorls of 4; plant in shrub-steppe). GATR is commonly associated with species such as CLUN, THOC and VIOR2. The roasted and ground seeds can be used as a coffee substitute and the roots yield a yellow dye.

.1 in



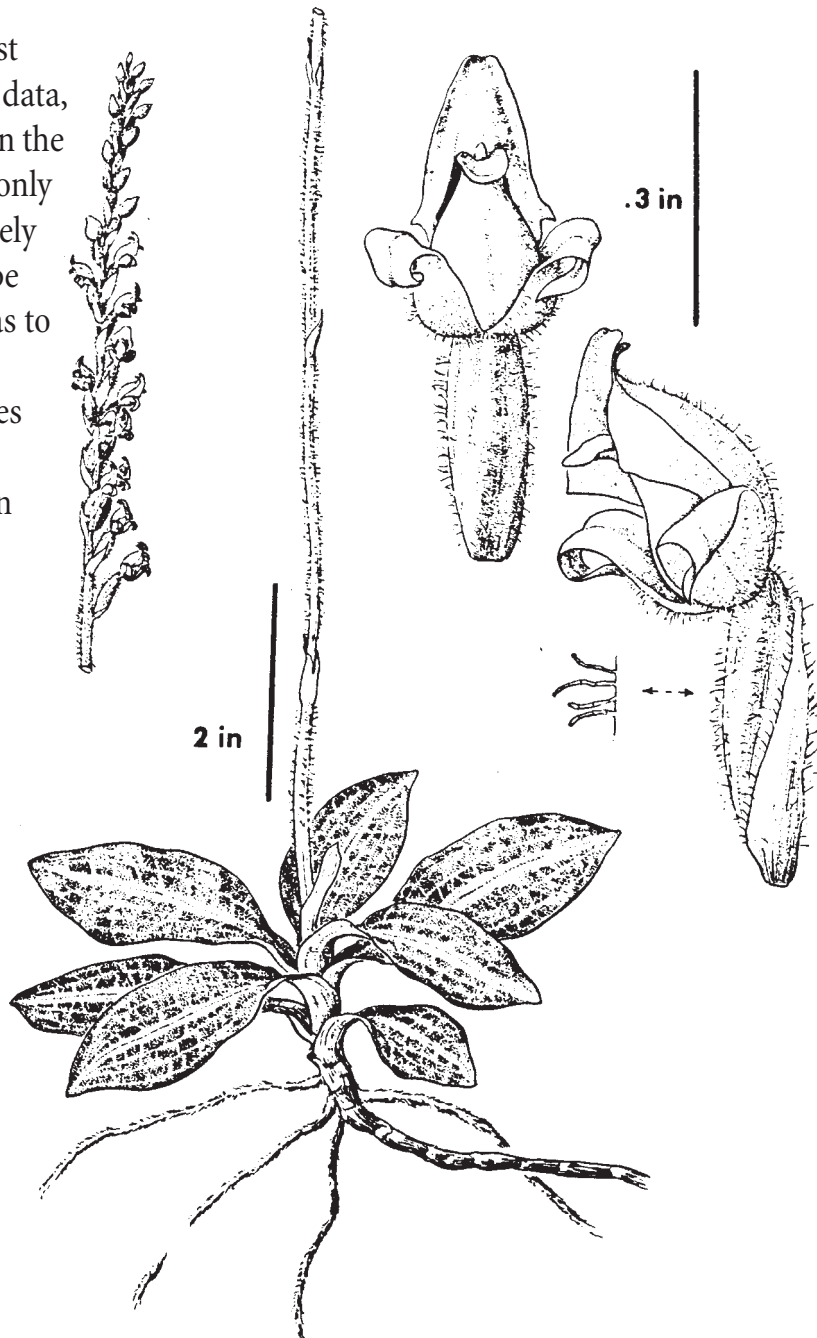
GOOB *Goodyera oblongifolia*
western rattlesnake plantain
ORCHIDACEAE

HABIT: A low perennial, evergreen herb from short rhizomes; the flower-stalks are 10-16" tall.

DESCRIPTION: The 1-3" long leaves are all basal, *thick-ish*, somewhat fleshy, dark green and *mottled* (especially along midrib). The inconspicuous, *greenish-white*, glandular-pubescent flowers are "orchid-like" in an elongated spike. Flowers July-August.

HABITAT: Not found in hot-dry or extremely cold environments. It is widespread.

REMARKS: The most common herb in our data, GOOB tends to root in the duff and may be the only plant present in densely shaded stands. May be confused with *Pyrolas* to the casual observer. Indians split the leaves flat-wise and placed them inner side down on cuts.



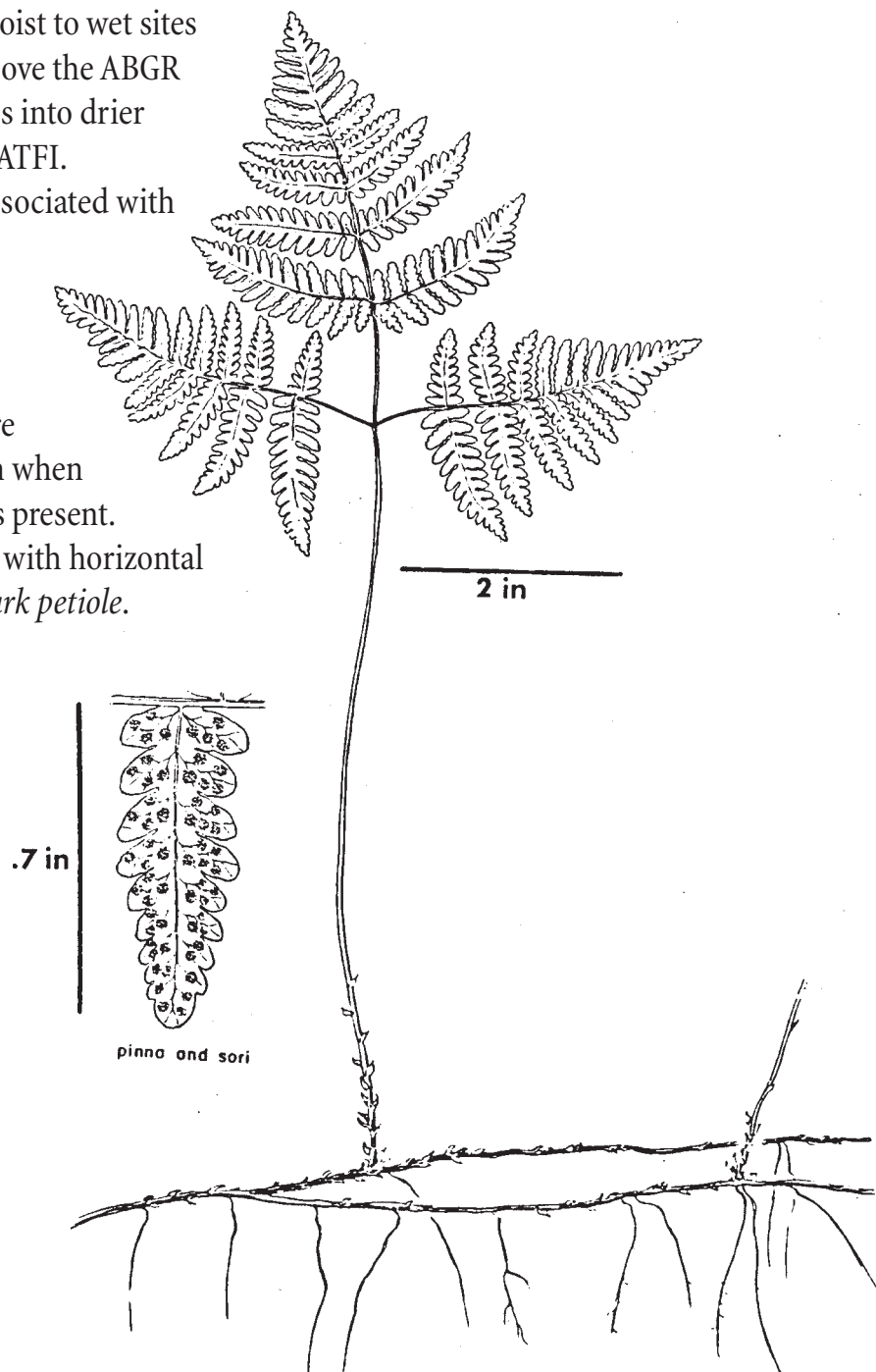
GYDR *Gymnocarpium dryopteris*
oak fern
POLYPODIACEAE

HABIT: A *delicate*, rhizomatous, perennial fern, 4-12" tall.

DESCRIPTION: The fronds give the appearance of *three leaflets* and are horizontal to the ground. The petiole in dark brown to black and as long or longer than the leaf blade. The two lower pinnae (leaflets) are opposite and as long as the rest of the blade. The sori are small and circular on the under leaf surface and there is no indusium.

HABITAT: Moist to wet sites within and above the ABGR series. Extends into drier habitats than ATFI. Commonly associated with CLUN and ASCA3.

REMARKS:
Indicates more moisture than when CLUN alone is present. Our only fern with horizontal fronds and *dark petiole*.



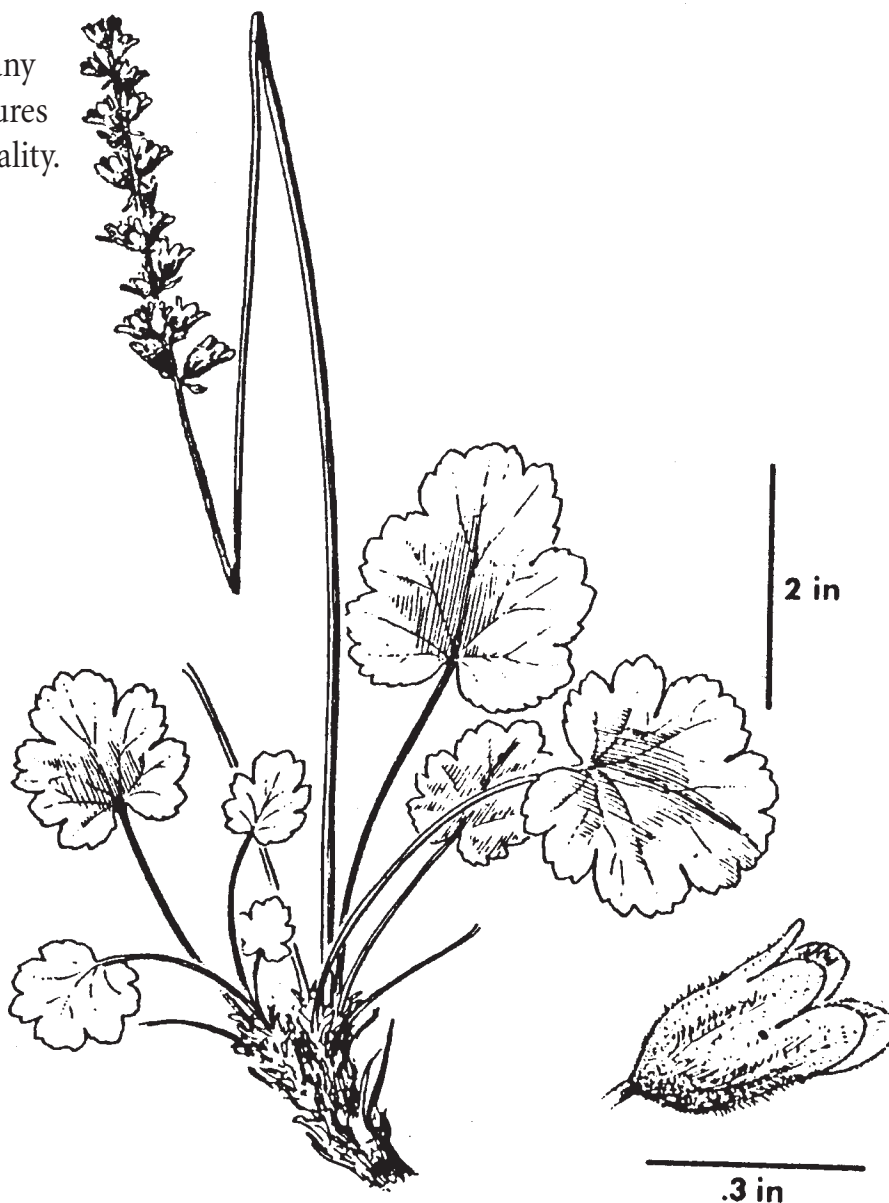
HECY *Heuchera cylindrica*
roundleaf alumroot
SAXIFRAGACEAE

HABIT: A rhizomatous perennial herb with a flower stalk 6-35" tall.

DESCRIPTION: All leaves are basal, oval, *irregularly lobed* and smooth to very glandular hairy. The greenish-yellow to cream flowers are in a *spike-like inflorescence*. Petals are usually *lacking* (the calyx is petal-like). The bell-shaped floral tube is usually *glandular-hairy*. Flowers April-August.

HABITAT: Dry, rocky places at low to mid elevation. Indicates moderate to difficult tree regeneration; mainly because of stony soils.

REMARKS: May be confused with *Mitella* species. The Indians applied the mashed roots directly to cuts and a fresh piece of root was placed in the mouth for sore throat. HECY is variable and many identifying features change with locality.



HIAL *Hieracium albiflorum*
white hawkweed
COMPOSITAE, ASTERACEAE

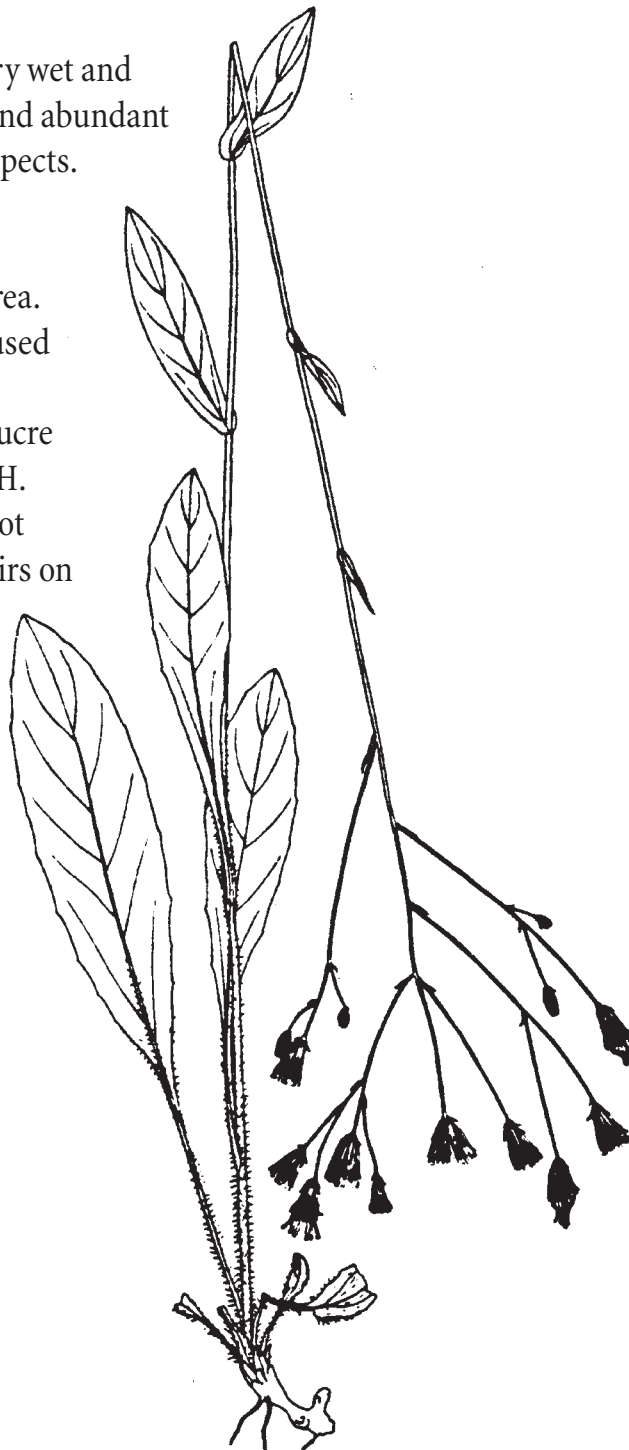
HABIT: A rhizomatous, perennial herb with milky sap; 1-3' tall.

DESCRIPTION: The 2-7" long leaves are sparsely to moderately long hairy, with entire to slightly wavy-toothed margins. They are *largest* at the base and become progressively reduced up the flower stalk. The herbage is loosely, long hairy below becoming glabrous above. It has numerous *white* (hence *albiflorum*) flower heads in an open inflorescence. Flowers June-August.

HABITAT: Common, except on very wet and cold sites. HIAL is most common and abundant on upper elevation sites on drier aspects.

REMARKS: HIAL is the only white-flowered hawkweed in our area. When not in flower it may be confused with yellow-flowered hawkweeds, including *H. cynoglossoides* (involucre glandular and sparsely setose) and *H. scouleri* (involucre glandular but not setose) but HIAL has no stellate hairs on the herbage.

2 in



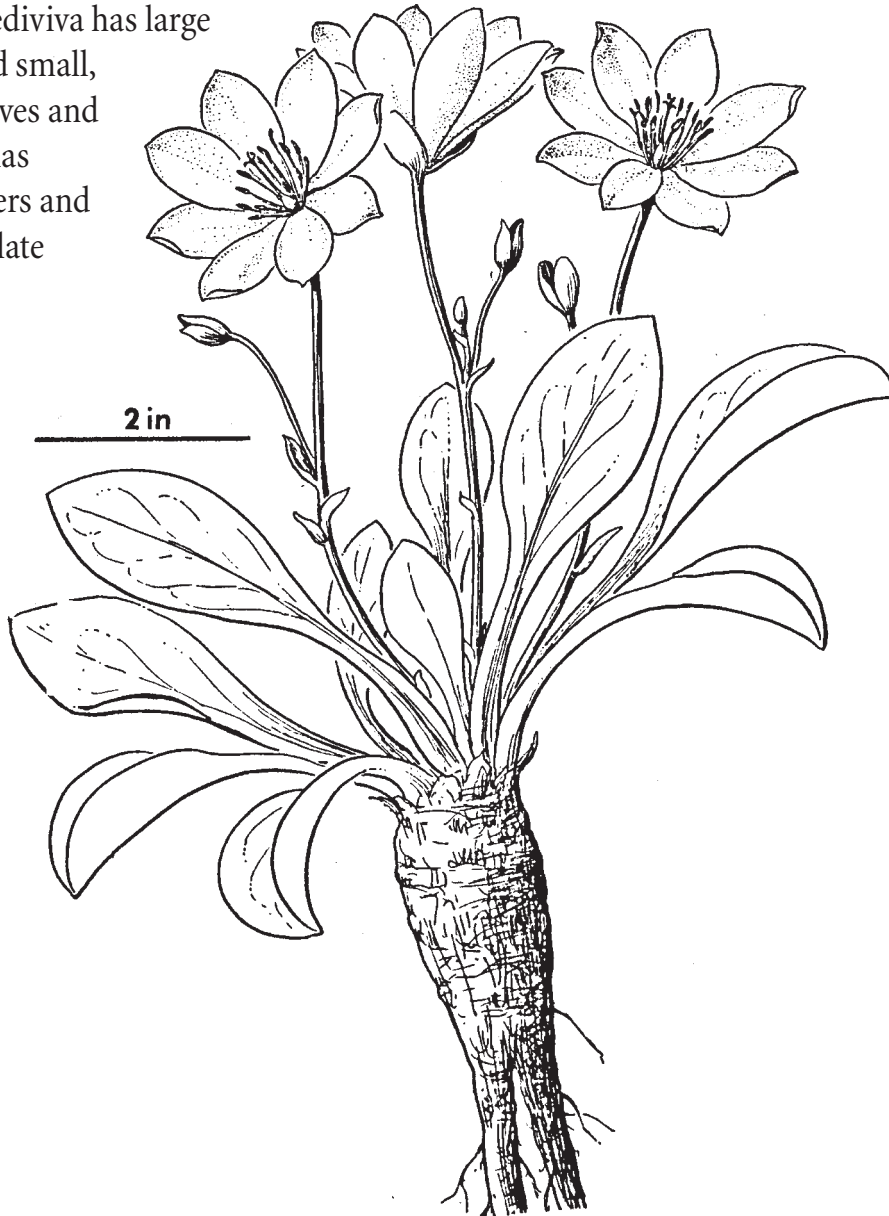
LETW *Lewisia tweedyi*
Tweedy's lewisia
PORTULACACEAE

HABIT: Robust; succulent, perennial herb from a large, thick, reddish, fleshy taproot.

DESCRIPTION: The leaves are 4-8" long, fleshy, up to 2" wide and narrowing to a broad petiole. The flowering stems are erect and up to 8" tall. The large flowers are a beautiful salmon to yellowish-pink color. Flowers May-July.

HABITAT: Well-drained slopes; often on talus or in rock crevices from low elevation PIPO sites into the drier part of the AEGR series.

REMARKS: Perhaps our most showy herbaceous species. LETW has a limited geographic range but is quite common within that area. Two other *Lewisias* occur in our area. *L. rediviva* has large pink flowers and small, round linear leaves and *L. columbiana* has small pink flowers and linear-oblong leaves.



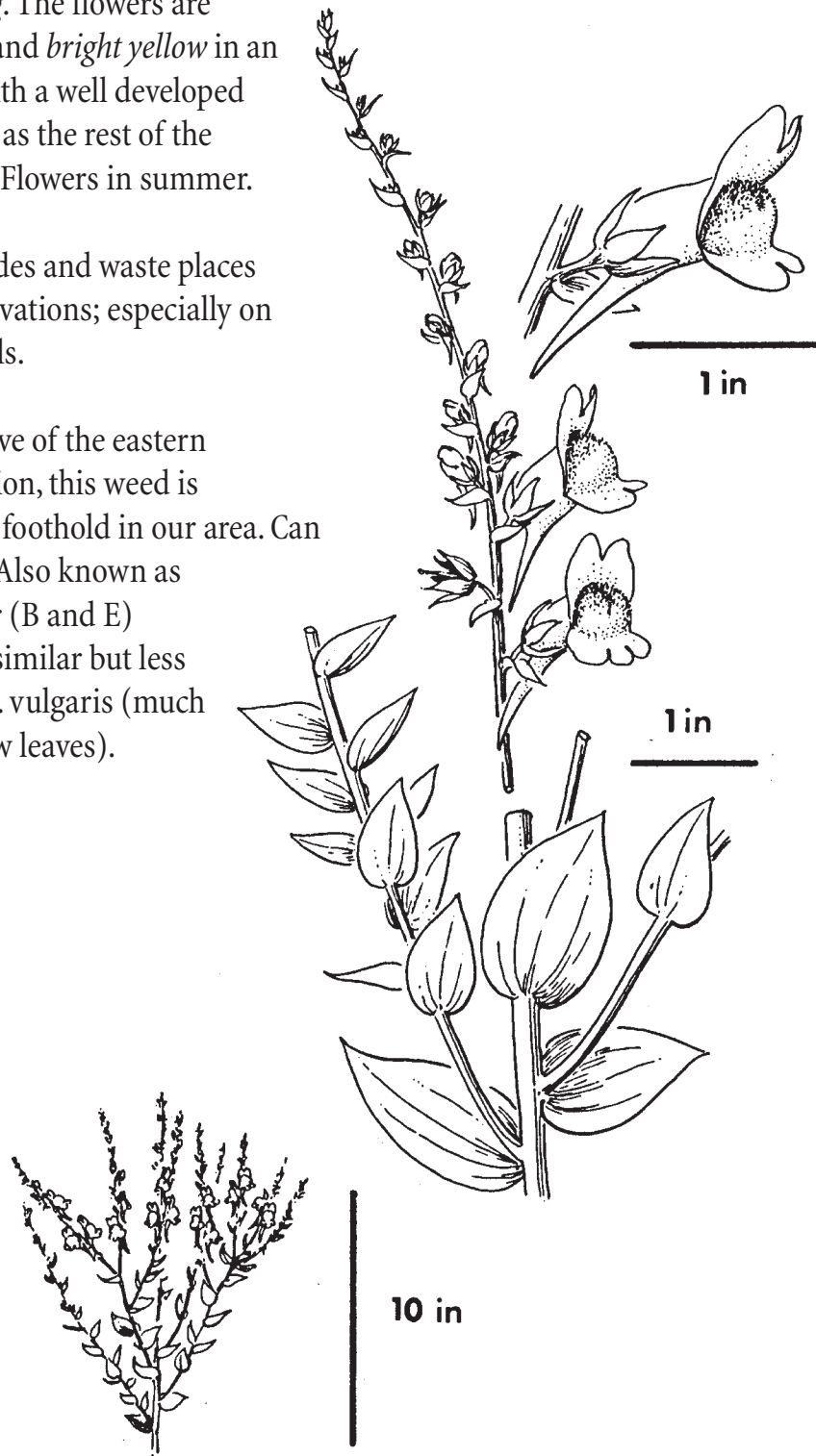
LIDA *Linaria dalmatica*
Dalmation toadflax
SCROPHULARIACEAE

HABIT: A branched, perennial noxious weed from a solitary stem, 1-4' tall; spreading from creeping roots.

