Special Report Series

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THE VASCULAR PLANTS OF BRITISH COLUMBIA

Part 1 - Gymnosperms and Dicotyledons (Aceraceae through Cucurbitaceae)

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The Vascular Plants of British Columbia

Part 1 - Gymnosperms
and
Dicotyledons (Aceraceae through Cucurbitaceae)

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With the cooperation of the Royal British Columbia Museum and the Botanical University of British Columbia.

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INTRODUCTION

This manual describes all of the flowering plants and vascular cryptogams, both native and naturalized, occurring within the borders of British Columbia. Keys are included for all genera, species, subspecies and varieties. The study is based on examination of specimens in all major Canadian herbaria and some US herbaria (e.g., UC, CAS, WTU), as well as a complete review of the pertinent literature.

FORMAT

The manual will be published in four parts — Part 1 includes Gymnosperms and Dicotyledons (Aceraceae through Cucurbitaceae); Part 2 will contain Dicotyledons (Diapensiaceae through Portulacaceae); Part 3 will include Dicotyledons (Primulaceae through Zygophyllaceae) and Pteridophytes; and Part 4 will contain the Monocotyledons. Hopefully this will be published, together with the first three parts, as a single volume.

The floristic treatment is in alphabetical order by families, genera and species since most of our users may not be familiar with the more traditional ''Englerian system''. These users (e.g., foresters, wildlife specialists, park managers, amateur naturalists, students, etc.) often require specific information about a species. Thus we have attempted to include the most frequently required information. This includes the following:

Synonyms:

Synonyms are given only when there are references in major floristic treatments to a given species by another name or names.

Common Names:

A common name for each species is included. These are based mainly on names appearing most commonly in the Western North American literature.

Habitat and Moisture Regime:

A brief description of a species habitat preference, including moisture regime, is given. The latter uses a simple (wet - moist - mesic - dry) scale.

Vegetation Zones:

The elevational limits of a species are presented using vegetation zones. The zonal system used here, unlike some of the more localized zonation systems (Krajina 1965; Rowe 1959, 1972; Franklin and Dyrness 1973), has wide application in the northern hemisphere and differs only slightly from that proposed by Danserau (1975) and Meusel *et al.* (1965) and recommended by Löve (1970) in a recent review of the subject. The montane zone includes all continuous forests in British Columbia except for the coastal lowlands and some islands which are included in the lowland zone. The upper forests in southern British Columbia, included by some local ecologists (e.g., Krajina 1965) in the subalpine zone, considered the upper montane zone in this work. The subalpine zone is defined as that area above the montane zone and below the upper limit of conifers as an upright tree form (Douglas 1972). In the southern part of the province, subalpine vegetation consists of a meadow/tree-clump complex (Douglas 1971, 1972), while in the northern part of the province the subalpine zone is dominated by tall shrubs (mainly three- to four-metre *Salix*) and scattered trees (Douglas 1974, Krajina 1975). Above the subalpine zone is the alpine zone where trees occur only in krummholz (or dwarfed) form and the vegetation is extremely short (less than one metre) and commonly referred to as alpine tundra (Krajina 1969, Douglas 1972, Douglas and Bliss 1977). The steppe vegetation zone (Daubenmire 1970) occurs in the interior of the province and includes what is often referred to as sagebrush or grassland vegetation. The former occurs at lower elevations in the Thompson, Okanagan, Kootenay, Columbia, and Flathead River valleys in southern British Columbia while the latter includes parts of the Fraser and Thompson plateaus and upper Peace River drainage.

Abundance:

The abundance of a species is given by a general scale: rare - infrequent - frequent - common. The rare, and some of the infrequent plants, are well documented (at least to the best of our knowledge) in Straley et al. (1985). Most of the common plants are also well known from numerous other sources. In a number of cases, however, limited collecting or research enabled us to make only general assumptions about the abundance of some of the infrequent or frequent species.

Range:

The general distribution of a species, both within and outside the province, is presented. Maps compiled at the Royal British Columbia Museum were extremely helpful. Abbreviations are as follows:

Alberta	AB	Maine	ME
British Columbia	BC	Maryland	MD
Manitoba	MB	Massachusetts	MA
New Brunswick	NB	Michigan	MI
Newfoundland	NF	Minnesota	MN
Northwest Territories	NT	Mississippi	MS
Nova Scotia	NS	Missouri	MO
Ontario	ON	Montana	MT
Prince Edward Island	PE	Nebraska	NE
Quebec	PQ	Nevada	NV
Saskatchewan	SK	New Hampshire	NH
Yukon	YT	New Jersey	NJ
		New Mexico	NM
Alabama	AL	New York	NY
Alaska	AK	North Carolina	NC
Arizona	AZ	North Dakota	ND
Arkansas	AR	Ohio	OH
California	CA	Oklahoma	OK
Colorado	CO	Oregon	OR
Connecticut	CT	Pennsylvania	PA
Delaware	