DESCRIPTION: The herbage is glaucous and *milky green* in color. The leaves are numerous, ovate or lance-ovate, thick, leathery and entire. They are about 2" long, sessile and *clasping*. The flowers are "*snapdragon-like*" and *bright yellow* in an elongate raceme with a well developed spur that is as long as the rest of the corolla (nearly 1"). Flowers in summer.

HABITAT: Roadsides and waste places usually at lower elevations; especially on coarse textured soils.

REMARKS: A native of the eastern Mediterranean region, this weed is establishing a firm foothold in our area. Can not tolerate shade. Also known as Butter-and-Eggs or (B and E) toadflax. Another similar but less common weed is *L. vulgaris* (much shorter with narrow leaves).



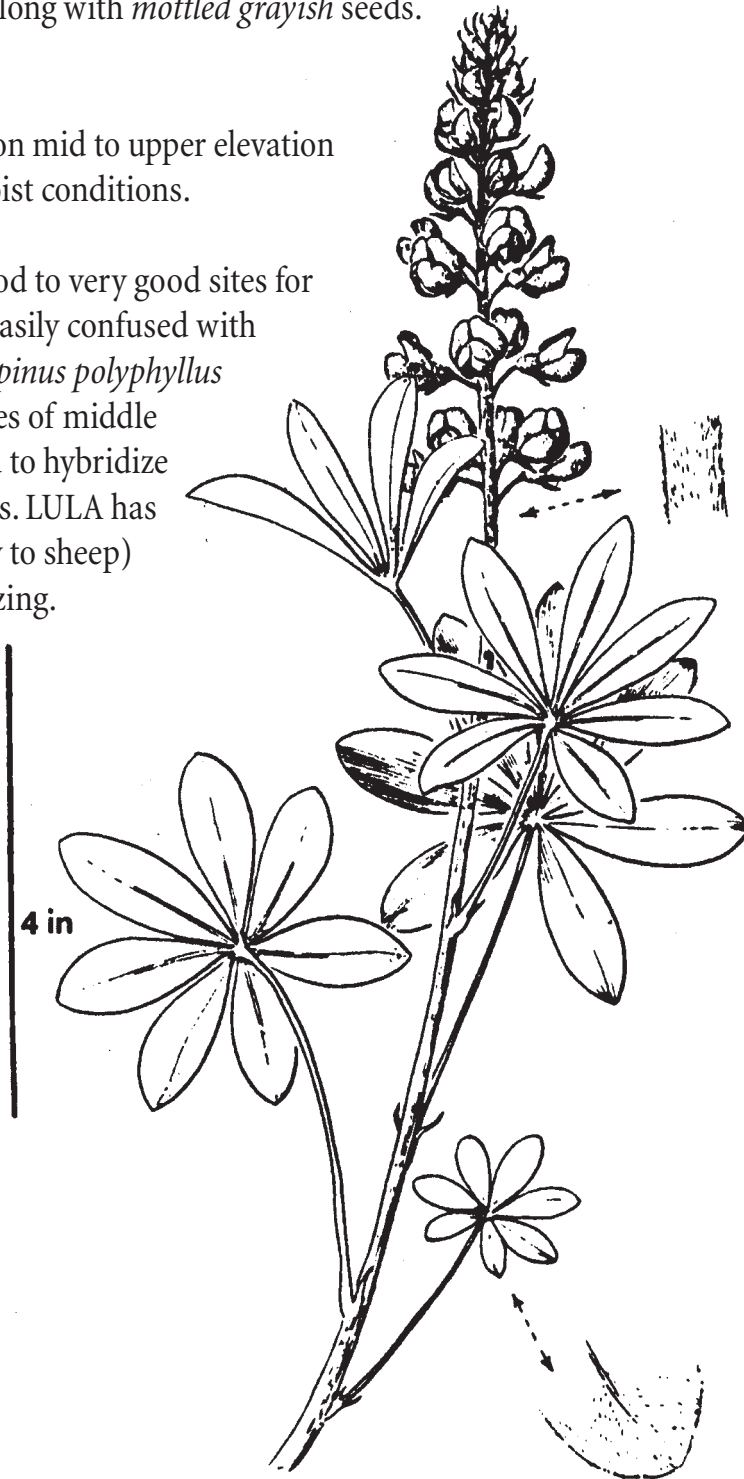
LULA *Lupinus latifolius*
broadleaf lupine
LEGUMINOSAE, FABACEAE

HABIT: A multi-stemmed perennial herb from a branched rootstock; 16-40" tall.

DESCRIPTION: The compound leaves are relatively broad; arising mostly from near the base. They have 7-9 leaflets arranged like *fingers* on a hand. The leaflets are normally hairless, bright green above and hairy beneath. Flowers are blue, "pea-like" and in an elongated cluster. The banner is not *hairy*. The seed pods are about 1" long with *mottled grayish* seeds. Flowers June-August.

HABITAT: Most common on mid to upper elevation sites with cool-cold and moist conditions.

REMARKS: It indicates good to very good sites for natural tree regeneration. Easily confused with other lupines, especially *Lupinus polyphyllus* var. *burkei* (LUPOB). Lupines of middle elevation forested sites tend to hybridize in the Wenatchee Mountains. LULA has poisonous seeds (especially to sheep) and increases with overgrazing.



LUNA2 *Luina nardosmia*

luina

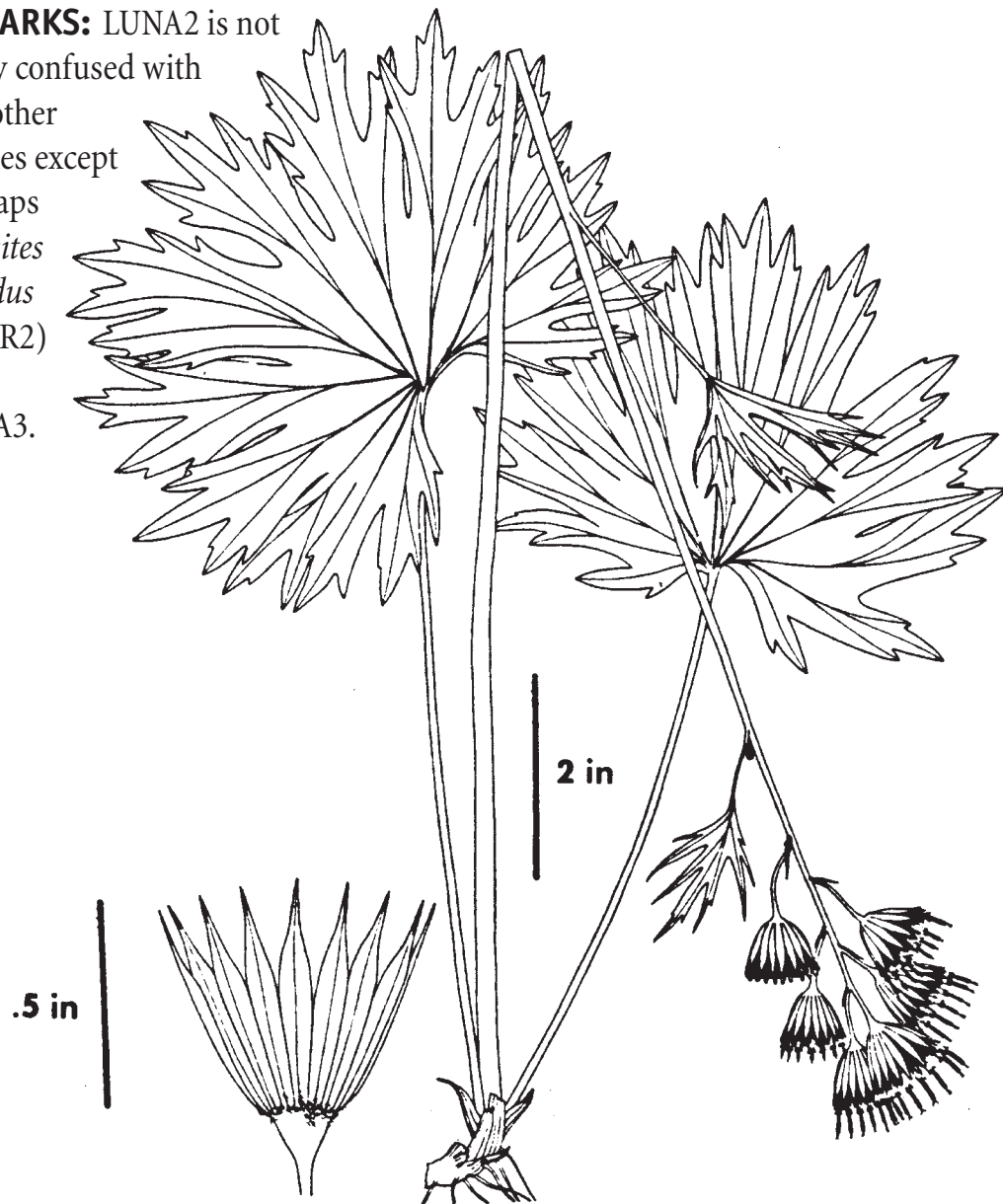
Compositae, Asteraceae

HABIT: A robust (16-40" tall) large-leaved perennial herb from a woody rhizome.

DESCRIPTION: The *long-petioled* leaf blades are deeply cleft and about 8" long and 10" wide. The distinctive basal leaves are always larger than the stem leaves which are fewer and *strongly reduced* up the stem. The flower-heads are *large* (up to 1" wide), yellow and have no *ray flowers*.

HABITAT: LUNA2 is not normally found on granitic soils. It is most common on basalts and sedimentary based substrates. It indicates dry to moderately moist environments; most conspicuously in disturbed areas. It increases with overgrazing and may be abundant on old stock driveways.

REMARKS: LUNA2 is not easily confused with any other species except perhaps *Petasites frigidus* (PEFR2) or TRCA3.



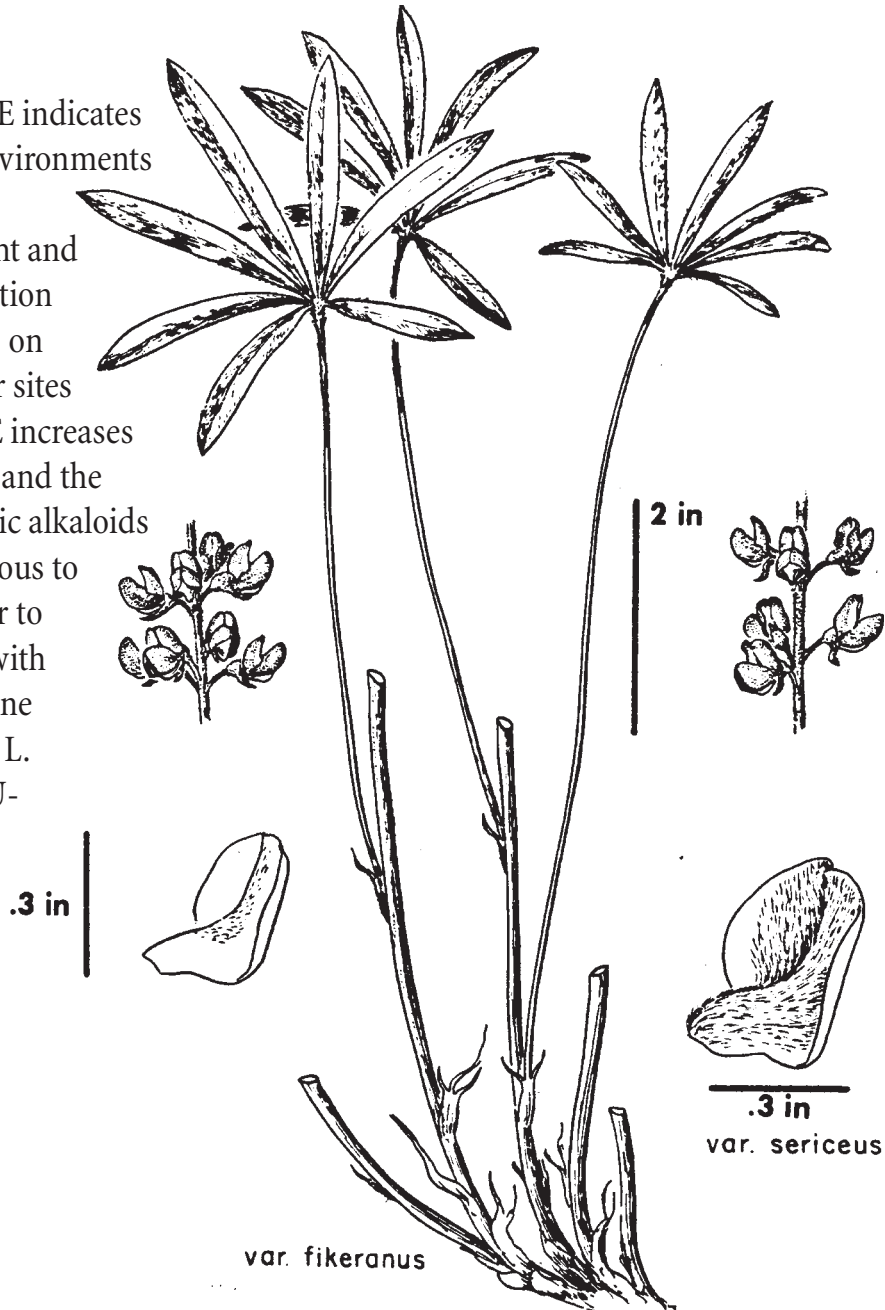
LUSE *Lupinus sericeus*
silky lupine
LEGUMINOSAE, FABACEAE

HABIT: A perennial herb, 8-20" tall from a branching, woody rootstock.

DESCRIPTION: The compound leaves are hairy or *silky* (*sericeus*) on *both* sides with relatively long, *narrow* and pointed leaflets. The hairy leaves give the plant a *blue-green* appearance. Flowers are blue with *some hair* on the back of the banner. The pods are silky, about 1" long and contain 3-5 pinkish *brown seeds*. Flowers May-August.

HABITAT: Normally a low to mid elevation species within or below the PSME series but may occur at high elevations on southerly aspects where PIAL is the climax tree.

REMARKS: LUSE indicates warm and dry environments with moderate to severe soil drought and difficult reforestation problems. Occurs on warmer and drier sites than LULA. LUSE increases with overgrazing and the seeds contain toxic alkaloids especially poisonous to sheep. It is similar to and interbreeds with several other lupine species including *L. sulphureus* (LUSU- yellow or blue flowered; banner not or slightly hairy).



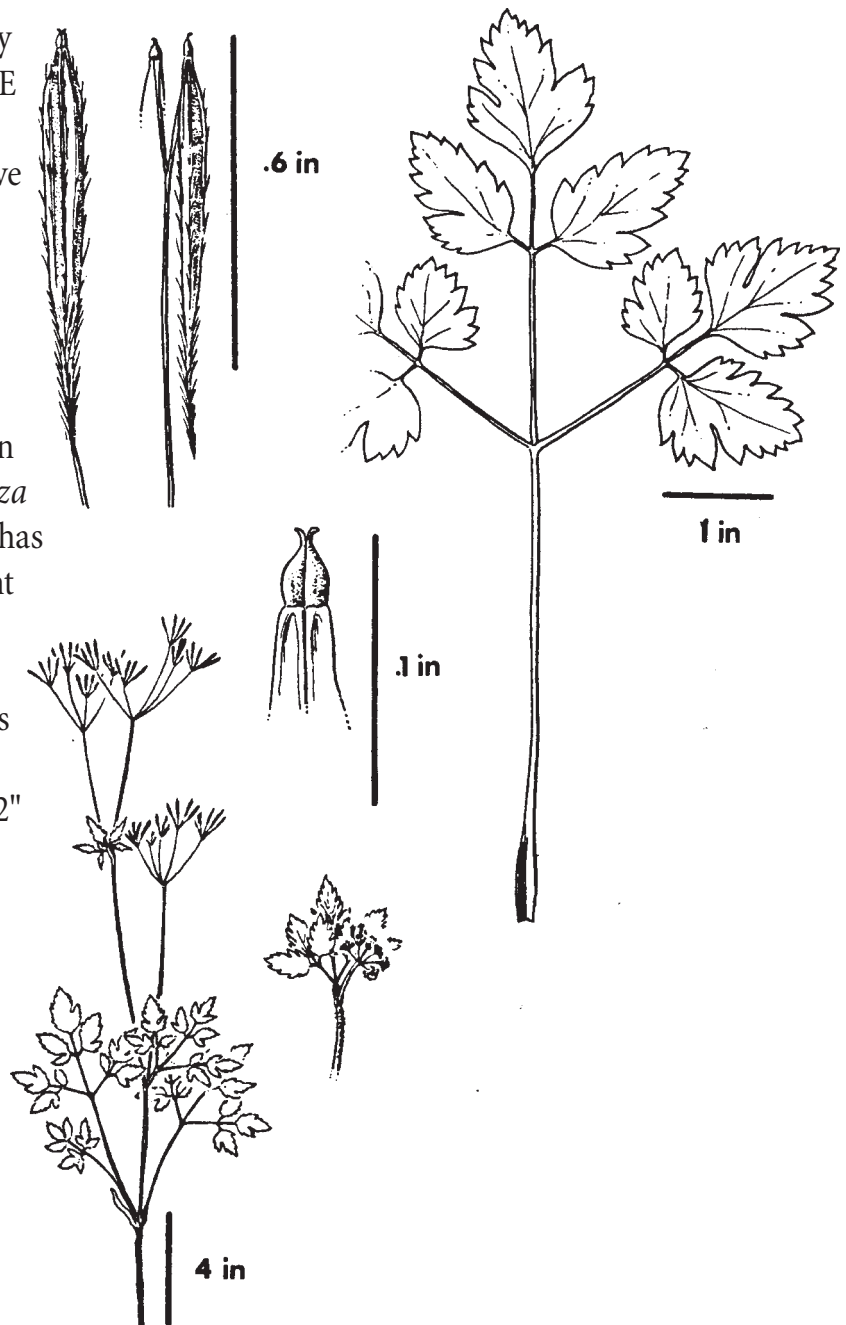
OSCH *Osmorhiza chilensis*
sweetroot
UMBELIFERAE, APIACEAE

HABIT: A perennial herb from a well developed taproot; 12-40" tall.

DESCRIPTION: Leaves are thin, twice ternate, coarsely toothed and 1-3" long. The basal ones have long *petioles* while those above are well developed with *short petioles*. The herbage is *not strongly* licorice scented. The stem is normally branched with several inflorescences (*umbels*) bearing inconspicuous greenish-white flowers. The green fruit is 1/2-1" long, narrow, sharply beaked and hairy (a schizocarp); becoming hard and *black* with maturity. The fruit clings tenaciously to clothing. Flowers April-June.

HABITAT: Fairly dry sites within the PSME zone to more moist sites within and above the ABGR series.

REMARKS: May be confused with other *Osmorhiza* spp. but they are less common in our area. *Osmorhiza occidentalis* (OSOC) has a strong licorice scent and glabrous fruit while *Osmorhiza purpurea* (OSPU) has purple flowers and fruits generally < 1/2" long. The roots of OSCH are edible.



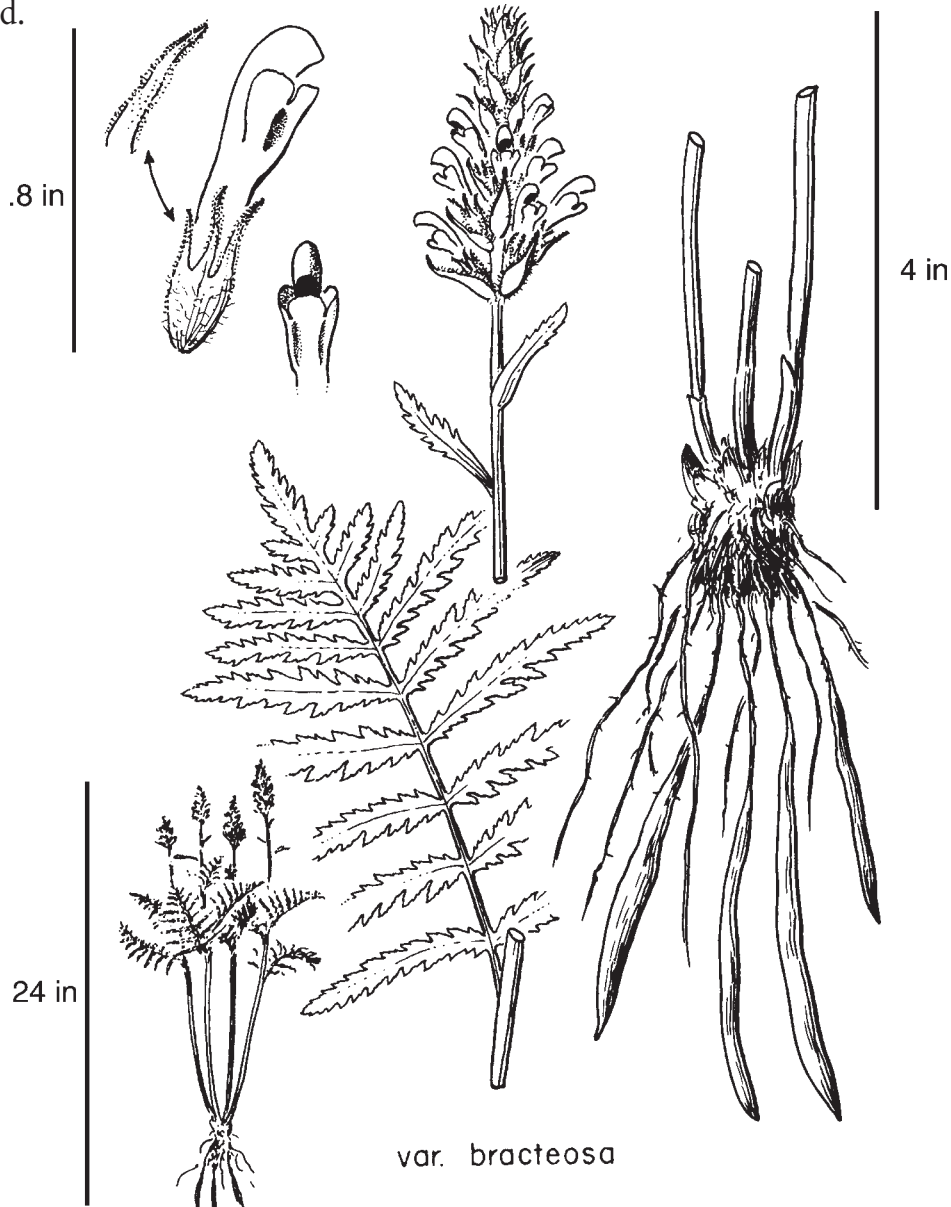
PEBR *Pedicularis bracteosa*
bracted pedicularis
SCROPHULARIACEAE

HABIT: An erect, fibrous-rooted, perennial herb up to 3' tall.

DESCRIPTION: The alternate, pinnately divided (fern-like), glabrous leaves are doubly serrate and up to 3" long; the lower ones petiolate. The leaves are reduced upward. The beak-less, two-lipped flowers are yellow, purple or red, in a crowded spike-like raceme. Flowers June-August.

HABITAT: Moist (but not wet) sites, generally at or above the ABGR series.

REMARKS: May be confused with *Pedicularis groenlandica* (PEGR) another compound-leaved lousewort, but PEGR grows in wet sites. PEBR is an intermediate host for stalactiform blister rust. The other common species (PERA) is simple-leaved.



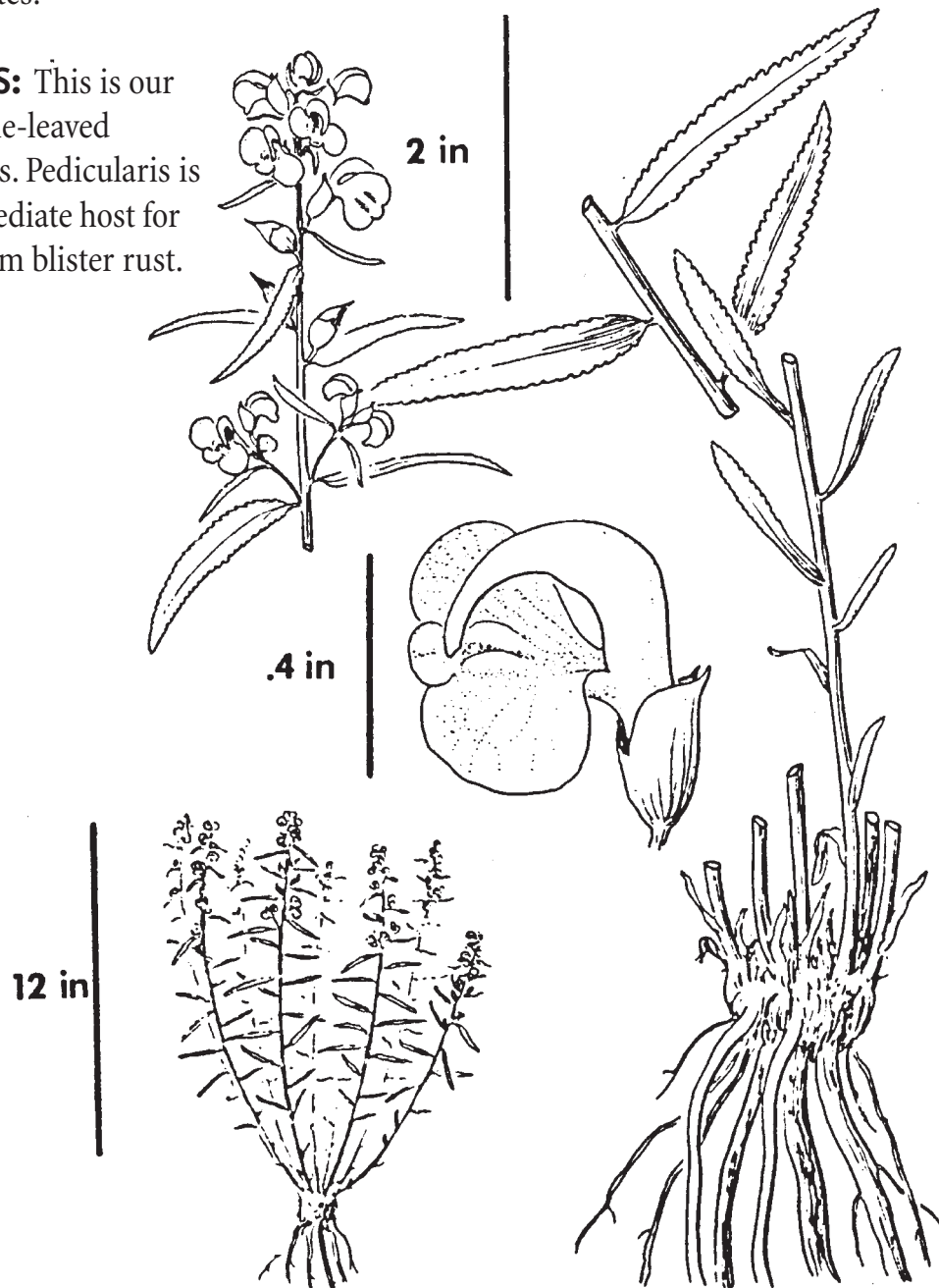
PERA *Pedicularis racemosa*
sickletop pedicularis
SCROPHULARIACEAE

HABIT: A perennial herb with clustered stems from a woody caudex; 6-20" tall.

DESCRIPTION: All leaves are *simple*, alternate, cauline, short-petiolate, *linear* to *lanceolate* and 2-4" long. The leaf margins are doubly serrate. The flowers are irregular and whitish, (may be yellow or rose tinged). The *arched galea* tapers into a slender down-curved beak that approaches (or may touch) the prominent lower lip. Flowers June-September.

HABITAT: A mid to upper elevation species most common and abundant on cool and wet sites.

REMARKS: This is our only simple-leaved pedicularis. *Pedicularis* is an intermediate host for stalactiform blister rust.



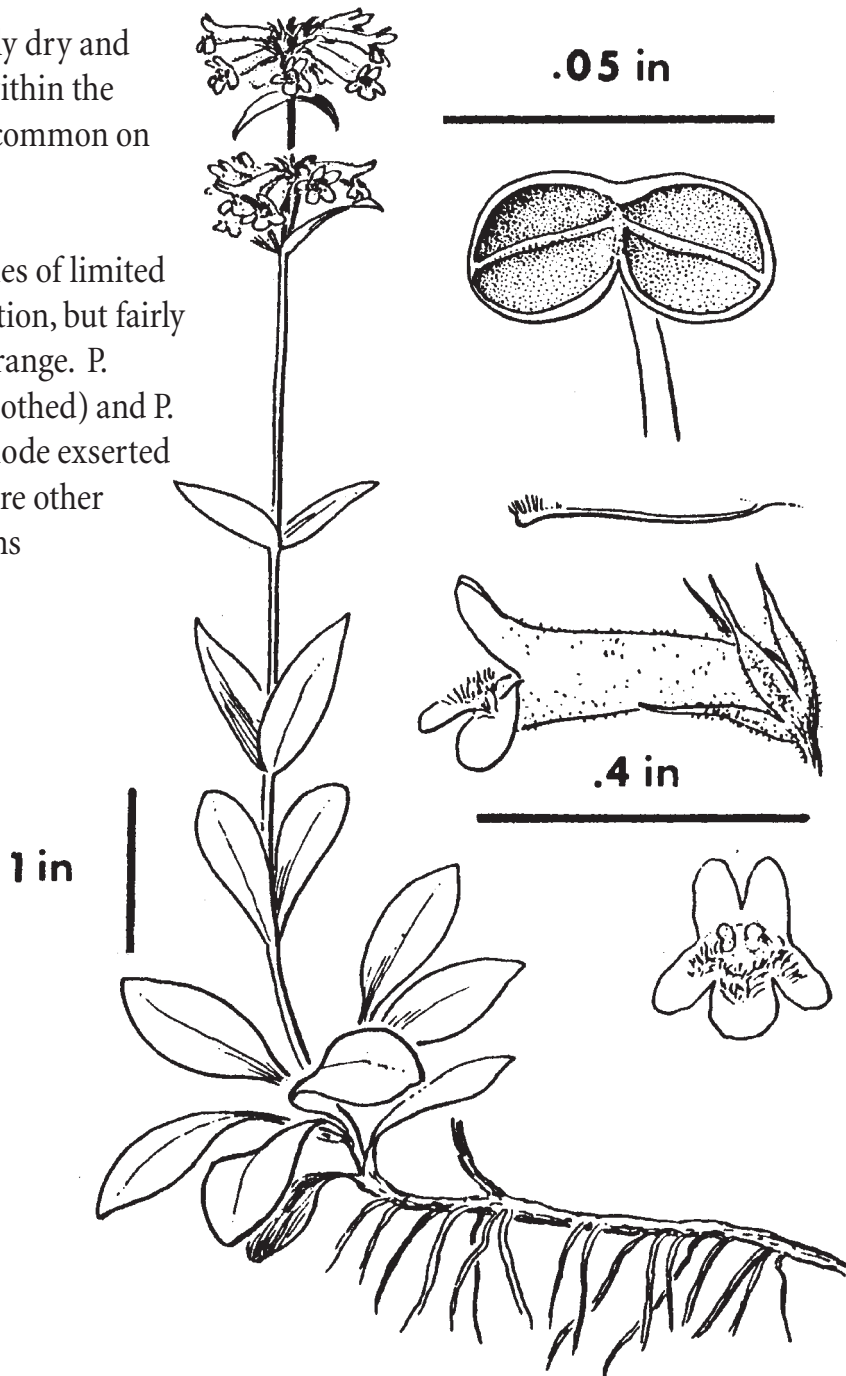
PEWA *Penstemon washingtonensis*
Washington penstemon
SCROPHULARIACEAE

HABIT: Tufted, perennial herb up to 10" tall; from a woody rhizome-caudex.

DESCRIPTION: The entire leaves are well developed in the basal rosette (1-2.5" long and about 3/4" wide) while the cauline leaves are few, mostly sessile and often reduced. The inflorescence is composed of 1-3 dense verticillasters with the flowers glandular-hairy and deep blue to occasionally ochroleucous. The pollen sacs are wholly dehiscent; the throat is bearded as is the expanded tip of the included staminode. Flowers July-August.

HABITAT: Relatively dry and well-drained sites within the ABGR series; most common on Entiat Ridge.

REMARKS: A species of limited geographic distribution, but fairly common within its range. *P. pruinus* (leaves toothed) and *P. eriantherus* (staminode exerted and long bearded) are other common penstemons



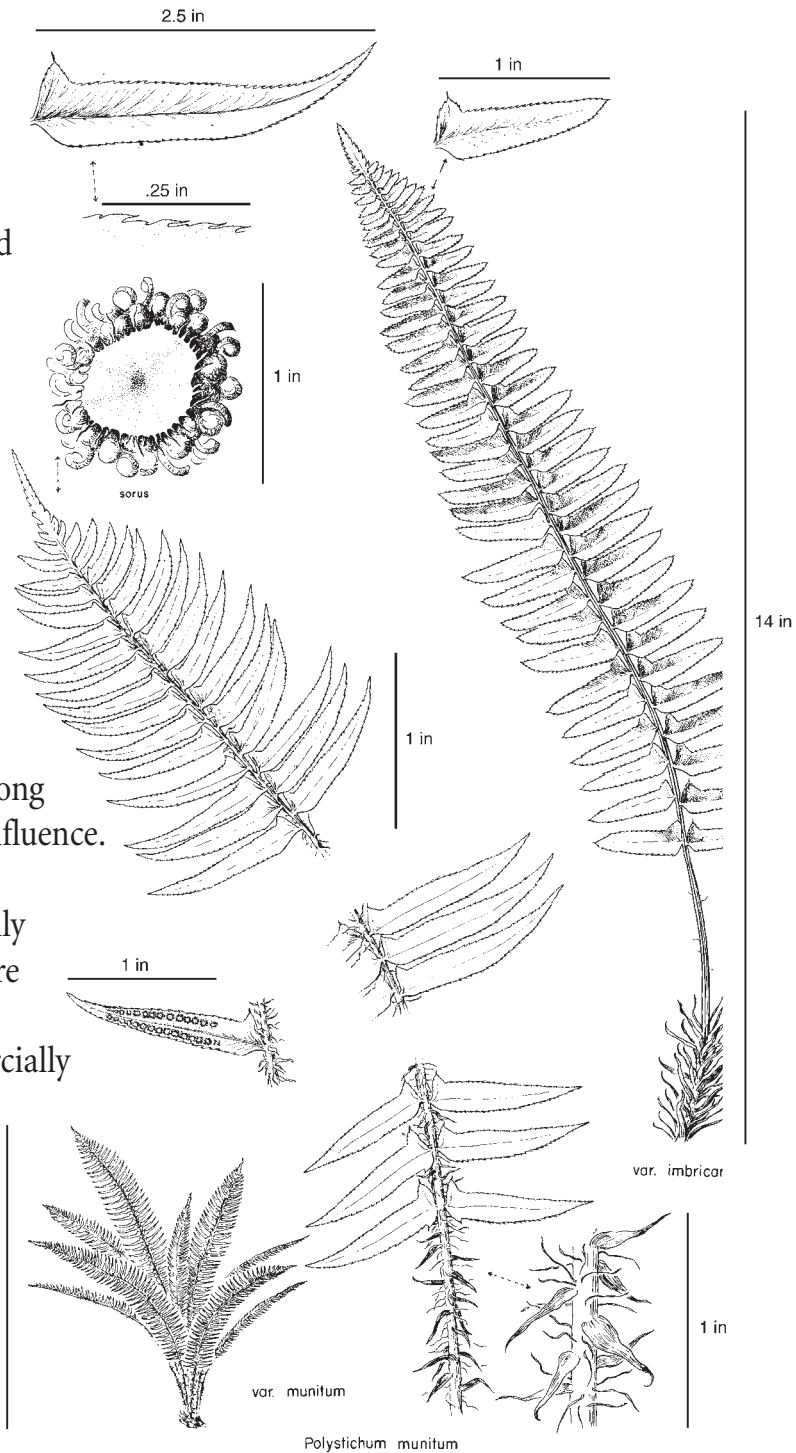
POMU *Polystichum munitum*
western sword fern
POLYPODIACEAE

HABIT: Large, tufted, evergreen, perennial fern up to 4.5' tall.

DESCRIPTION: The leaves are stiffly erect coarse and leathery emerging from a short stout rhizome that is covered with reddish-brown scales. The leaves have a chaffy base, are up to 5' long and are tapered at both ends (but only slightly to the base). There are 35-70 offset pinnae on each side of the rachis. The pinnae are 1-6" long and serrate with incurved spinulose teeth. The sori are circular and borne (usually in a single row) on the under sides of the middle and upper pinnae.

HABITAT: Very moist sites within and above the ABGR series that have a strong maritime climatic influence.

REMARKS: Generally indicates sites that are moist, moderate and productive. Commercially collected for floral use; makes a nice ornamental. May be confused with *Polystichum lonchitis* (POL02) with pinnae that are strongly reduced toward the base of the leaves).



PTAQ *Pteridium aquilinum*
bracken fern
POLYPODIACEAE

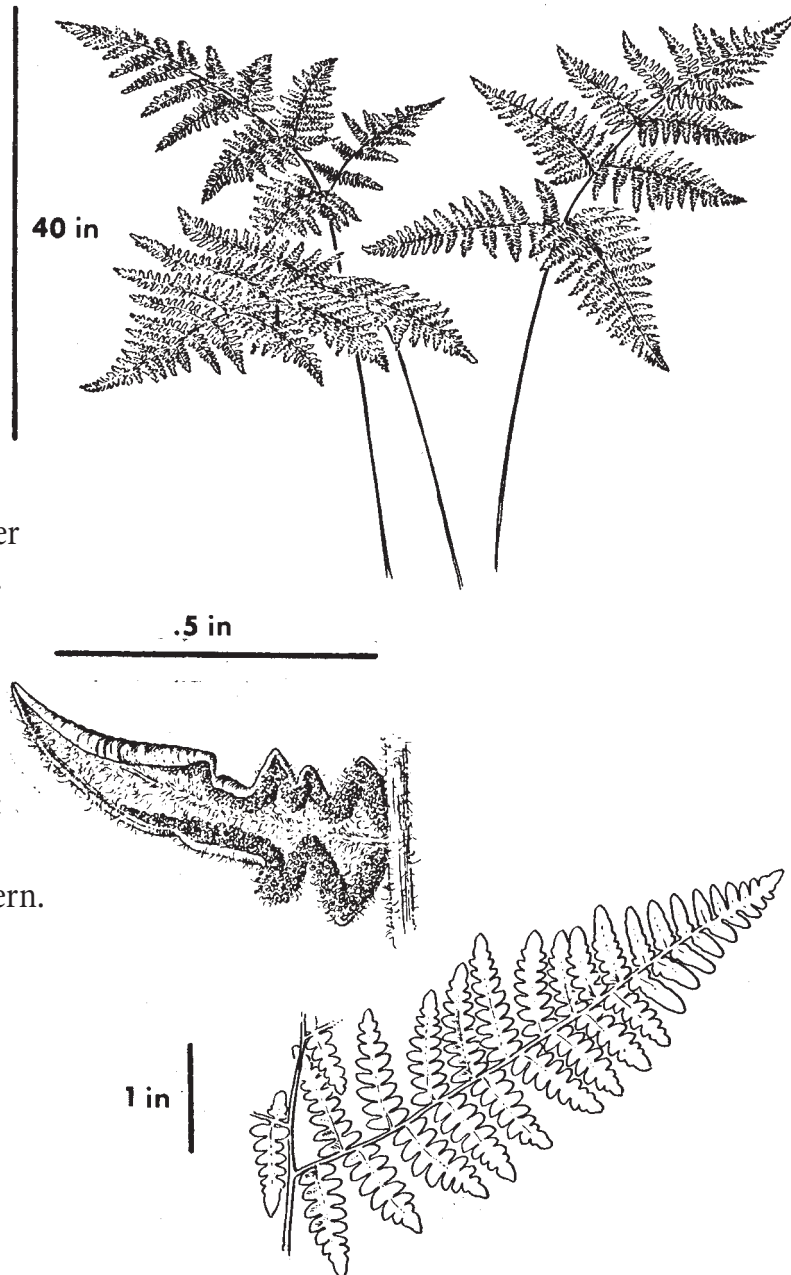
HABIT: An erect, deciduous fern, 2 to over 6' tall from a much branched rhizome.

DESCRIPTION: The 1 to 3' long tripinnate leaves are firm and tough with pubescence beneath. The sori are along the underneath pinna margins and protected by the revolute leaf margins. The pinnules are alternate and the pinnae are opposite or nearly so.

HABITAT: Dry to moist sites within and above the ABGR series. Does particularly well on sites with surface pumice.

REMARKS:

Widespread and occasionally abundant especially on disturbed sites. Allelopathic to other species and poisonous to livestock. The young shoots (fiddleheads) may be eaten after being boiled or steamed and the rhizomes are edible after being boiled or roasted. Apparently only the mature plant is poisonous but the whole plant is known to contain carcinogenic substances. Our most aggressive and weedy fern.



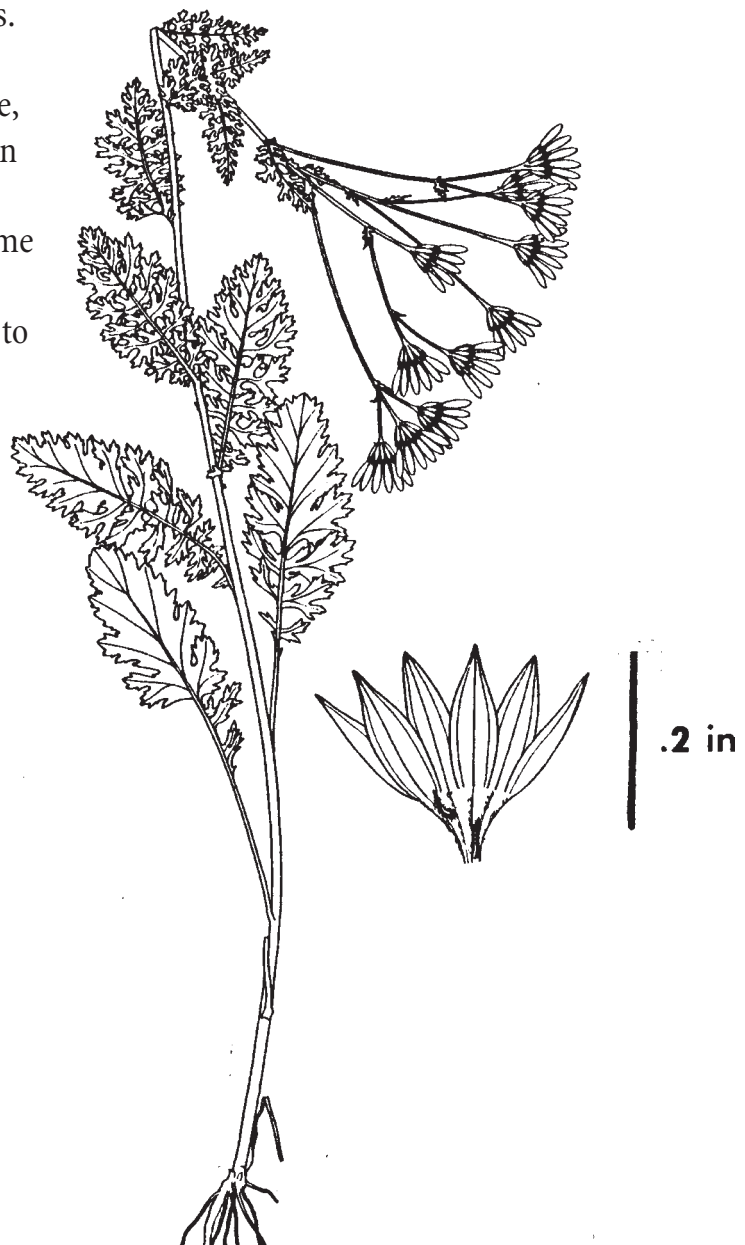
SEJA *Senecio jacobaea*
tansy ragwort
COMPOSITAE, ASTERACEAE

HABIT: Biennial or short-lived perennial noxious weed to 40" tall from a poorly developed to evident taproot.

DESCRIPTION: The leaves are all cauline, 2-3 times *pinnatifid* and 10" long to nearly 3" wide. The lower ones are petiolate but often deciduous while the upper leaves are sessile and reduced. The plant is un-branched until the inflorescence is reached. The heads are rather numerous in a short broad inflorescence and there are about 13 *Yellow* ray flowers. The involucre are *black-tipped* bracts (a common *Senecio* trait). Flowers July-September.

HABITAT: A weed just starting to spread in eastern Washington. Most common along roads and at trailheads.

REMARKS: Native to Europe, this plant is a real problem on the west side of Washington. Only recently has SEJA become evident in our area. Has a cumulative poisonous effect to livestock. Two other *Senecio* species include *S. triangularis* (toothed, triangular leaves- see description) in very wet sites and *S. integerrimus* (leaves oval, entire to dentate) in shrub-steppe.



SETR *Senecio triangularis*
arrowleaf groundsel
COMPOSITAE, ASTERACEAE

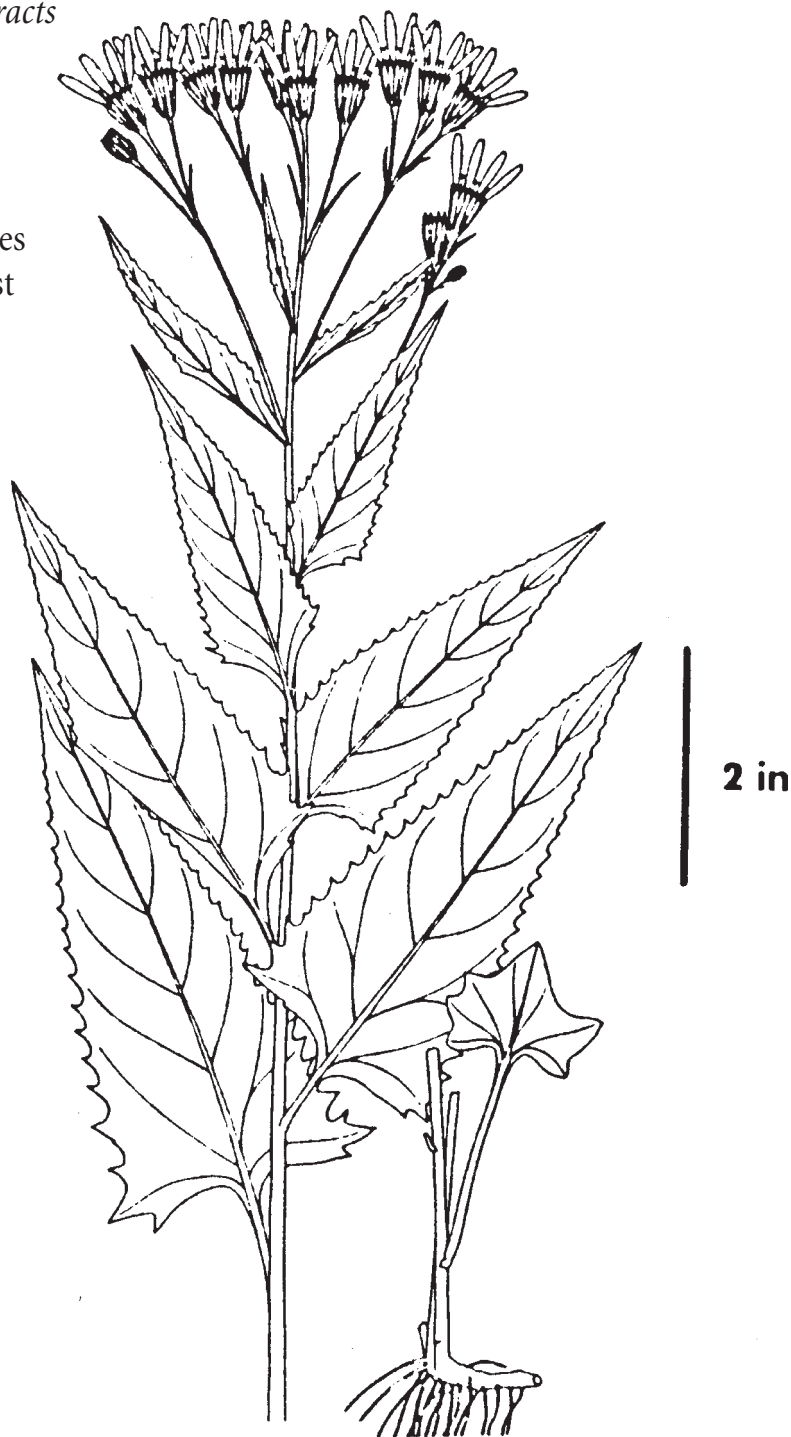
HABIT: A tall (1-5'), lush, perennial forb; the several stems arising from fibrous roots.

DESCRIPTION: The leaves are *narrowly triangular*, and *strongly toothed*. The lower leaves have rather long petioles (2-8" long). The leaves are somewhat reduced upward becoming sessile (or nearly so) and less triangular. The flowers are yellow in few to numerous heads borne in a flat-topped inflorescence. The involucre are equal and *black tipped bracts* (characteristic of the genus *Senecio*). Flowers June-September.

HABITAT: SETR occupies wet to (sometimes) moist sites at mid to upper elevations; commonly associated with STAM, ATFI, GYDR and other moist-wet site species.

REMARKS:

Distinctive indicator species of riparian conditions. It indicates waterlogged soils with attendant problems in road construction and reforestation.

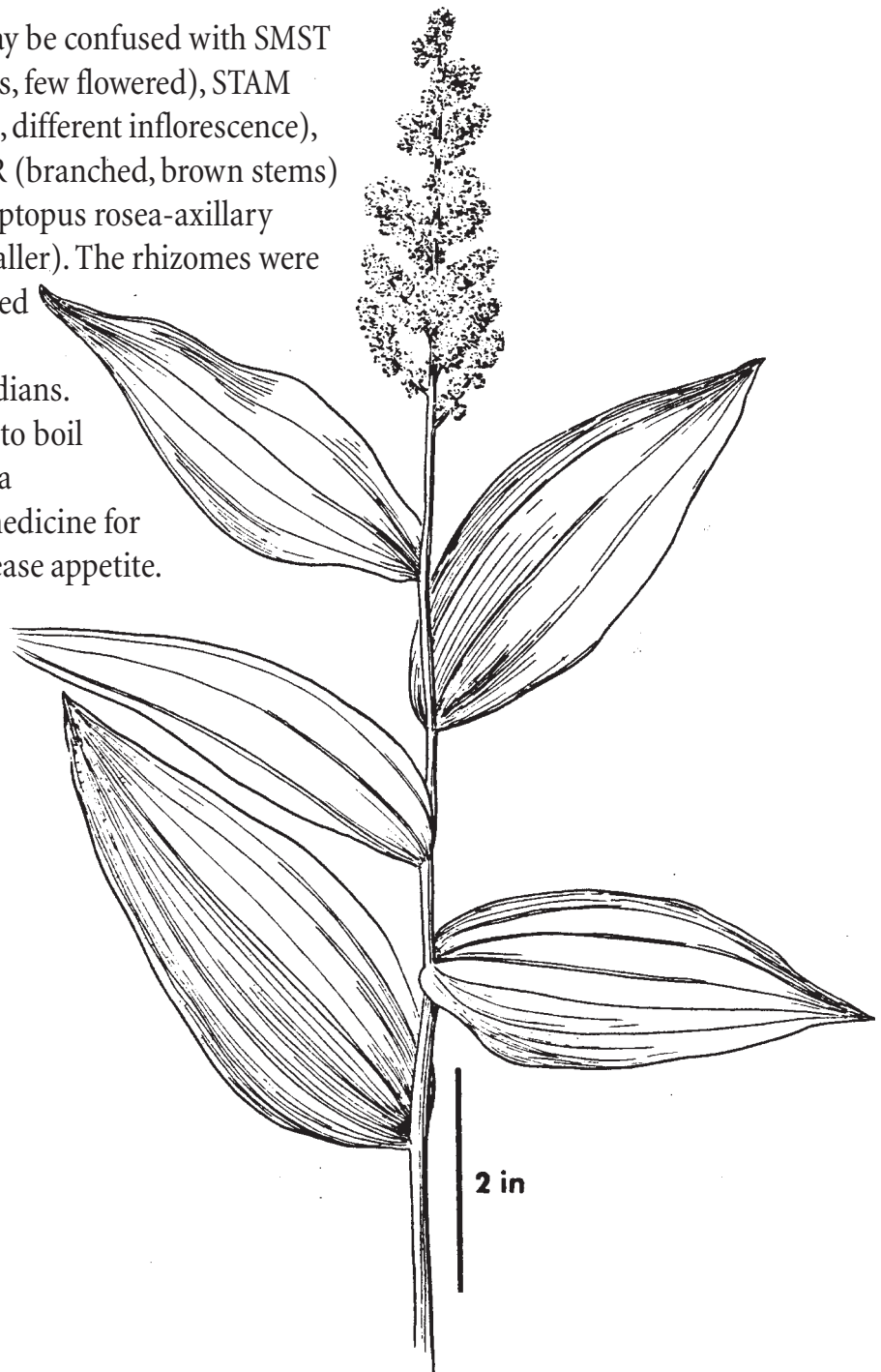


SMRA *Smilacina racemosa*
feather solomonplume
LILIACEAE

HABIT: A strongly rhizomatous, single-stemmed, perennial herb; 1-3' tall.

DESCRIPTION: The *parallel veined*, finely hairy, pointed leaves are alternate, 3-8" long and sessile with a somewhat *clasping* base. The *un-branched*, *green* stems are finely hairy with many whitish flowers in a "foamy" appearing terminal panicle. The numerous berries are reddish (mottled whitish-red when immature). Flowers April-July.

REMARKS: May be confused with SMST (narrower leaves, few flowered), STAM (branched stem, different inflorescence), DIHO and DITR (branched, brown stems) and STRO (Streptopus rosea-axillary flowers and smaller). The rhizomes were dried then soaked and steamed or eaten raw by Indians. The water used to boil the roots made a sweet-tasting medicine for colds or to increase appetite. The berries are edible but have strong laxative properties.



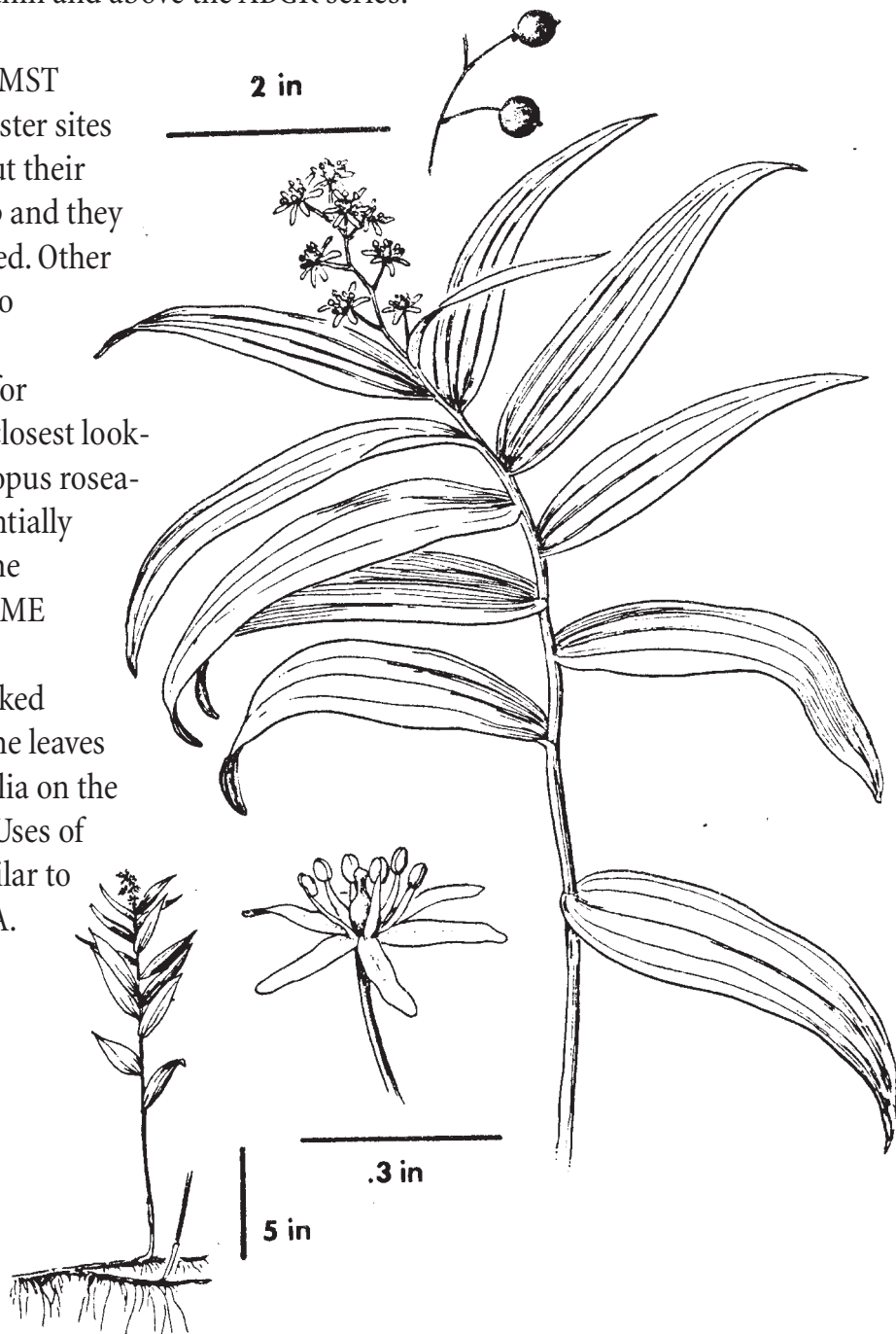
SMST *Smilacina stellata*
starry solomonplume
LILIACEAE

HABIT: A rhizomatous, *un-branched*, perennial herb; 8-24" tall.

DESCRIPTION: The 2-3" leaves are alternate, *narrow*, pointed, prominently *veined* and sessile on a *green* stem. The leaf margins support thin straight hairs. The 5-10, white flowers are borne in a terminal raceme with a *zigzag rachis*. The fruit is a greenish-yellow berry becoming blackish with age. Flowers May-June.

HABITAT: SMST is indicative of cool and moist sites at mid elevations, most commonly within and above the ABGR series.

REMARKS: SMST occurs on moister sites than SMRA but their ranges overlap and they can be confused. Other species are also similar (see "REMARKS" for SMRA). The closest look-alike is *Streptopus rosea*—a species essentially restricted to the ABAM and TSME series that has flowers on kinked stalks below the leaves and thicken cilia on the leaf margins. Uses of SMST are similar to those of SMRA.



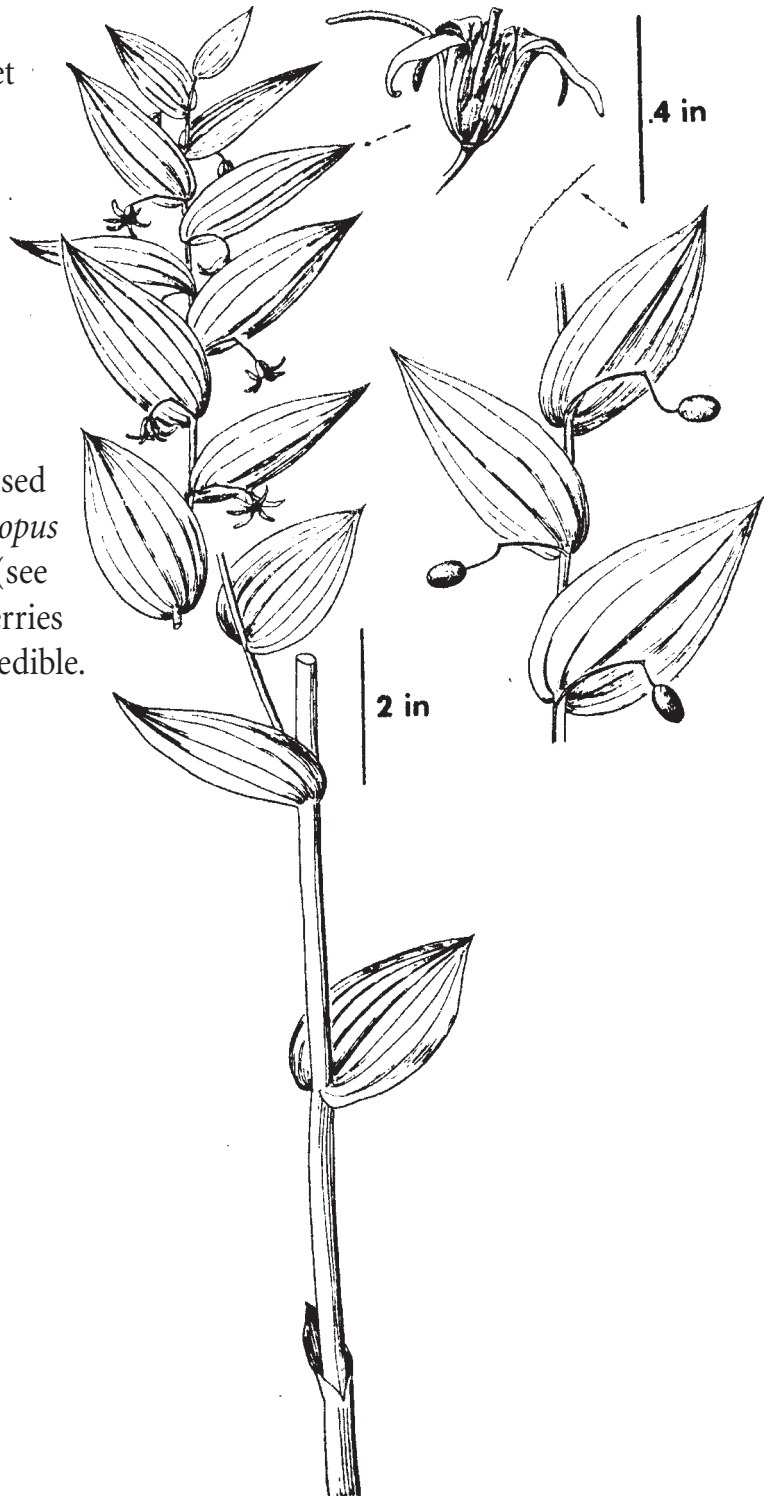
STAM *Streptopus amplexifolius*
claspleaf twistedstalk
LILIACEAE

HABIT: A green-stemmed, *freely branched*, perennial herb; 2-4' tall.

DESCRIPTION: The leaves are 2-5" long, ovate, acuminate and have *clasping bases*. The stems are *green*. The greenish-white flowers occur singly *beneath each leaf* and are borne on a *twisted* (kinked) stalk. The fruit is a bright orange, oblong berry. Flowers May-July.

HABITAT: A species of wet to sometimes moist environments usually at middle elevations. It indicates waterlogged soils with attendant problems in reforestation and road construction.

REMARKS: May be confused with *Disporum* spp., *Streptopus rosea*, and *Smilacina* spp. (see their descriptions). The berries are reputed by some to be edible.



STRO *Streptopus rosea*
rosy twistedstalk
LILIACEAE

HABIT: A normally un-branched, rhizomatous, perennial herb to 12" tall.

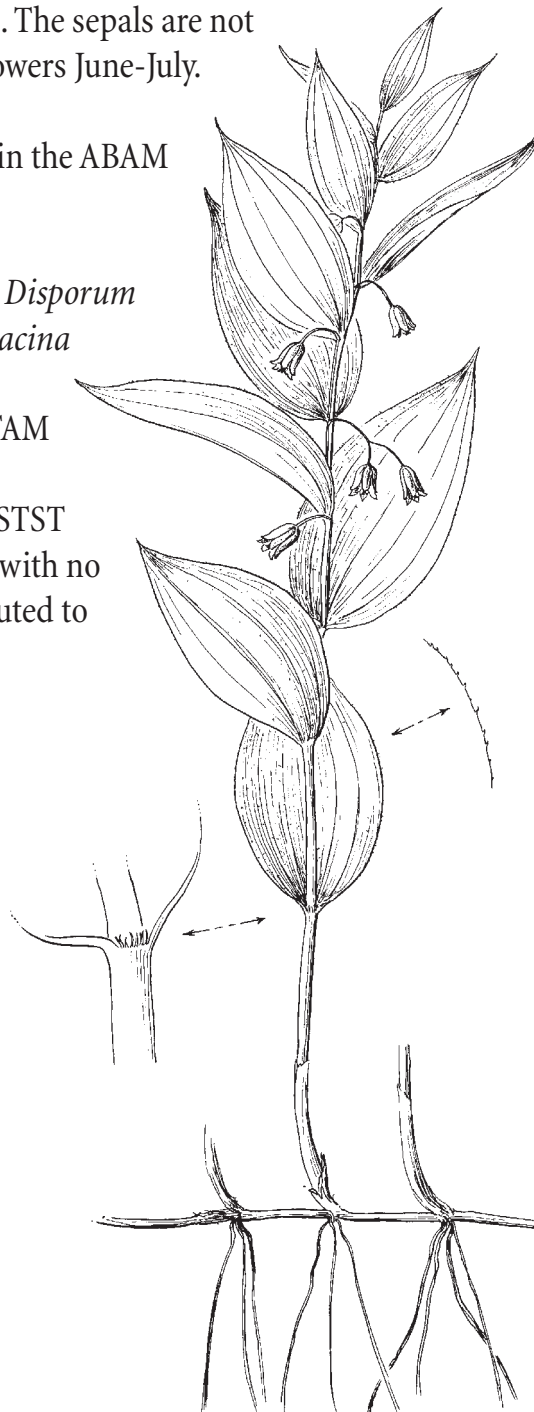
DESCRIPTION: The leaves are ovate-elliptic, up to 4" long with minute, white-thickened cilia along the leaf margins. The stems are sparsely pubescent-fringed at the nodes. The white or greenish-yellow flowers have purple to rose colored spots and white tips. The sepals are not reflexed. The fruit is a red berry. Flowers June-July.

HABITAT: Moist sites mainly within the ABAM and TSME series.

REMARKS: May be confused with *Disporum* spp. (branched, brown stems), *Smilacina* spp. (terminal inflorescence, no thickened cilia on leaf margins), STAM (wetter sites, taller branched plant, reflexed sepals and branched) and STST (*Streptopus streptopoides*-smaller, with no marginal cilia). The berries are reputed to be edible.



.5 in



12 in

S. roseus

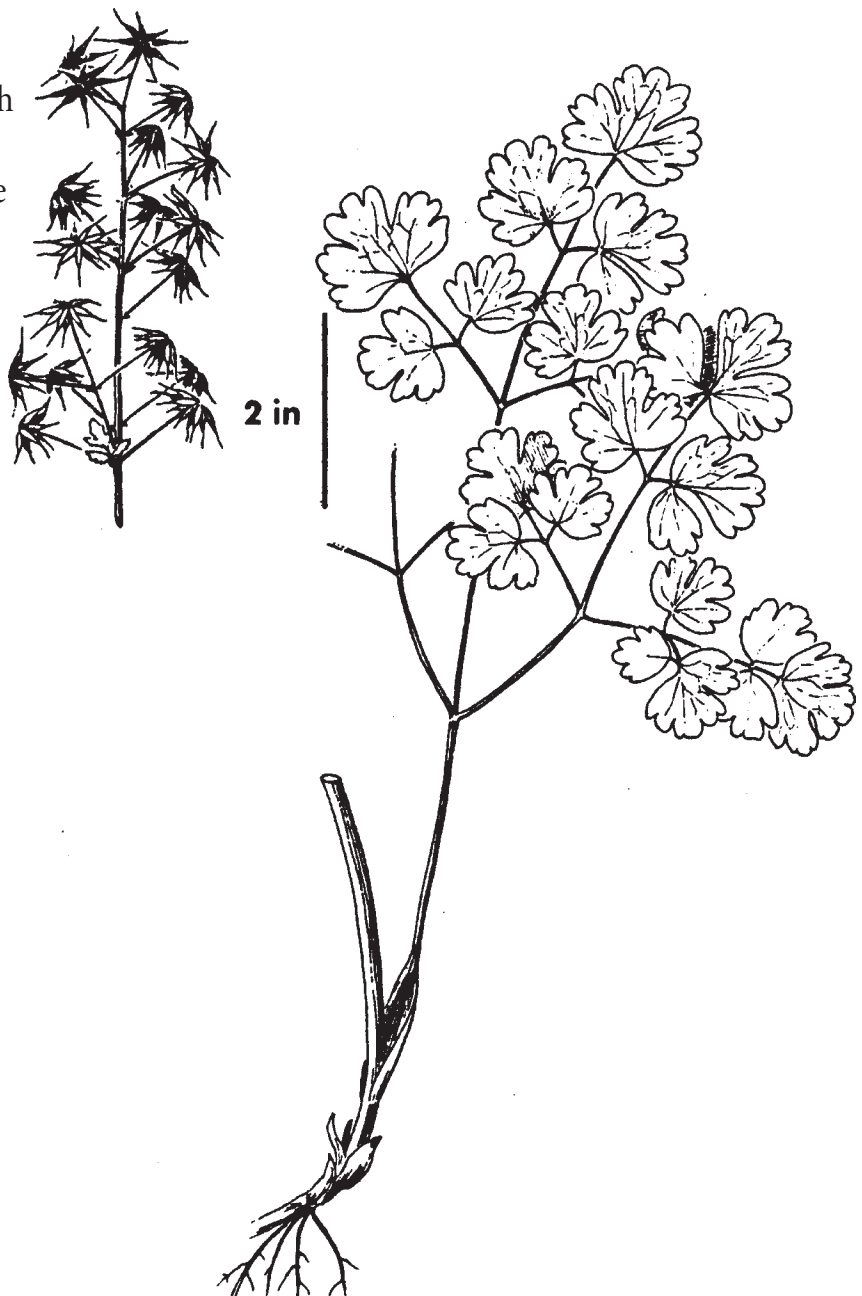
THOC *Thalictrum occidentale*
western meadowrue
RANUNCULACEAE

HABIT: A delicate, *dioecious* perennial; 1-3' tall.

DESCRIPTION: Leaves are compound, *horizontally oriented*, 3-4 times ternate and cauline. The leaflets are *thin*, glabrous, rounded, and 3-lobed. The inconspicuous, greenish-white to purplish flowers are in a panicle with male flowers on one plant and female flowers on another. Flowers May-July.

HABITAT: Widespread in moderately moist environments. It indicates good to excellent growth potential for PSME and LAOC.

REMARKS: Easily confused with *Aquilegia* spp. which have larger, less dissected, and more conspicuously veined leaflets and showy, spurred flowers.



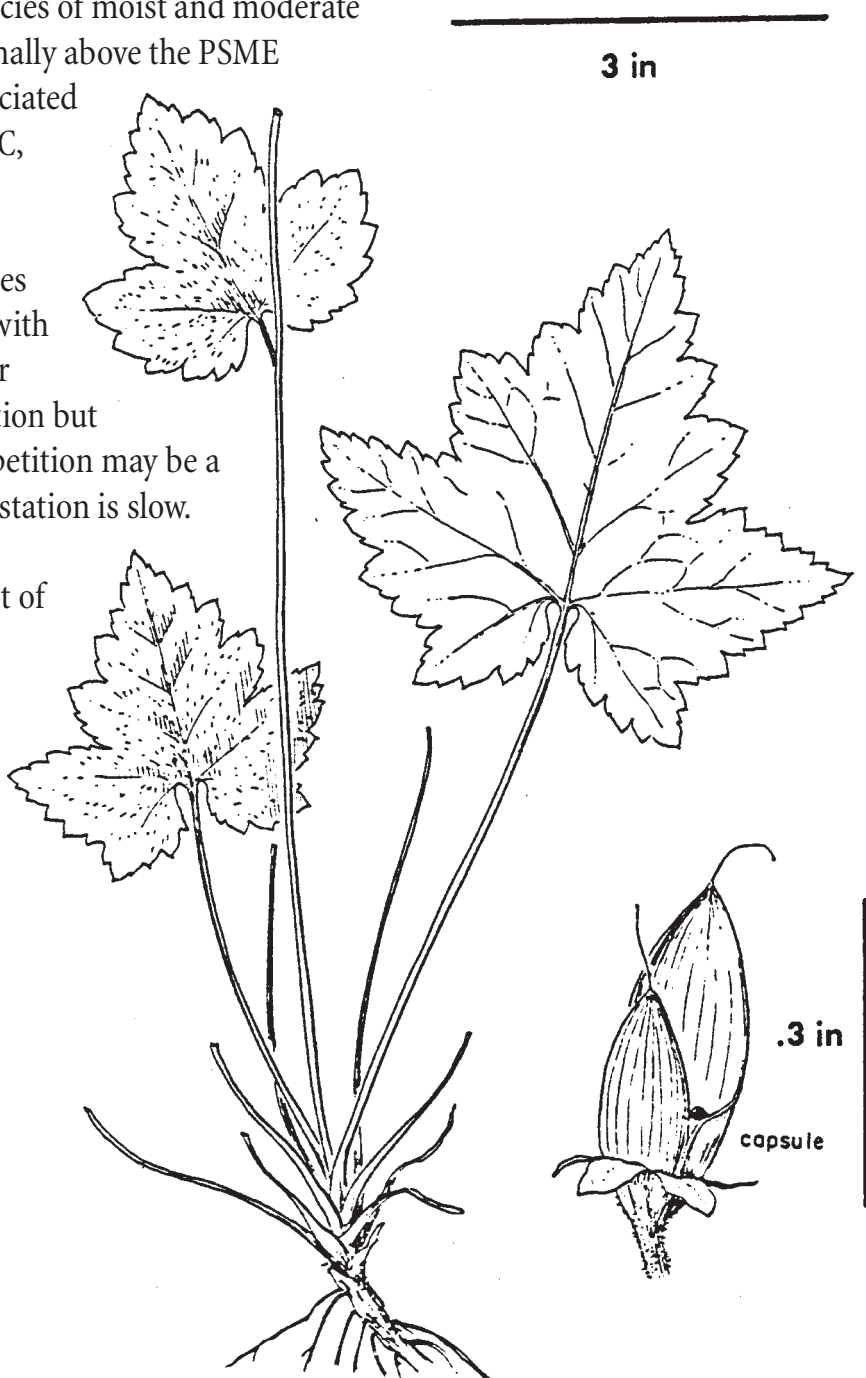
TITRU *Tiarella trifoliata* var. *unifoliata*
coolwort foamflower
SAXIFRAGACEAE

HABIT: A perennial herb from slender rootstocks; the flowering stems 8-20" tall.

DESCRIPTION: The simple leaves are slightly 5 to clearly 3-lobed and 1/2 to less than 3" long. The basal leaves are usually hairy to glandular. The flowering stems are glandular-hairy; bearing the small, white, bell-shaped flowers in a narrow panicle. The fruit is a conspicuous, unequally 2-valved capsule that extends beyond the calyx (looks like a little canoe). Flowers May-August.

HABITAT: A species of moist and moderate to cool sites normally above the PSME series; often associated with CLUN, THOC, VIOR2 and other moist to wet site species. It indicates productive sites with good potential for natural regeneration but herbaceous competition may be a problem is reforestation is slow.

REMARKS: Most of our plants are distinctly not trifoliolate hence the variety *unifoliata*.



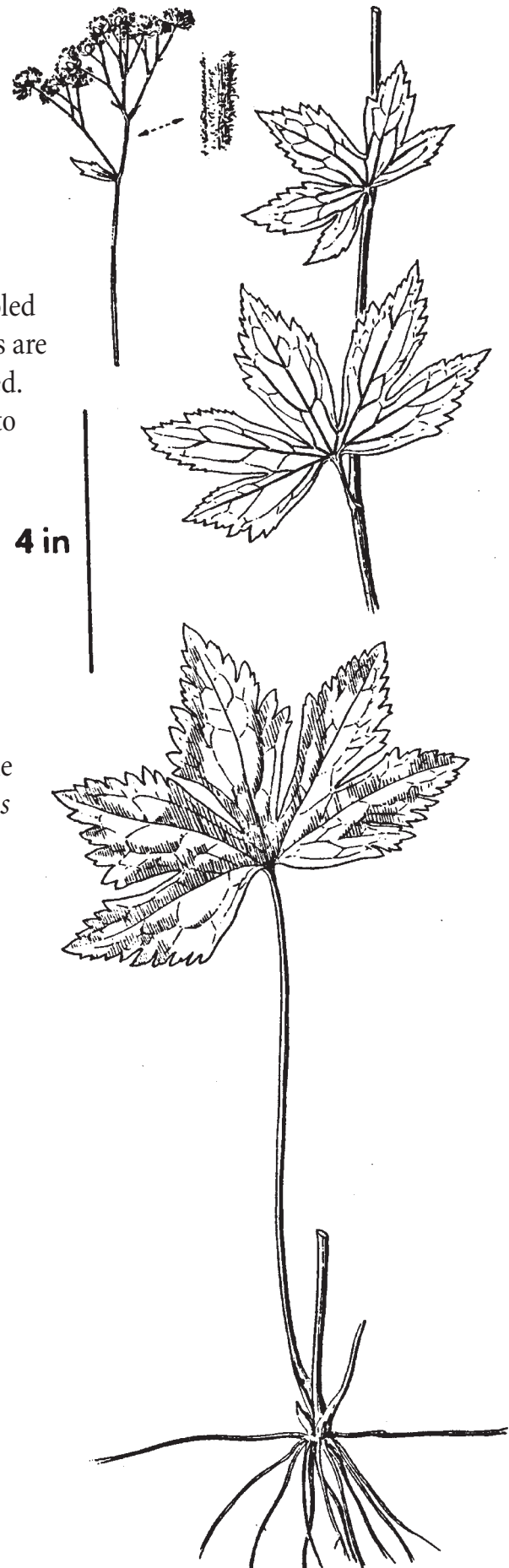
TRCA3 *Trautvetteria caroliniensis*
false bugbane
RANUNCULACEAE

HABIT: An erect, widely spreading, rhizomatous perennial herb, 20-32" tall (the flowering stem).

DESCRIPTION: The leaves are large (4-14" wide), mostly basal, long-petioled and 5-11 lobed. The 1-2 cauline leaves are alternately arranged and short petioled. The inconspicuous flowers are white to greenish in a branched, terminal inflorescence. Flowers May-August.

HABITAT: Found in cool and moist to wet environments at mid to upper elevations. It indicates very moist to water-logged soils.

REMARKS: May be confused with the relatively uncommon *Petasites frigidus* (PEFR2--whitish flowers; leaves long white hairy beneath).



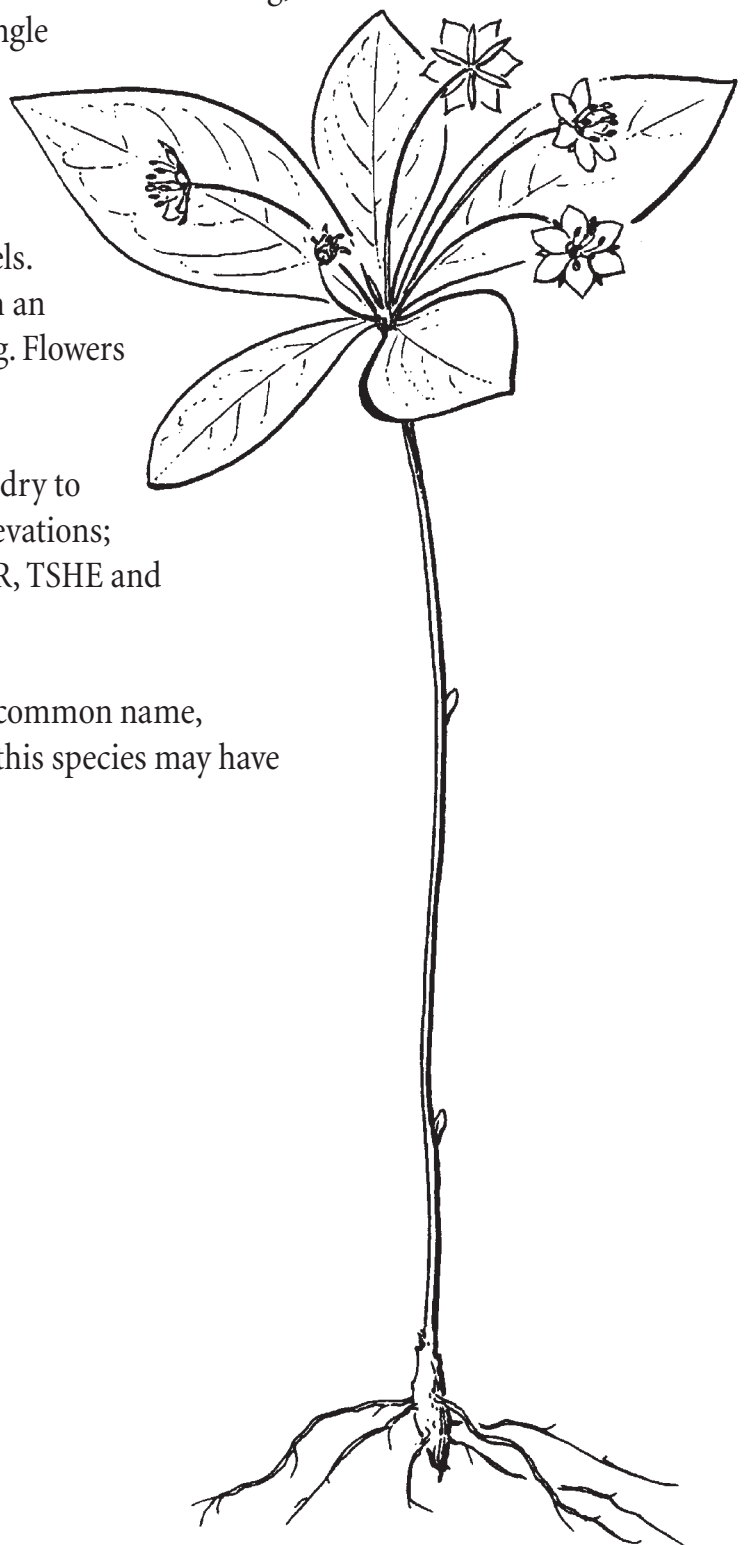
TRLA2 *Trientalis latifolia*
western starflower
PRIMULACEAE

HABIT: A rhizomatous, perennial herb, to 10" tall with leaves in a single whorl.

DESCRIPTION: The 4-8 leaves are 1-4" long, entire and occur in a single terminal whorl. The rose to pink flowers are up to 1/2" across, have 6-7 petals and are borne on slender pedicels. The plant emerges from an erect tuber up to 1" long. Flowers April-July.

HABITAT: Moderately dry to moist sites at middle elevations; mainly within the ABGR, TSHE and ABAM series.

REMARKS: The other common name, Indian Potato suggests this species may have an edible tuber.



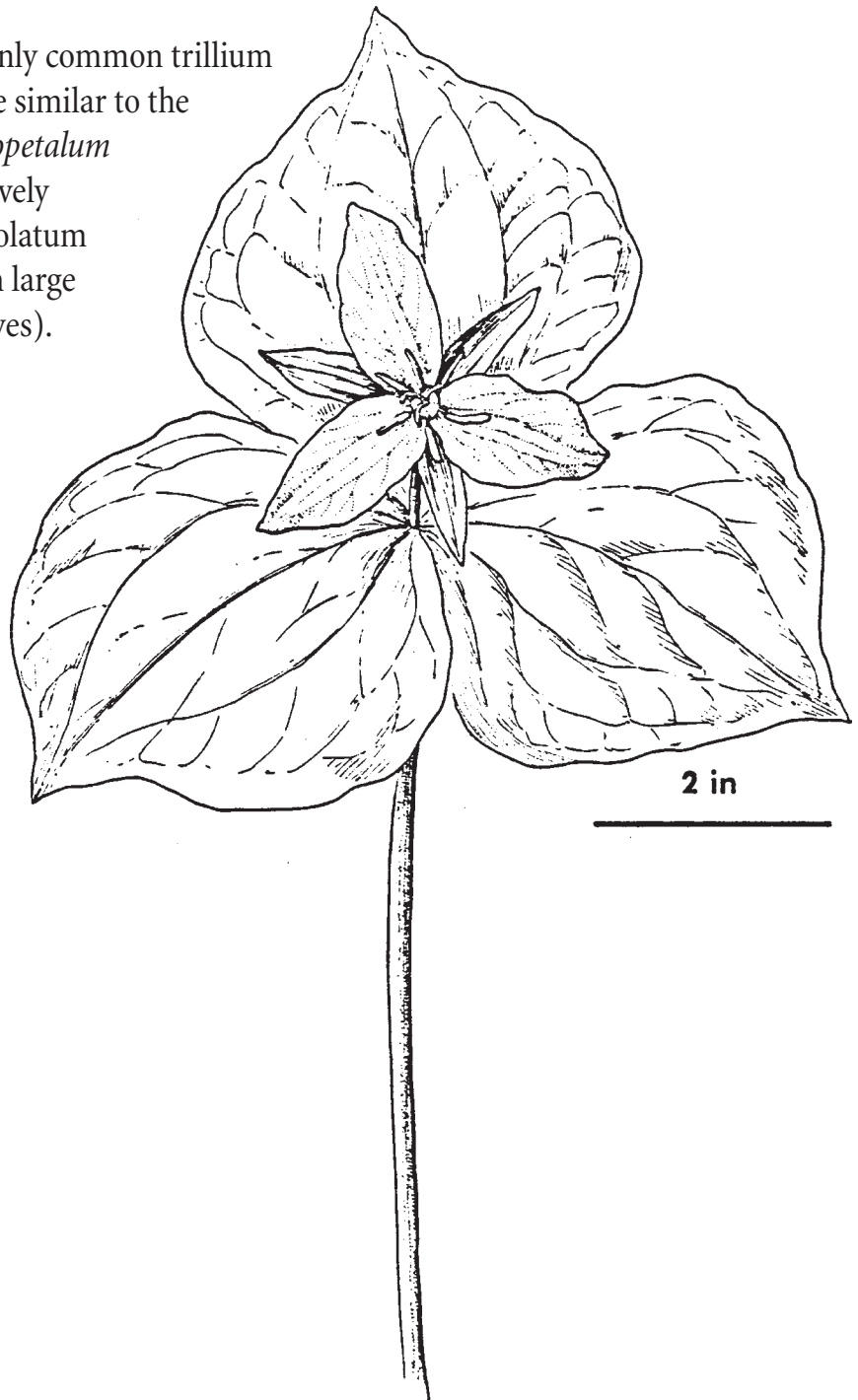
TROV *Trillium ovatum*
trillium
LILIACEAE

HABIT: An erect, glabrous, perennial herb, 4-12" tall with short, thick rhizomes.

DESCRIPTION: The large (2-6" long) leaves are sessile, broadly ovate and occur in a whorl of three at the top of a naked stem. The solitary, white (aging to pink) flower is on a stalk above the leaves. Flowers March-June.

HABITAT: Widespread; from moderately dry to moist, cool sites.

REMARKS: The only common trillium in our area. Is quite similar to the rare *Trillium chloropetalum* (TRCH). The relatively uncommon *T. petiolatum* (purple petals with large spatulate basal leaves).



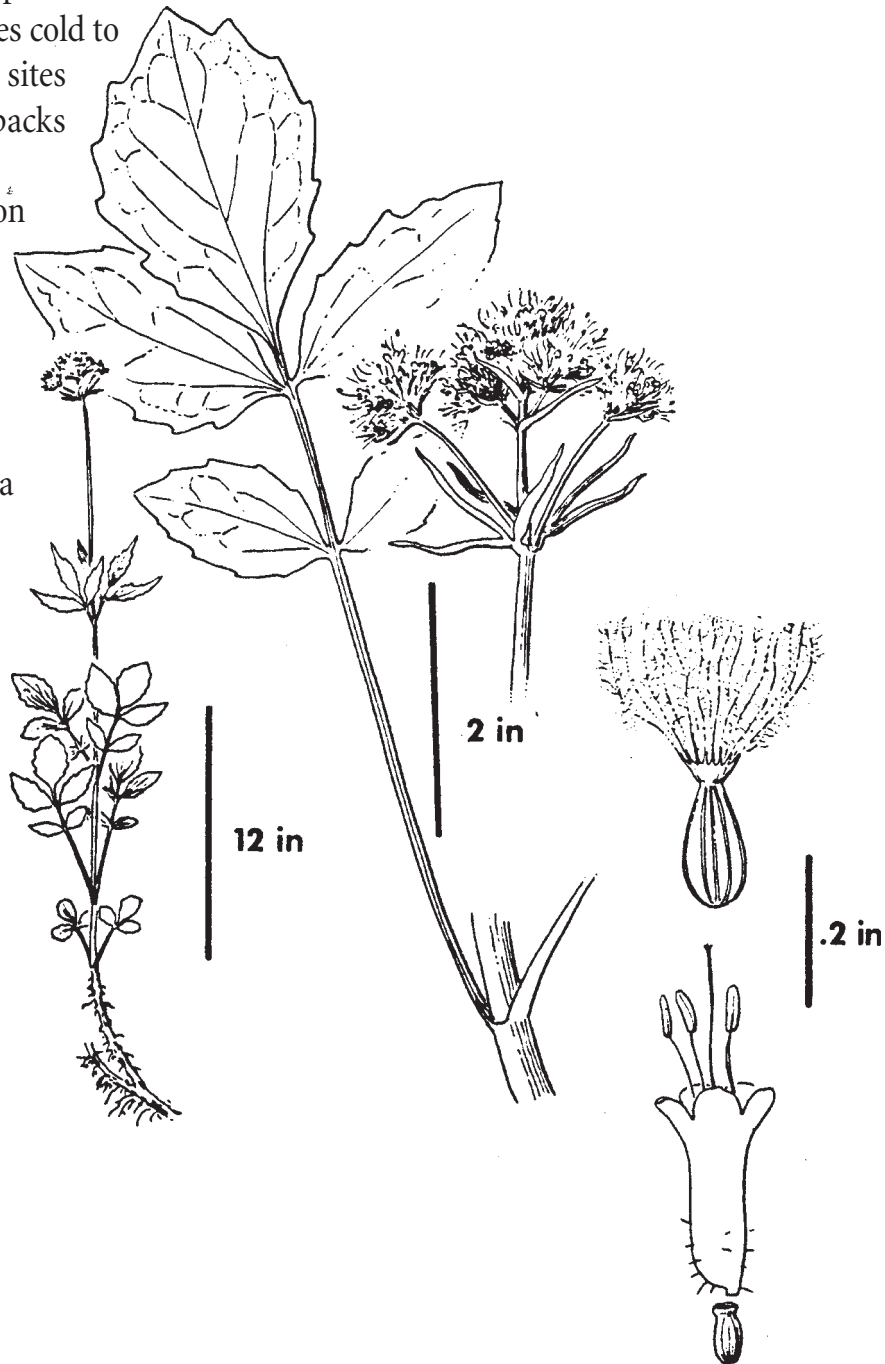
VASI *Valeriana sitchensis*
Sitka valerian
VALERIANACEAE

HABIT: A fibrous rooted, perennial herb from a stout, aromatic rhizome; 1-4' tall.

DESCRIPTION: The *opposite* leaves (in 2-5 pairs) are compound. Most are cauline with the lowest and highest pairs *reduced*. The leaflets are toothed with the *terminal* leaflet the Largest. The small, white, *sweet-scented* flowers have 3 *exserted anthers* and are borne in a compact inflorescence. The fruit is an achene with plumose pappus. Flowers June-August.

HABITAT: An upper elevation species. It indicates cold to very cold and wet sites with heavy snowpacks and moderate to severe regeneration difficulty.

REMARKS: Not easily confused with any other species in our area because of the distinctive leaf shape.



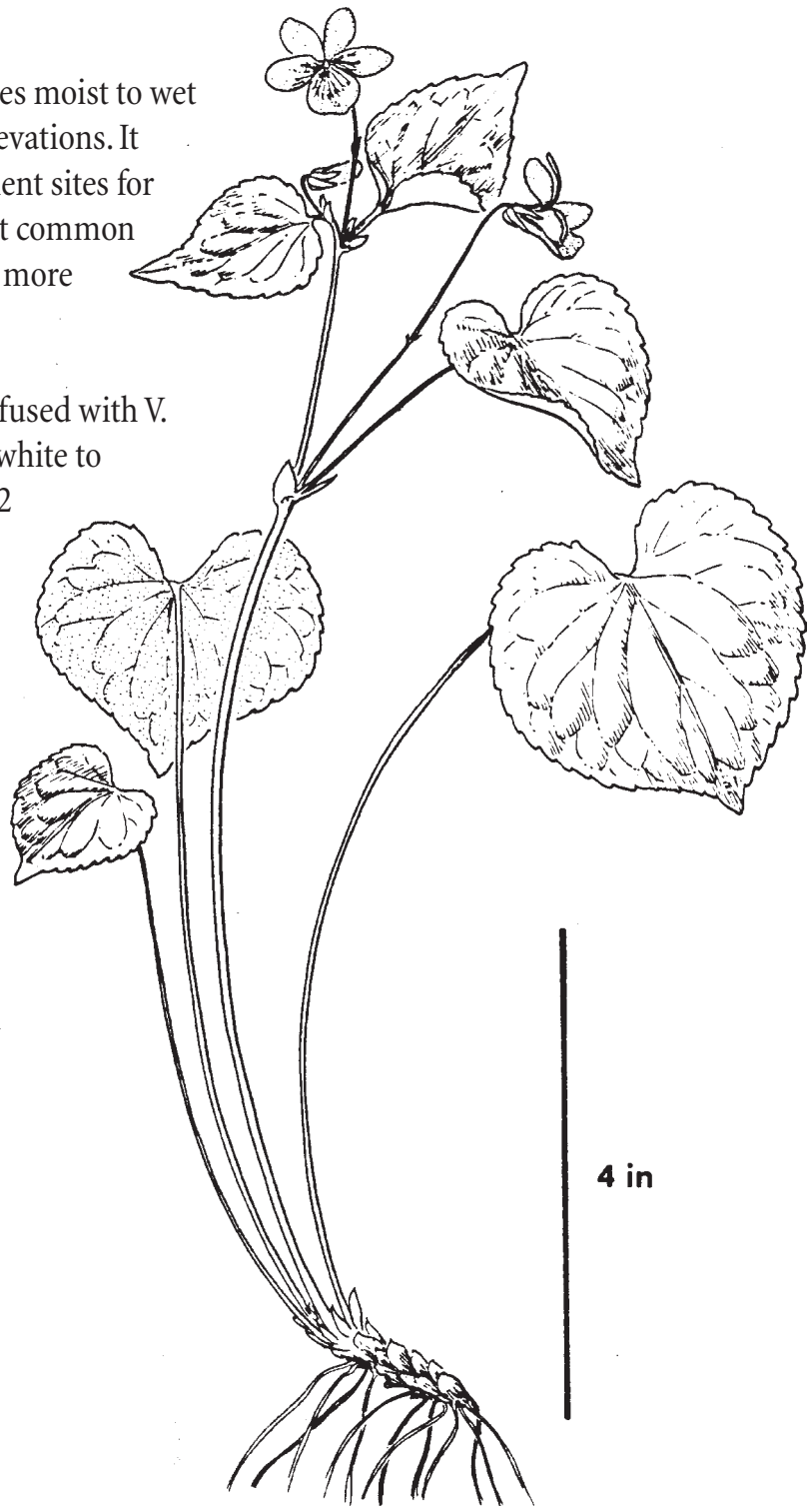
VIGL *Viola glabella*
pioneer violet
VIOLACEAE

HABIT: A perennial herb from spreading, scaly, fleshy rootstocks; 2-12" tall.

DESCRIPTION: The serrated, *pointed* leaves are kidney to somewhat heart-shaped and 1-3" wide. The basal leaves have long petioles. The flowers are *yellow* with *purplish, penciling* on the lower 3 petals and are borne mainly on the upper stem. Flowers March-July.

HABITAT: VIGL typifies moist to wet sites at mid to upper elevations. It indicates good to excellent sites for tree growth and is most common near streams. Requires more moisture than VIOR2.

REMARKS: Easily confused with *V. canadensis*, which has white to lavender flowers. VIOR2 has un-pointed round leaves. The herbage is probably useful for salad greens.



VIOR2 *Viola orbiculata*
round-leaved violet
VIOLACEAE

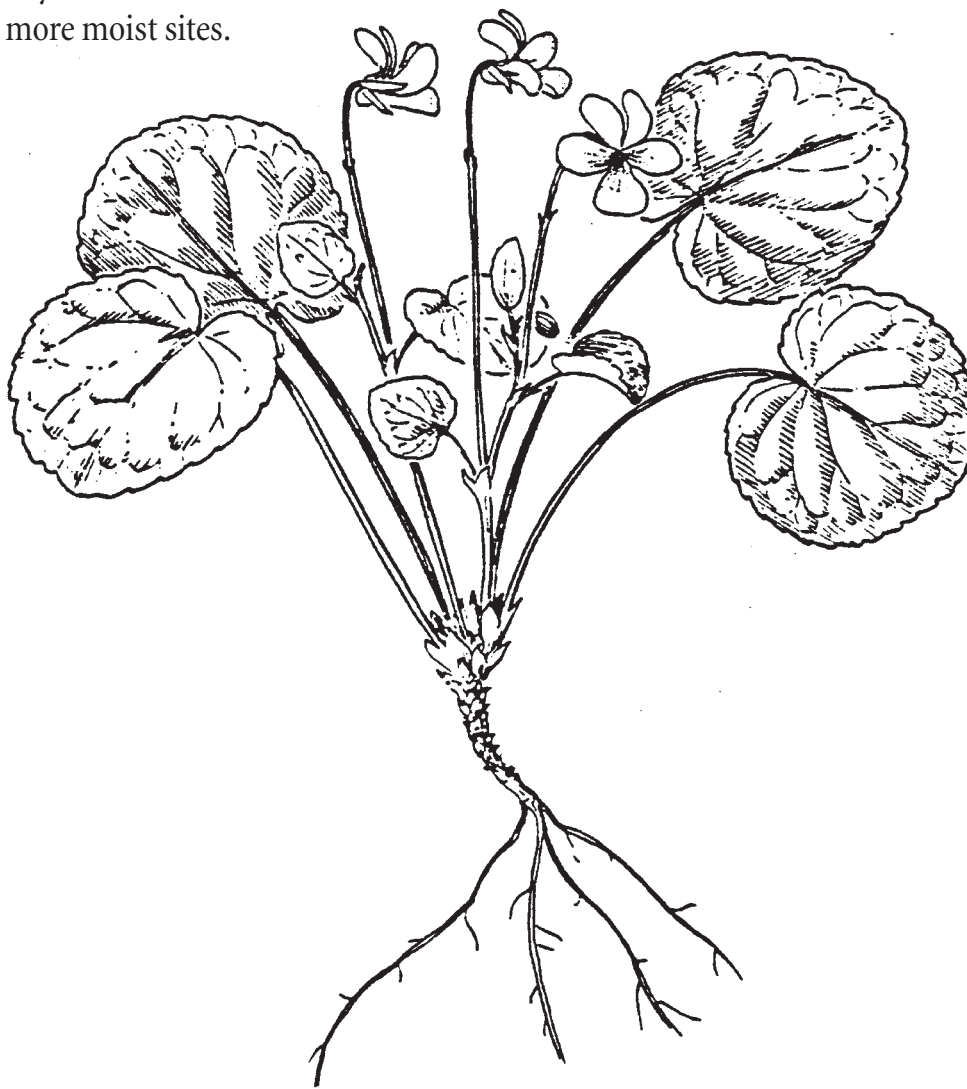
HABIT: A short (2"), glabrous, perennial herb often with some persistent (over wintering) leaves.

DESCRIPTION: The leaves are round, thin, serrated and 1-2" across. The flowers are lemon-yellow to gold with the 3 lower petals purple streaked at the base. Flowers May-August.

HABITAT: A mesic species commonly associated with SMST, CLUN, and THOC. Does not require as much moisture as VIOL. It indicates moderate sites at mid elevations.

REMARKS: May be confused with other violets except for the round leaves (i.e. not noticeably pointed). Other common violets are *V. purpurea* in serpentine (see write-up), *V. trinervata* in scabs, *V. adunca* on dry PSME sites and *V. glabella* in more moist sites.

1 in



VIPU *Viola purpurea*
goosefoot violet
VIOLACEAE

HABIT: A small, perennial herb 2-6" tall; from a shallow to deep-seated, rather scaly rhizome.

DESCRIPTION: The leaves are *puberulent* (as are the stems), *glaucous-green* and *purplish* or at least purplish-veined. The *thick, fleshy* leaves are 1/2-1 1/2" across, ovate or orbicular to lanceolate in outline and are deeply toothed to subentire. The leaf veins are noticeably recessed into the upper leaf surfaces. The flowers are *yellow* with brownish penciling often fading to light *brownish-purple*. Flowers May-August.

HABITAT: In our area VIPU typifies dry sites; commonly on serpentine.

REMARKS: Chelan County is the northern range of VIPU. The leaf shape and foliage color is distinctive and it is not easily confused with other violets.



AGSP

AGIN *Agropyron spicatum* & var. *inerm*

bluebunch wheatgrass & beardless bluebunch wheatgrass

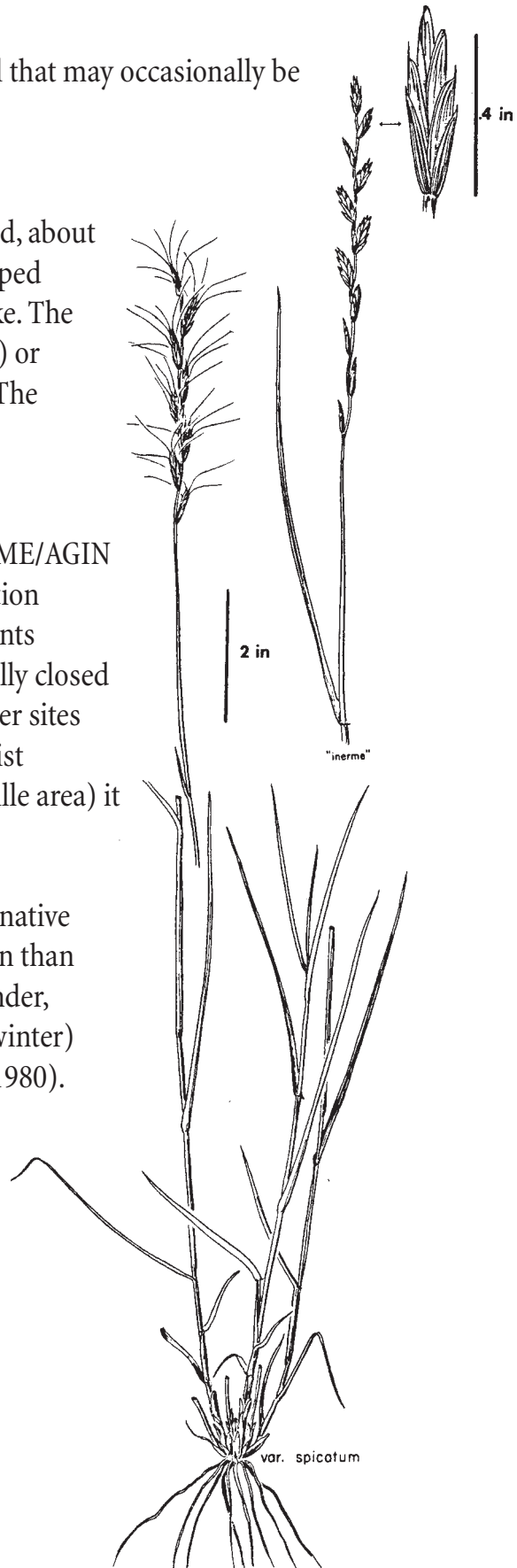
POACEAE, GRAMINEAE

HABIT: A perennial *bunchgrass*; 1-3 tall that may occasionally be rhizomatous.

DESCRIPTION: Leaves are pubescent, bluish-green, erect, flat to slightly inrolled, about 1/8" wide and 2-8" long with well developed *auricles*. The ligule is short and collar-like. The lemmas are *awn-less* or nearly so (AGIN) or awned with a 1" divergent awn (AGSP). The inflorescence is an erect *spike*. Flowers June-August.

HABITAT: An indicator of the PIPO-PSME/AGIN (OKAN) association. A low to mid elevation species of hot-warm and dry environments extending from shrub-steppe and partially closed forest to closed forest PSME sites. On drier sites AGSP is a bunchgrass while in more moist forested stands (particularly in the Colville area) it may be rhizomatous.

REMARKS: One of the most important native grasses for forage. AGSP is more common than AGIN. The Indians used this grass for tinder, padding their moccasins (especially in winter) and for bedding material (Turner, et.al. 1980).



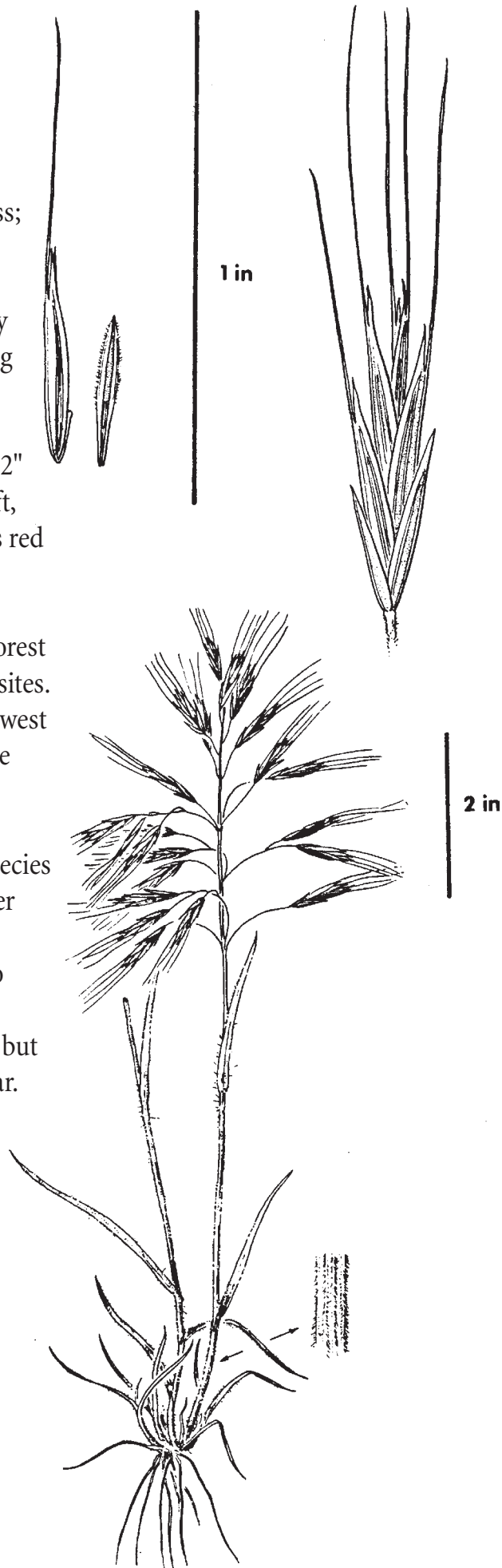
BRTE *Bromus tectorum*
cheatgrass
POACEAE, GRAMINEAE

HABIT: An erect, single-stemmed, non-rhizomatous, weedy annual grass; 1-2' tall.

DESCRIPTION: The leaves are softly pubescent, about 1/8" wide, becoming *reddish* with maturity. The ligule is jagged and 1-3mm long and the lemmas have a straight *awn* about 1/2" long. The inflorescence is a dense, soft, drooping, purplish panicle that turns red with maturity. Flowers April-June.

HABITAT: Most common near the forest margin on warm, dry and disturbed sites. It is well adapted to the Pacific Northwest and may be present on sites with little history of disturbance.

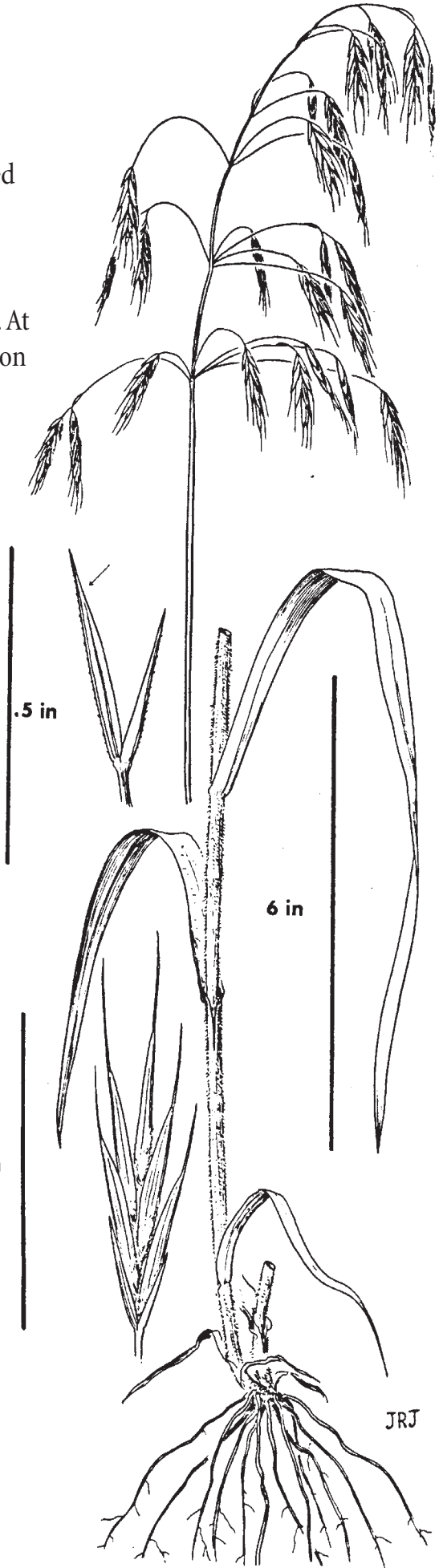
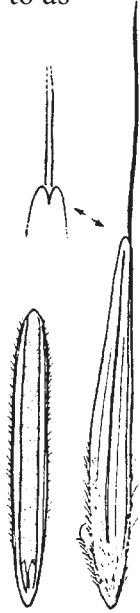
REMARKS: Common introduced species of open sites and waste places at lower elevations. The sharp florets and spikelets of BRTE can cause injury to mouth, eyes, ears and tongue of livestock. It is fair forage when green but the quantity varies greatly year to year. BRTE is from Eurasia and is a strong increaser with heavy grazing. Tectorum means "of roofs or houses" from the tendency in it's native lands to grow on roofs.



BRVU *Bromus vulgaris*
Columbia brome
POACEAE, GRAMINEAE

HABIT: A robust (1-3' tall), fibrous-rooted perennial that does not form bunches.

DESCRIPTION: The leaves are long, flat (5-10mm wide) and droop conspicuously. At least some leaves will have an impression on the blade commonly referred to as the brome "W". The sheaths and blades are usually *hairy* especially at the throat where long *cilia* are present. The truncate ligule is 3-5 mm long. Auricles are absent and the lemmas have an awn up to about 1/3" long. The inflorescence is an open panicle with drooping branches. Flowers late June-August.



HABITAT: BRVU is most common and abundant in cool and moist sites but it extends up from drier areas within the PSME series to upper elevation sites.

REMARKS: May be confused with other bromes, especially *B. inermis* (BRIN), a rhizomatous grass, *B. suksdorfii* (BRSU) which is very similar; but with an *erect inflorescence*) and *B. carinatus* which has strongly keeled and compressed (carinate) lemmas.

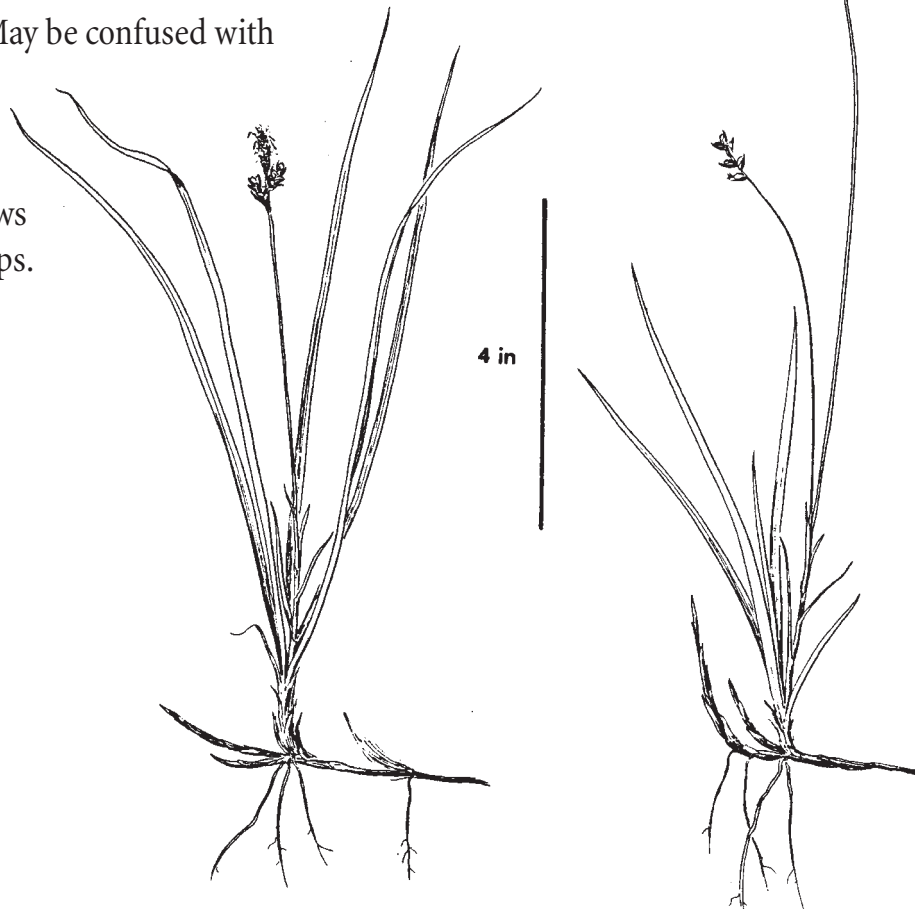
CACO *Carex concinnoides*
northwestern sedge
CYPERACEAE

HABIT: A rhizomatous, upland perennial sedge; the seed-head 6-14" tall.

DESCRIPTION: Leaves are *l-ranked*, firm, shiny green and 2-5 mm wide. The sheaths at the base of the solid *triangular* stems are *reddish-brown* and the plant remains green over winter. CACO commonly forms loose mats from well developed creeping rhizomes. The leaves are longer than the inflorescence; but are usually low and spreading. The inflorescence consists of an uppermost staminate spike with 1-3 pistillate spikes beneath. A small bract subtends the lowest pistillate spike. Flowers April-July.

HABITAT: It is widespread in a variety of habitats including cold, moist sites. CACO increases under moderate disturbance and grazing but is not tolerant of dense shade. In dense clumps it may hinder tree regeneration.

REMARKS: May be confused with CARO but the latter has *reddish* culm bases and grows in dense clumps.



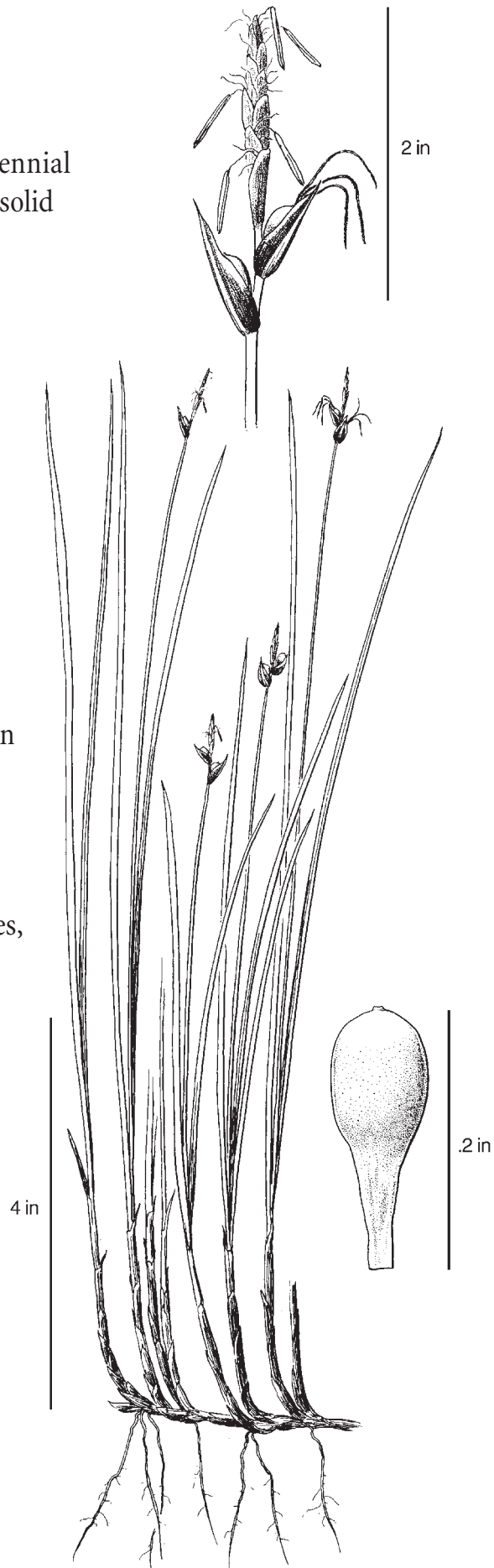
CAGE *Carex geyeri*
elk sedge
CYPERACEAE

HABIT: A grass-like, upland perennial sedge with three-ranked leaves and solid triangular culms 8-20" tall.

DESCRIPTION: The leaves are *nearly* ~a long as *the culms*, flat, evergreen and 1-3mm wide. The basal sheaths are *tan* to *brown*. The inflorescence is a solitary *bract-less* staminate spike subtended by 1-3 pistillate flowers with brownish scales. The fruit is a large, 3-angled achene. Flowers in April-July.

HABITAT: Typical of drier sites within the ABGR series and common in parts of the PSME zone. Often associated with CARU and ARMA3.

REMARKS: Commonly confused with CARU which has red culm bases, hair at the collar, a round stem and leaves which are shiny on one side and dull-pubescent on the other.



C. geyeri

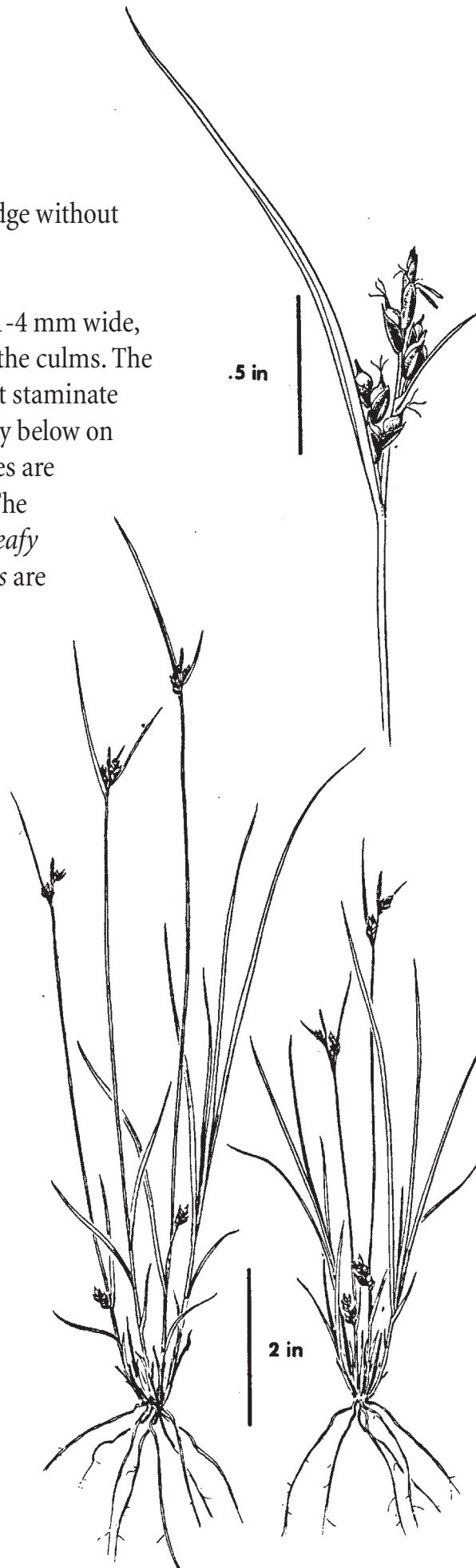
CARO *Carex rossii*
Ross' sedge
CYPERACEAE

HABIT: A *densely tufted*, 4-12" tall sedge without creeping rhizomes.

DESCRIPTION: Leaves are elongate, 1-4 mm wide, rather lax and commonly longer than the culms. The inflorescence consists of an uppermost staminate spike with pistillate spikes immediately below on short peduncles. Long peduncled spikes are commonly hidden among the leaves. The lowermost spikes are subtended by a *leafy bract* 1-2" long. The *basal culm sheaths* are reddish. Flowers May-August.

HABITAT: Not found in cold and wet environments (unlike CACO). Indicates exposed, sunny sites with soil drought part of the year. Abundant CARO competes severely with tree seedlings for moisture. It is very fire tolerant and soon returns to pre-burn levels.

REMARKS: Fair to good forage for livestock. CACO (open mats) can be confused with CARO (tufted, seed heads both above and hidden in the foliage).



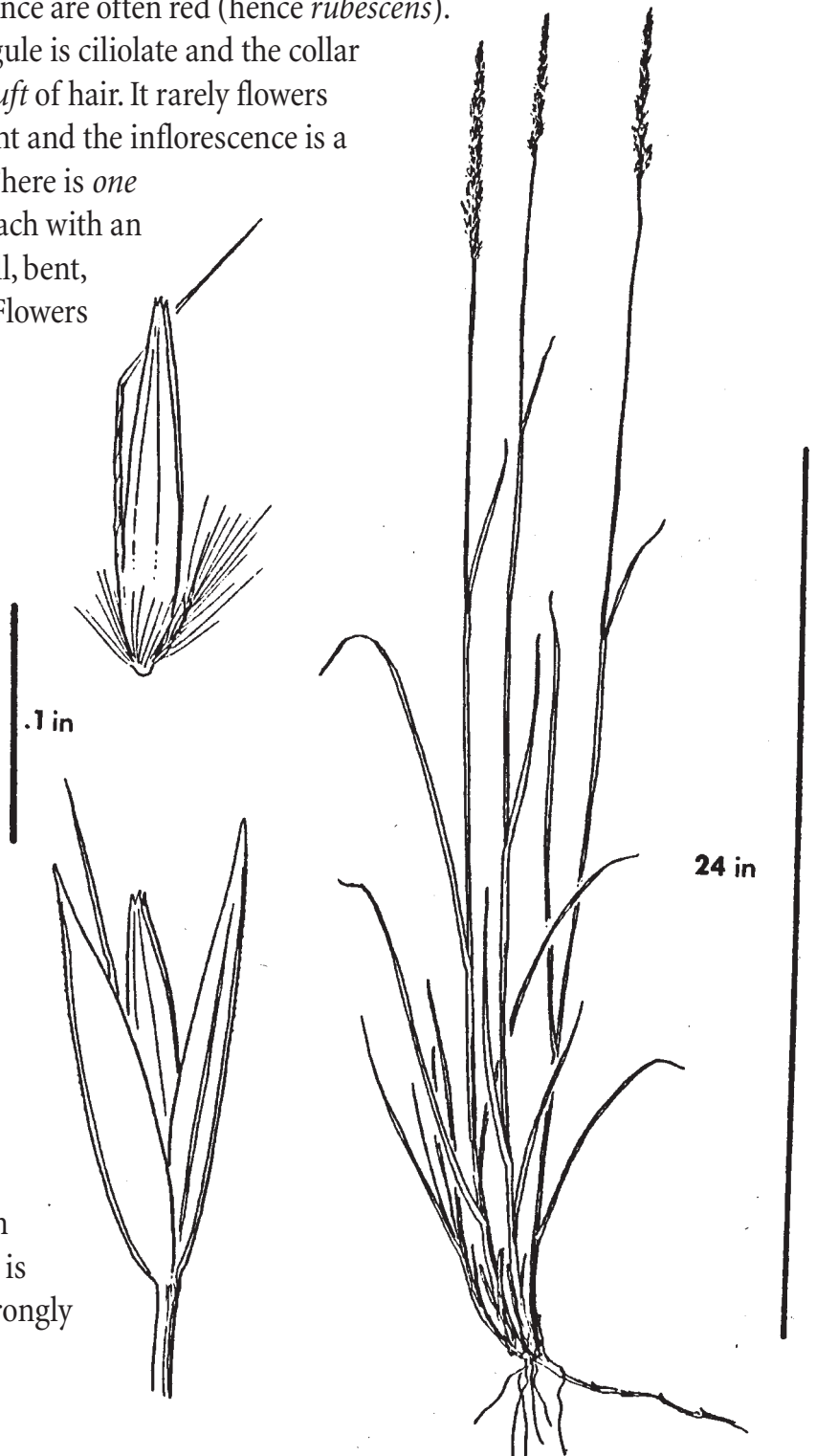
CARU *Calamagrostis rubescens*
pinegrass
POACEAE, GRAMINEAE

HABIT: A very common, rhizomatous, perennial grass; 1-3' tall.

DESCRIPTION: The flat leaves are long (compared to sheath) and narrow (2-4 mm). They are *shiny green* above and *dull* below. The culm bases and inflorescence are often red (hence *rubescens*). The 1-5 mm long ligule is ciliolate and the collar has a conspicuous *tuft* of hair. It rarely flowers except in full sunlight and the inflorescence is a congested panicle. There is *one* ,floret *per spikelet*; each with an inconspicuous, small, bent, twisted, basal awn. Flowers late June-August.

HABITAT: CARU is found on all but the coldest and wettest plant associations. More than 25% cover of CARU indicates a strong potential for moisture competition with tree seedlings.

REMARKS: Fair forage for livestock when green. CARU is resistant to fire; normally regenerating to pre-fire quantities in 1-2 years unless fire is severe. Competes strongly



for moisture with tree seedlings when abundant.

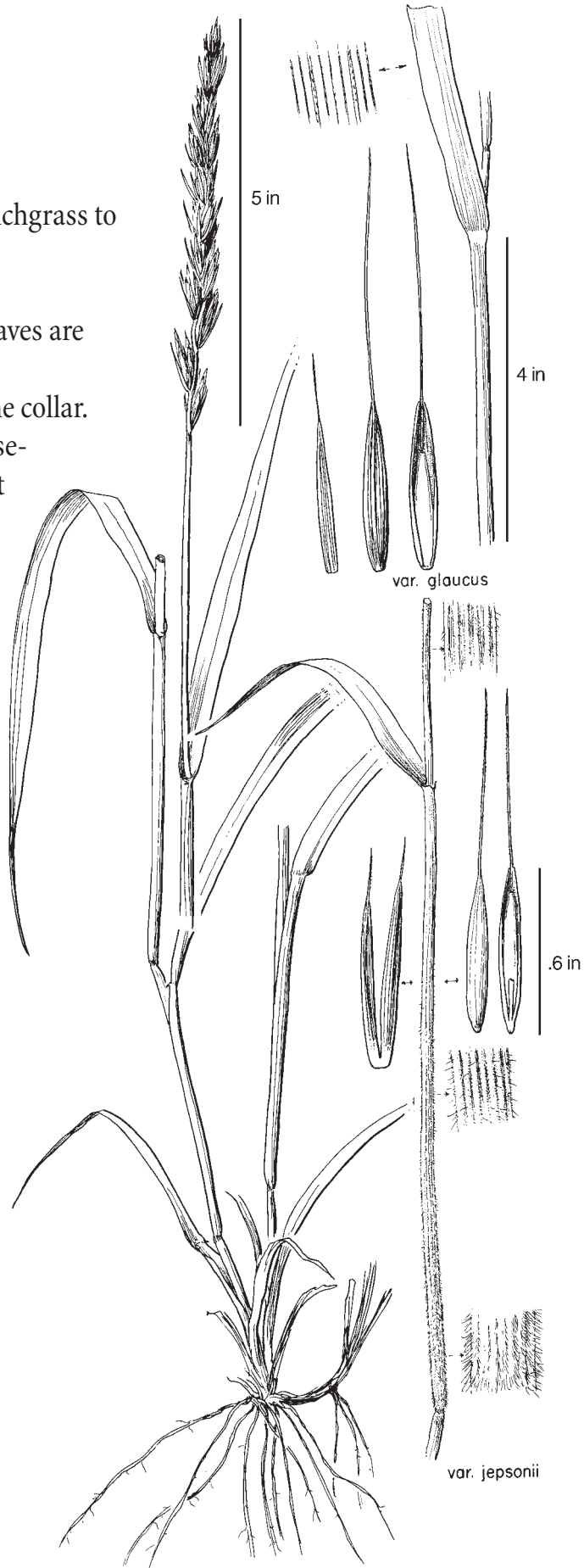
ELGL *Elymus glaucus*
Blue wildrye
POACEAE, GRAMINEAE

HABIT: A semi-erect, perennial bunchgrass to 3' tall.

DESCRIPTION: The *bluish-green* leaves are broad and flat (to .5" wide) with well developed auricles; often purple at the collar. Ligules are about 1mm long and erose-ciliolate. The inflorescence is an erect spike with two spikelets per node. Glumes are very *narrow* and stiff with a 5-12mm awn. Lemmas are awn-tipped or with a short awn (<4mm). Flowers late May-July.

HABITAT: A low to mid elevation species (most commonly) of warm and moist sites in meadows or forest. Quite common in the QUGA series in riparian conditions.

REMARKS: It indicates the moist conditions with good soil. May be confused with other grasses particularly Agropyrons (one spikelet per node). *E. cinereus* is a very large and tall (over 6') bunchgrass with very wide bluish leaves. The specific epithet "glaucus" refers to the bluish cast on the foliage.



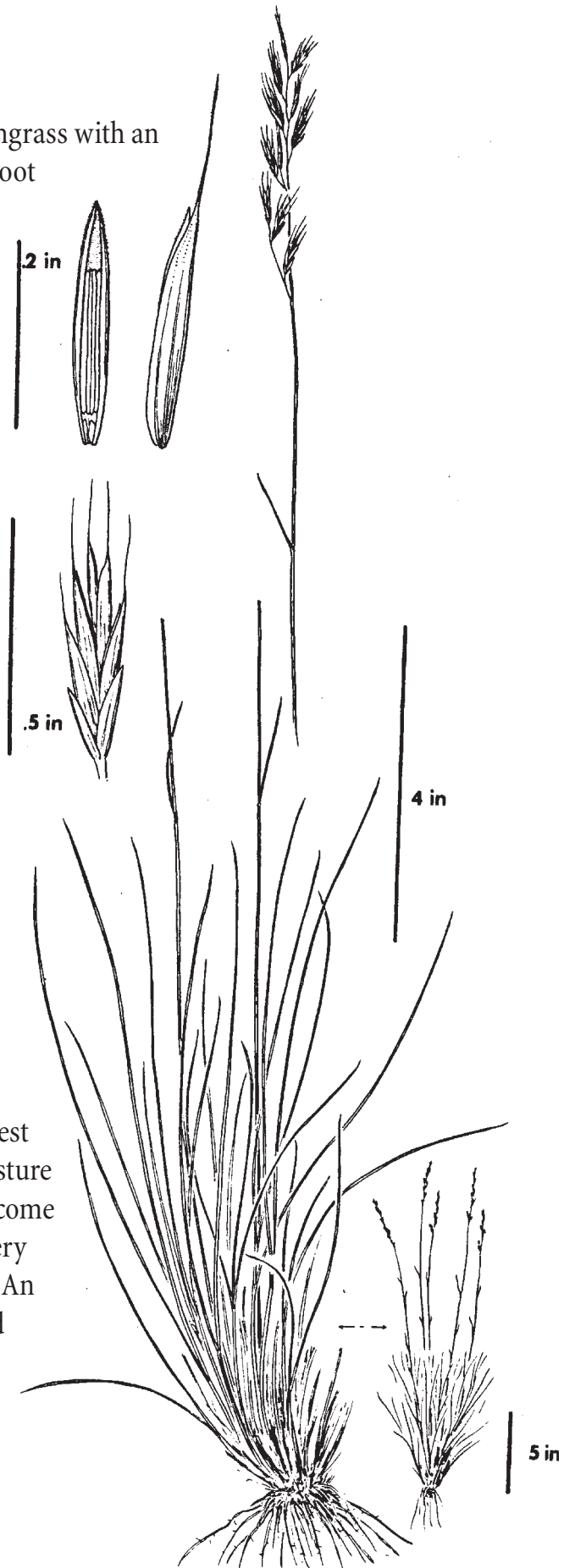
FEID *Festuca idahoensis*
Idaho fescue
POACEAE, GRAMINEAE

HABIT: An erect, perennial bunchgrass with an extensive, fine, non-rhizomatous root system; 1-3' tall.

DESCRIPTION: The *bluish-green* leaves are mostly basal, *tightly inrolled*, somewhat rough textured and 2-5" long in *firmly rooted dense clumps*. Ligules are .3-.6 mm, ciliolate, and highest on the sides. The lemmas are short-awned. The inflorescence is an erect, *narrow*, panicle. Flowers late May-July.

HABITAT: A low to mid elevation species (most commonly) of warm-hot and relatively dry environments. It may be found in open, dry forests and parklands at high elevations. Often on north slopes in very dry shrub-steppe.

REMARKS: It indicates the moistest bunchgrass sites before more moisture requiring rhizomatous grasses become abundant. Normally considered very palatable; it is a decreaser species. An abundance of FEID indicates good range condition. In high elevation sites such as alpine and parkland, FEID is replaced by *F. viridula* which looks very similar to the casual observer.



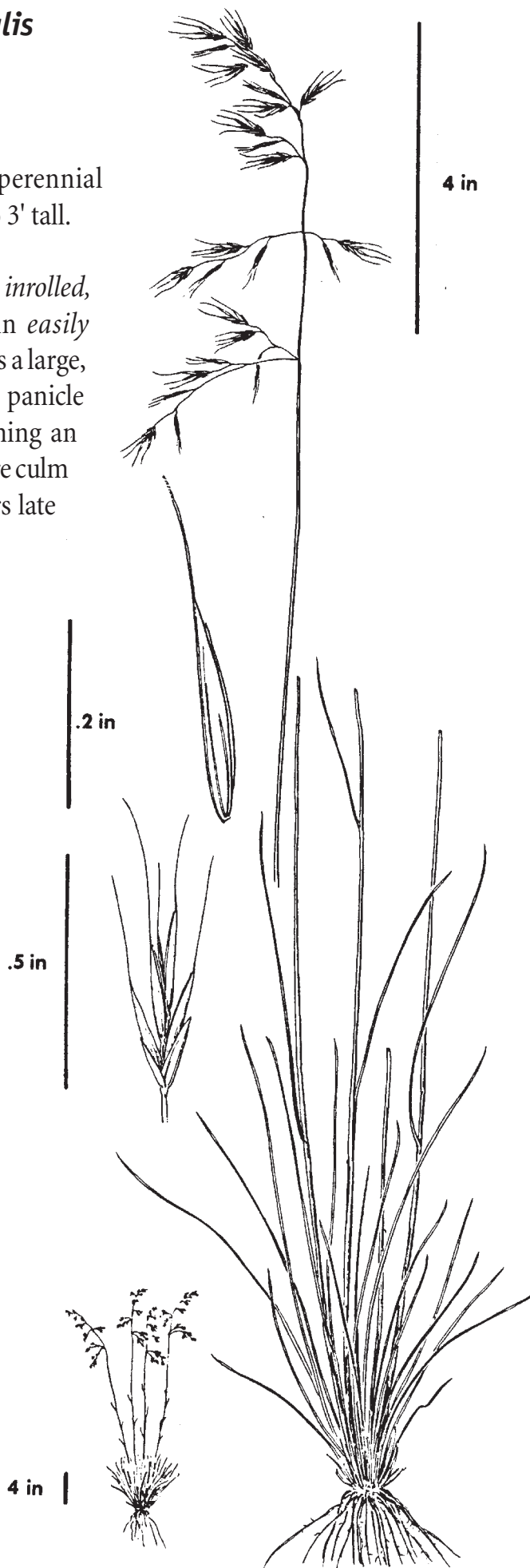
FEOC *Festuca occidentalis*
western fescue
POACEAE, GRAMINEAE

HABIT: A fine, wispy, tufted, perennial grass, with flowering culms up to 3' tall.

DESCRIPTION: Leaves are fine, *inrolled*, light green and soft. It grows in *easily uprooted tufts*. The inflorescence is a large, open panicle with the lowermost panicle branch pointing downward forming an *acute angle* to the culm. The mature culm is usually *reddish* in color. Flowers late May-July.

HABITAT: A forest zone grass as opposed to FEID which extends out of forested areas. FEOC is found on a wide variety of habitats. Indicates more moist conditions than does FEID and is often with CARU.

REMARKS: May be confused with FEID (which has blue-green leaves, is difficult to uproot, and has a narrow panicle).



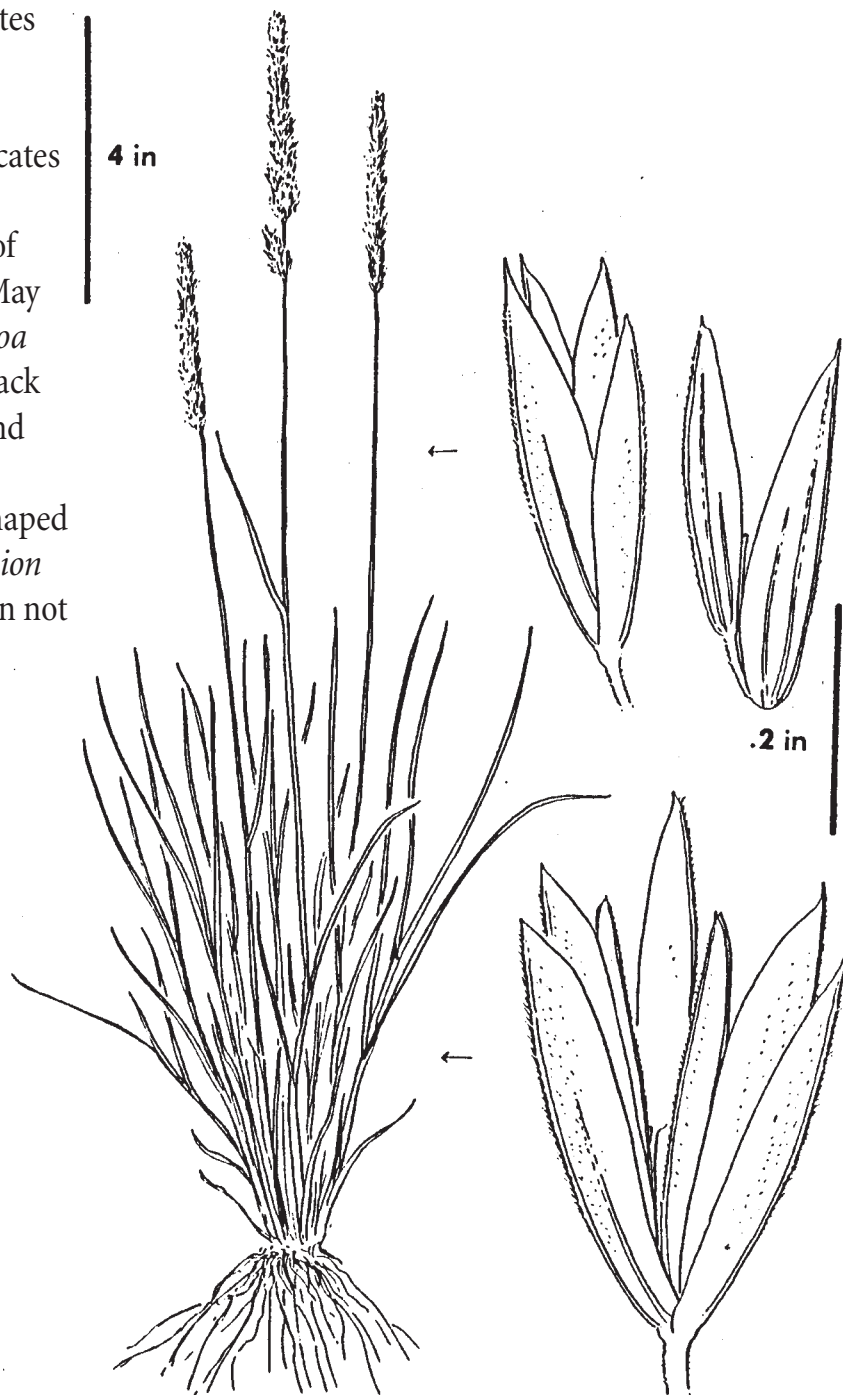
KOCR prairie *Koeleria cristata*
Junegrass
POACEAE, GRAMINEAE

HABIT: A small, perennial bunchgrass with seedstalks 1-2' tall.

DESCRIPTION: The leaf blades are bluish-green, pubescent, folded and 1-3 mm wide with prow-shaped tips. There are no auricles. The inflorescence is a cylindrical, spike-like panicle. It is flaxen colored with *translucent glumes* that give a shining appearance. It has short awned to awn-less lemmas. Flowers May-July.

HABITAT: KOCR occupies hot, dry sites at all elevations.

REMARKS: It indicates severe reforestation problems because of drought and heat. May be confused with *Poa* species (railroad track central leaf veins and no awns) as both plants have prow shaped leaf tips. Also, *Sitanion hystrix* (SIHY) when not in flower.



LUHI *Luzula hitchcockii*
smooth woodrush
JUNCACEAE

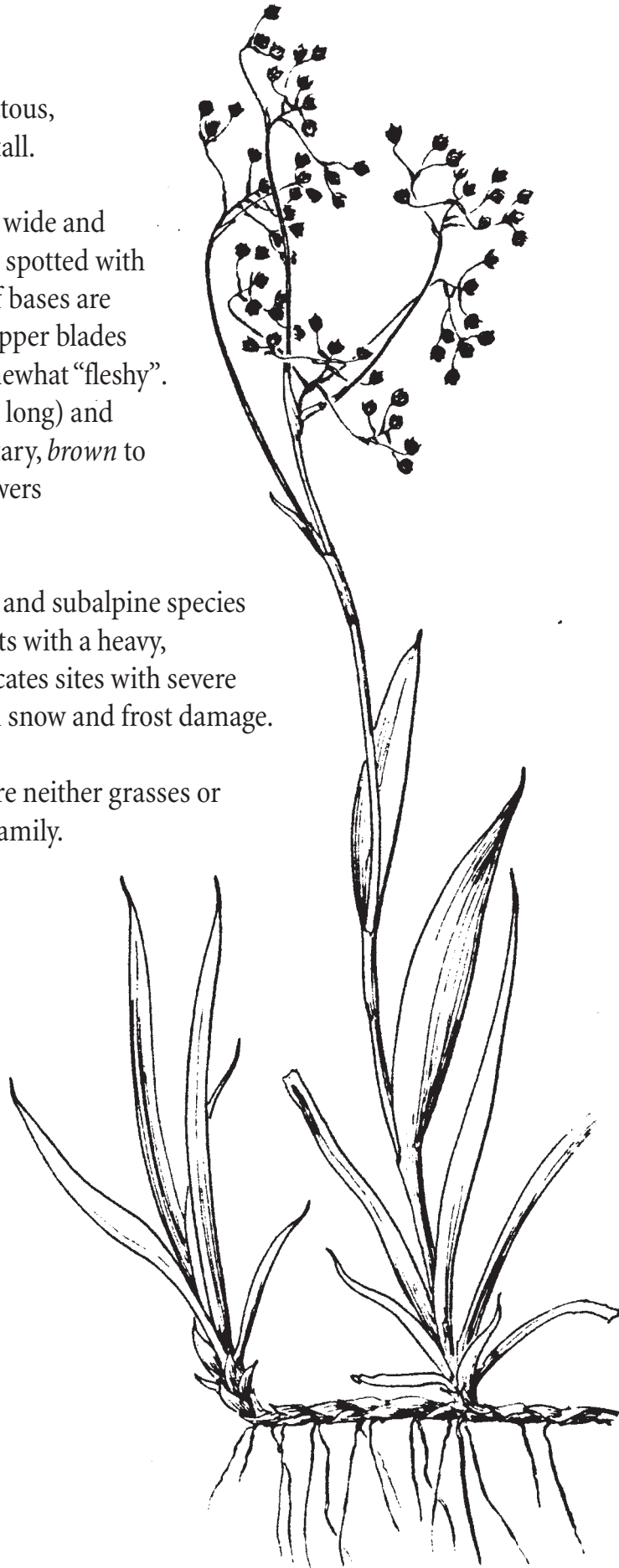
HABIT: A strongly rhizomatous, perennial woodrush; 6-20" tall.

DESCRIPTION: Leaves are wide and commonly brown to *reddish* spotted with reddish-brown tips. The leaf bases are often long-hairy while the upper blades are *smooth, hairless* and somewhat "fleshy". The seed-head is open (1-3" long) and generally nodding with solitary, *brown to purplish-brown* flowers. Flowers July-September.

HABITAT: Common alpine and subalpine species of cold and wet environments with a heavy, persistent snowpack. It indicates sites with severe reforestation problems from snow and frost damage.

REMARKS: Wood rushes are neither grasses or sedges but form a separate family. They resemble sedges more than grasses but their floral parts are different. LUHI was previously named *Luzula glabrata*.

4 in



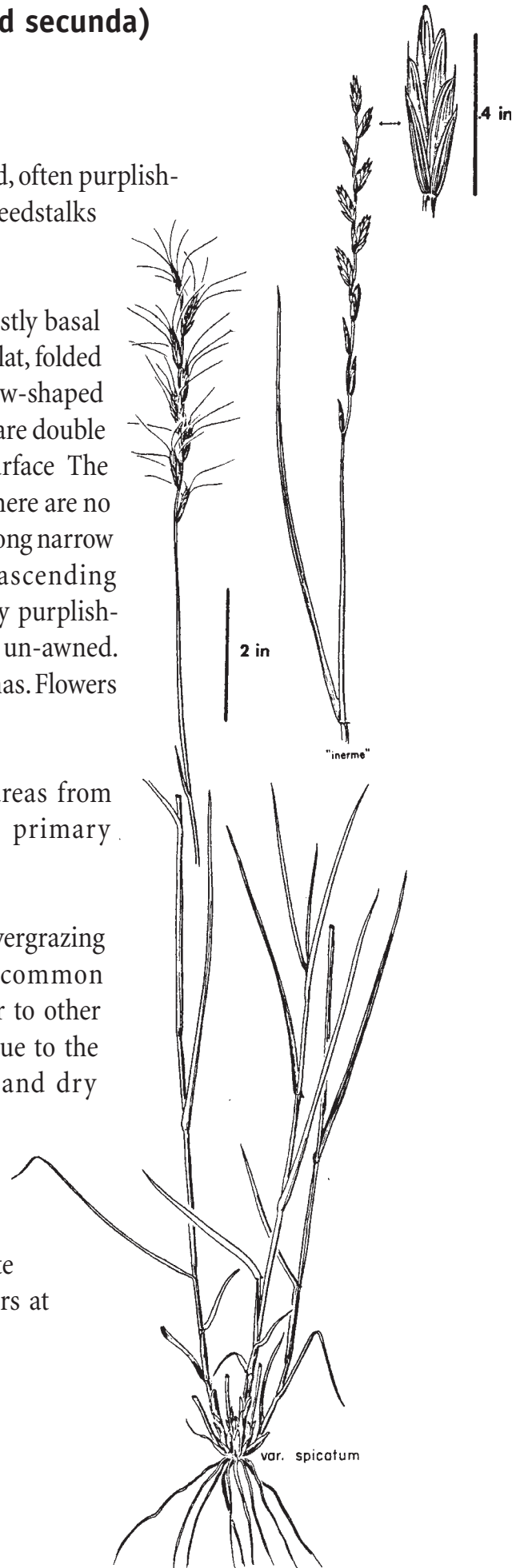
POSA3 *Poa sandbergii* (old *secunda*)
Sandberg's bluegrass
POACEAE, GRAMINEAE

HABIT: A very small, densely tufted, often purplish-tinged perennial bunchgrass with seedstalks to 12" tall.

DESCRIPTION: The leaves are mostly basal with a few on the culm. Blades are flat, folded or inrolled and 1-3" long with a prow-shaped leaf tips. As with all *Poa* spp. There are double midrib grooves on the upper leaf surface. The ligules are acute and about 1mm. There are no auricles. The inflorescence is a 2-4" long narrow or open panicle with erect or ascending branches. The spikelets are usually purplish-tinged. The glumes and lemmas are un-awned. It has short awned to awn-less lemmas. Flowers April-May.

HABITAT: Relatively dry open areas from shrub-steppe to alpine and a primary component of scabland sites.

REMARKS: It will increase with overgrazing due to its short stature. Most common associate is AGSP. Although similar to other *Poa* spp. it is difficult to confuse due to the short stature bunchgrass habit and dry habitat. Other area *Poa* spp. include *P. cusickii* (tall, commonly north slopes in shrub-steppe), *P. nervosa* in open forest and shrub-steppe (rhizomatous with thickened ciliolate ligule and *P. pratensis* (cobweb hairs at base of lemma, rhizomatous).



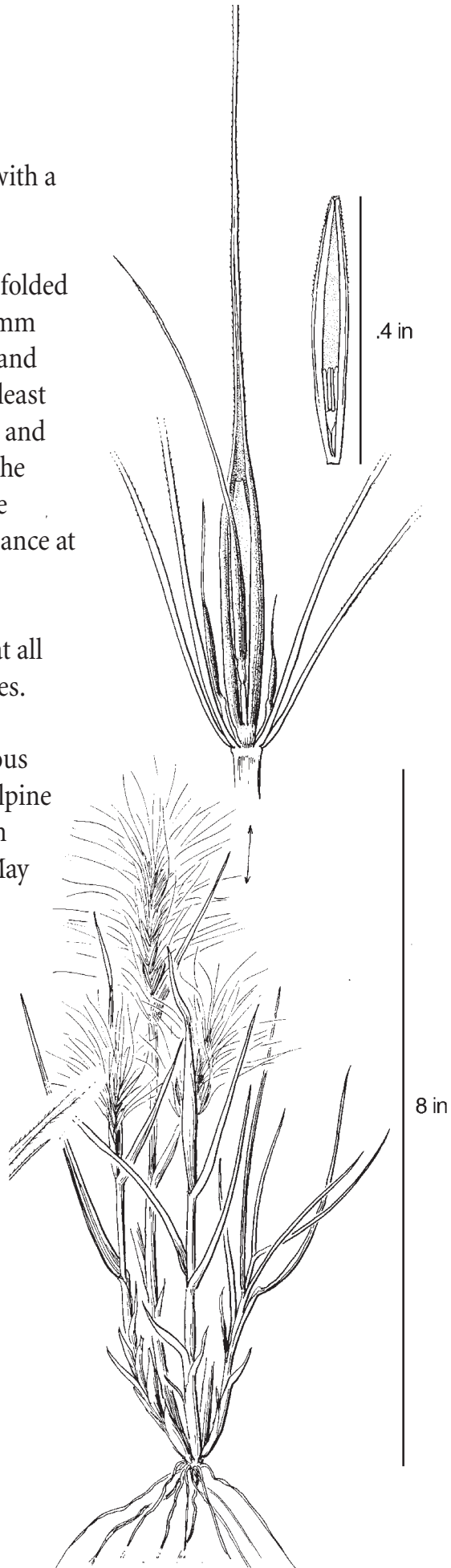
SIHY Sitanion hystrix
bottlebrush squirreltail
POACEAE, GRAMINEAE

HABIT: A 12-24" perrenial bunchgrass with a broad seed stalks.

DESCRIPTION: The leaf blades are flat, folded or inrolled, dull, obviously lined and 1-4mm broad. The ligule is very short (<.5mm) and ciliolate. There are usually auricles on at least some leaves. The glumes have a 1-4" awn and the lemmas have an awn up to 8" long. The inflorescence is a broad, cylindrical, spike characterized by the bottle-brush appearance at full anthesis. - Flowers May-July.

HABITAT: SITR occupies hot, dry sites at all elevations and does well on disturbed sites.

REMARKS: This species has a tremendous elevational range from shrub-steppe to alpine meadows. It indicates severe reforestation problems because of drought and heat. May be confused with *Poa* species (POA) and KOCR when not in flower.



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GLOSSARY OF TERMS

- Accidental** A species infrequently found in a particular habitat that is present as an accident or fluke of establishment.
- Achene** A dry, 1-seeded, indehiscent fruit.
- Acuminate** Gradually tapered to a sharp point or tip.
- Acute** Sharp pointed (shape, not texture) with straight or nearly straight sides.
- Allelopathy** The influence of one plant upon another by products of metabolism. "Chemical warfare of plants."
- Alpine** The part of a mountain above the tree line; or refers to plants that grow in that environment. Thus by definition there is no such thing as an alpine tree because alpine means "above the tree line".
- Alternate** Growing at alternating intervals along the stem (leaves) or arranged alternately between other parts (i.e. stamens between petals).
- Annual** A plant that grows, matures, produces seed-and dies in only one year.
- Anther** The part of a stamen that bears the pollen, usually consisting of one or two pollen sacs.
- Aril** A specialized fleshy thickening of the seed coat.
- Armed** Having spines, thorns etc.
- Aromatic** Having an odor or smell.
- Association** a. A specific type of plant community. b. A group of plants growing together in a climax state. c. An assemblage of species recognized and characterized by certain characteristic dominantes. d. R. Daubenmire: "...a particular combination of climax tree and understory dominants...".
- Awn** A slender bristle or hair-like projection.
- Auricle** A small lobe or ear-like projection usually at the base of a leaf blade in grasses.
- Axil** The angle between a leaf or similar part and the stem.

- Axillary** Pertaining to or arising from an axil.
- Axis** The central stem or main part about which organs are arranged.
- Banner** The uppermost, generally enlarged petal of flowers in the legume family.
- Basal** Located at the base.
- Berry** Any pulpy or juicy fruit with
- Biennial** A plant that completes its life cycle in two years and then dies.
- Blade** The flat extended part of a leaf.
- Bract** Any specialized leaf that subtends a flower or inflorescence but is not part of the flower itself
- Branch** A secondary division of a stem
- Bud** An undeveloped shoot or flower
- Bud scale** Reduced specialized leaves that
- Bulb** A short, thick, vertical, underground shoot.
- Bunchgrass** A grass that grows from a bunch or clump. (Contrast with rhizomatous.)
- Caespitose** Growing in dense tufts, i.e bunchgrass.
- Callus** A firm thickening; the thickened base of the lemma in many grasses.
- Calyx** All the sepals of a flower as a group.
- Cambium** A layer of living cells between the xylem and phloem which gives rise to both.
- Carpel** A modified leaf forming one or more parts of a pistil.
- Catkin** A dense, often drooping flower cluster, consisting of small, scalelike flowers.
- Cauline** On or pertaining to the stem. Cauline leaves are clearly attached to the stem instead of issuing from the base.

- Chaffy** With scales or with a scaly texture.
- Cilia** Marginal hairs or bristles (e.g. eyelashes).
- Ciliate** Having marginal hairs like eyelashes.
- Ciliolate** Diminutive of ciliate.
- Clasping** Usually refers to a leaf whose lower edges partly surround the stem.
- Climax** A self-replacing association or species; with no evidence of replacement by other plants.
- Climax community** The end-point in plant succession for a site, that develops and maintains itself in steady state conditions (without disturbance). Often termed the association.
- Climax species** A species that is self-regenerating without site disturbance, without evidence of replacement by other species. Usually considered the most shade tolerant and competitive species.
- Clone** A group of individuals that originated vegetatively from a single individual
- Collar** The outer side of a grass leaf at the junction of the sheath and the blade.
- Community** An assemblage of plants growing together with no indication of climax status. A generalized term.
- Compound leaf** A leaf with two or more distinct leaflets.
- Cone** A woody fruiting structure with a series of overlapping scales arranged about a central axis.
- Constancy** The number of occurrences of a species in a series of plots divided by the total number of plots (expressed as a percentage and all plots must be the same size). i.e. If a particular association has 10 plots and a species is found in 8 of the 10 then its constancy is 80%.
- Corolla** All the petals of a flower together.
- Corymb** A special flat-topped inflorescence with the outer pedicels progressively longer than the inner.

- Cover** Usually meant as canopy cover which is the gross outline of the foliage of an individual plant or group of plants within a stand or plot. Expressed as a percent of the total area of the plot and may exceed 100% if more than one layer is considered.
- Culm** The stem of a grass or a grass-like plant.
- Cyme** A normally flat-topped flower cluster that blooms from the center outwards.
- Decidious** Falling off at the end of a season, not persistent or evergreen.
- Decumbent** Lying on the ground with a prostrate base and erect tips.
- Dehiscent** Opening at maturity to release the seeds. Opposite of indehiscent
- Dentate** With spreading, pointed teeth.
- Depauperate** Poorly developed in terms of both species and cover of individuals.
- Dioecious** Having the male flowers and female flowers on separate plants. Compare to monocious.
- Distinct** All the parts are separate; not united
- Divided leaf** One that is separated nearly to the midrib or base.
- Drupe** A fleshy fruit with a seed enclosed by a hard cover, which is within a fleshy layer. Such as a peach or cherry.
- Drupelet** Diminutive of drupe. Raspberries are an aggregation of drupelets.
- Ecotone** The boundary or transition zone between plant communities.
- Edaphic** Refers to the soil.
- Elliptic** Having a shape resembling an ellipse.
- Entire** Leaves without marginal teeth or lobes.
- Ephemeral** Lasting only a short time.
- Erect** Upright (or nearly so) to the ground.
- Erose margin** A leaf with an irregular margin as if it has been gnawed.

- Evergreen** Foliage remains green throughout the year; not deciduous.
- Exserted** Extending beyond a surrounding organ; the opposite of included.
- Fascicle** A close bundle or cluster.
- Filament** The supporting stalk of an anther; the stalk of a stamen.
- Floral** Pertaining to a flower or flowers
- Floret** A small flower, usually one of a large cluster such as in grasses.
- Forb** An herb. Any herbaceous plant that is not grasslike
- Fruit** A ripened ovary with any other structures that ripen with and are joined to it.
- Frond** The usually compound leaf of a fern, palm or even the leaf-like thallus of a lichen.
- Galea** A helmet-shaped part or upper lip of some bilabiate flowers such as in Indian paintbrushes and related plants.
- Geniculate** Twisted or bent abruptly.
- Genus** A taxonomic class below a family and above a species (e.g. all pines are of one genus).
- Glabrous** Smooth and without hairs.
- Gland** A structure on the surface of an organ that produces a sticky or greasy substance.
- Glandular** Provided with glands or functioning as such.
- Glaucous** Covered with a fine whitish, waxy powder.
- Globose** Spherical.
- Glume** The outermost tracts in spikelets of grasses, which do not subtend the individual florets.
- Graminoid** Refers to an herb with long narrow leaves such as grasses and grass-like plants (sedges and rushes).
- Grass** Any member of the family Gramineae.

- Habit** The general growth form and appearance of a species.
- Habitat** The area or type of environment in which an organism or population normally lives or occurs.
- Habitat type** Defined originally by R. Daubenmire to mean: "All the area that now supports, or within recent time has supported, and presumably is still capable of supporting, one plant association..." Daubenmire (1968). The term is often applied differently than originally defined.
- Head** A dense, compact cluster of flowers.
- Herb** A plant with a fleshy stem that dies back to ground level each year. A non-woody plant.
- Herbaceous** Leaflike in color and texture; non-woody.
- Hirsute** With moderately coarse and stiff hairs.
- Hydric** A relative term used with xeric and mesic to denote the wetness of a site. Xeric-mesic-hydric indicate from dry to wet. Hygric is a synonymus term that is probably more appropriate (or correct).
- Hygric** See hydric.
- Imbricate** A shingled arrangement, usually said of bract subtending a inflorescence.
- Incised** Deeply and sharply cut margins; may be regular or irregular.
- Indehiscent** Not opening or dehiscent at maturity.
- Indicator** A plant whose presence indicates specific site conditions or a plant indicative of a habitat type.
- Increase** A native plant that increases under disturbance, (usually grazing). It carries a negative connotation for determination of range condition.
- Inflorescence** A flower cluster of a plant, or the arrangement of the flowers on the plant.
- Invader** A introduced plant that increases after its introduction into a site; generally after some type of disturbance. As used in range management the term carries the connotation of being undesirable for grazing.

- Involucre** A whorl or series of bracts or scales beneath or around a flower cluster.
- Joint** Point on a stem where a leaf or branch may grow. A node.
- Lanate** Woolly.
- Lanulose** Diminutive of lanate. Fine wooly.
- Layering** The ability of a plant to form roots where its stem comes in contact with the ground. e.g. ABLA2
- Leaflet** One of the segments of a compound leaf.
- Lemma** One of the two bracts that normally subtend individual flowers (florets) in grass spikelets. It is the outer, lower bract. The palea is the other bract.
- Ligule** A straplike structure as in the ray flower of some members of the sunflower family; or the membranous or hair-like appendage at the inside junction of a grass blade and sheath.
- Mesic** See Hydric. Also connotes to the term moderate.
- Moderate** Used in the context of not extreme in terms of temperature, elevation and moisture.
- Midrib** The main or central rib of a leaf.
- Monoecious** Meaning is “One house” and it refers to plants with separate male and female flowers on the same plant. Compare to dioecious.
- Node** The place on a stem where a leaf is (or has been attached).
- Oblanceolate** A leaf shape widest above the midlength.
- Obtuse** Blunt or rounded in shape, not sharp pointed
- Ochroleucous** Yellowish white
- Opposite** In pairs on either side of a stem at the same node; compare alternate.
- Ovate** Egg-shaped.
- Palmate** Resembling a hand with the fingers extended. Three or more leaflets, etc. arising from a common point.

- Panicle** A loose or compact flower cluster with at least two branches between the main stem and each flower. Blooms from the outside or bottom to the center or top.
- Papillate** Covered with short, rounded blunt projections such as those covering a tongue.
- Papillose** See papillate.
- Pappus** Hairs, scales, bristles, etc., or a mixture of these structures crowning the ovary and seed of the sunflower family.
- Pedicel** Small stalk bearing a single flower in an inflorescence.
- Peduncle** The stalk of an inflorescence or a flower.
- Perennial** A plant that lives more than two years.
- Perianth** All of the petals and sepals of a flower together as a group.
- Persistent** Remaining attached after the normal function is completed.
- Petiolate** With a petiole.
- Petiole** Leaf stalk.
- Phloem** The tissue that translocates photosynthates in plants. It is outside of the cambium in conifers.
- Plumose** Feathery or plume-like.
- Pilose** With long, straight, soft, spreading hairs.
- Pinna** Any leaflet of a pinnate leaf. Pi. pinnae.
- Pinnate** With leaflets, lobes, etc. on each side of a common stem or axis. Feather-like.
- Pinnatifid** Having pinnately divided leaf segments.
- Pinnule** Diminutive of pinna; the ultimate segment of a pinnate leaf.
- Pistils** The seed-bearing organ of a flower, made up of the ovary, style and stigma.
- Pome** A fleshy fruit having seeds but no stone; e.g. an apple.

- Presence** The state or fact of being present; or similar to constancy except that all the plots need not be the same size.
- Prickle** A small, sharp, usually slender outgrowth of the bark or epidermis.
- Prostrate** Growing flat along the ground.
- Puberulent** Finely pubescent or hairy with minute hairs.
- Pubescent** Covered with short hairs.
- Raceme** An inflorescence with several to many stalked flowers arranged singly along a common stem or axis.
- Racemose** Shaped like a raceme.
- Rachis** A main axis of a leaf or inflorescence.
- Rachilla** Diminutive of rachis, refers to the secondary stems of the spikelets of grasses and sedges.
- Receptacle** The portion of the flower stalk that bears and supports the flower parts.
- Reflexed** Bent abruptly backward or downward.
- Reniform** Kidney-shaped.
- Revolute** Rolled back on the underside from the margins.
- Rhizomatous** Having rhizomes.
- Rhizome** A root-like underground stem that sends out shoots from its upper surface and roots from the under surface.
- Riparian** Refers to land (plants) bordering a stream, lake, etc.
- Rootstock** Rhizome.
- Rosette** A basal cluster of leaves, flowers, etc.; arranged in a circle or disc.
- Samara** A dry indehiscent winged fruit.
- Scabrid** Roughened.
- Scape** A flowering stem from the ground without leaves (sometimes with tracts).

- Scapose** Having the flowers on a scape.
- Schizocarp** A dry fruit that splits at maturity into two or more carpels.
- Scurfy** A loose, scaly crust.
- Secund** Having all the flowers or branches all on one side of the axis.
- Sedge** A grasslike plant of the family Cyperaceae that resemble grasses but have solid (often triangular) stems without nodes.
- Sepal** One of the outermost (typically green) segments of a flower.
- Seral** A species or plant community that is replaced by another (over time) as succession progresses. See sere.
- Sere** The complete sequence of ecological communities successively occupying an area.
- Series** A group of associations or habitat types with the same dominant climax species. Compare zone.
- Serrate** Leaves toothed along the margin with forward pointing teeth.
- Serrulate** Diminutive of serrate.
- Sessile** Attached directly by the base with no pedicel or petiole.
- Sheath** Any organ that surrounds another; as part of the grass leaf that surrounds the stem.
- Shrub** A woody perennial that differs from trees in that it is typically smaller in stature and has multiple stems from the ground. They tend to be categorized as follows: Low shrubs are up to 2' tall; Medium shrubs are 2' to 6' high; and Tall shrubs are more than 6' tall. See also subshrub.
- Simple leaf** One in which the margin is not cut or lobed to the midrib.
- Sinuate** A leaf with a strongly wavy margin.
- Site** An area delimited by fairly uniform climatic and soil conditions. Similar to habitat.
- Sori** Plural of sorus.
- Sorus** A cluster of spore cases on the underside of fern fronds.

- Species** A taxonomic class below that of genus; generally refers to organisms capable of interbreeding.
- Spike** A usually elongate inflorescence with sessile or subsessile (nearly sessile) flowers arranged along an axis. Such as the seedhead of many grasses.
- Spatulate** Shaped like a spatula; rounded above and narrowed to the base.
- Spikelet** A small or secondary spike; such as those found in the inflorescences of many grasses.
- Spine** A firm, sharp pointed structure that is a modified leaf or stipule. Compare to prickle and thorn.
- Spinose** Bearing spines; spiny.
- Spinule** Diminutive of spine; but with no connotation of being a modified leaf.
- Spinulose** Bearing spinules.
- Stamen** The male part of the flower consisting of the anther and usually a stalk or filament.
- Staminate** Having or producing stamens; or a flower with just stamens and no pistils.
- Staminode** A sterile stamen (Common in Penstemons).
- Stand** A group of plants with a more-or-less uniform condition(s) such as composition, age, structure, condition, etc. Stands are real entities and can be sampled. Compare association, type, habitat type, community.
- Stellate** Arranged or shaped like a star; radiating from a center. Stellate hairs are like the bare struts of an umbrella.
- Stigma** The apex of a pistil of a flower upon which the pollen is deposited.
- Stipe** A stalk.
- Stipitate** Supported on a stipe.
- Stipule** One of the usually small, paired, leaf-like structures at the base of leaves on some plants.

- Stolon** A creeping stem above the ground that roots at the nodes.
Compare to rhizome.
- Sterigmata** A persistent, peg-like, projection that connects the needles of some conifers (e.g. spruces) to the stem.
- Stoloniferous** Having or bearing stolons.
- Stoma; Stomate** An opening in the surface of leaves; bounded by specialized cells that open or close the opening to allow the passing of gases and water vapor in and out of the leaf.
- Strobilus** A fruiting structure characterized by a series of overlapping scales such as a pine cone.
- Style** The slender stalk of the ovary that is tipped by the stigma.
- Subshrub** A very low (usually less than 1' tall) and semi-woody plant with a persistent, somewhat woody base. Some consider them as woody herbs. PYSE, CHUMO and LIBOL are examples of subshrubs. (Suffrutescent is the proper botanical term for semi-shrubby plants.)
- Succulent** With thick, fleshy stems or leaves.
- Subalpine** A forested zone just below the treeless (alpine) zone. See alpine.
- Succession** The replacement of one type of community or species by another. Often given the connotation of leading towards the climax but this is not necessarily so in all uses.
- Suffrutescent** Semi-woody, or half shrubby. See subshrub.
- Terminal** At the the end or tip.
- Tepal** A sepal or petal; often used when it is not known which is the proper term, especially in the lily family.
- Terete** Round in cross-section.
- Ternate** In threes.
- Thallus** A plant body not clearly differentiated into stems, roots and leaves.
- Thorn** A modified stem with a sharp point.

- Throat** The outer expanded part of a tubular corolla; or the upper margins of the sheath in grasses.
- Tiller** A shoot from the base of a grass.
- Timberline** The upper or lower limit beyond which trees do not grow. The lower timberline is usually related to drought and the upper to low temperatures. See tree line.
- Trailing** Prostrate, but not rooting.
- Tree** A woody plant with a single stem (usually) and more than eight feet tall.
- Tree line** The limit beyond which trees do not grow except perhaps in a stunted form. Compare with timberline.
- Trifoliate** With three leaves.
- Truncate** Squared at the tip or base as if cut off with a straight blade.
- Twig** A small branch or slender shoot.
- Umbel** A flat-topped inflorescence in which the individual flowers arise from about the same point like the ribs of an umbrella.
- Umbo** A blunt or rounded protuberance at the end or side of an organ such as on the scales of pine cones. An armed is one with a spine.
- Undergrowth** A generalized term that refers to the plants under a taller canopy of vegetation such as shrubs under a canopy of trees. See understory.
- Understory** Sometimes has the same meaning as undergrowth but usually carries the connotation of meaning small trees.
- Vein** An externally visible vascular bundle such as the veins in a leaf.
- Venation** The mode or pattern of veining.
- Verticillaster** An inflorescence resembling a whorl but actually arising in the axils of opposite leaves. Common in Penstemon.
- Whorl** Three or more parts, radiating from a single point.
- Winter green** Green throughout the year. Evergreen but without the connotation that evergreen carries of being specific to tree foliage.

- Xero** A Greek prefix meaning dry. i.e. xerophyte = a dryness enduring or drought tolerant plant. Compare with the meaning of mesic and hydric (hygric).
- Xeric** Characterized by or adapted to a dry habitat. See explanation under hydric.
- Xylem** The supporting and water conducting tissue of vascular plants. In trees the xylem is inside of the cambium and is the “wood” i.e. the sapwood (conducting tissue) and heartwood (supporting tissue). See phloem and cambium.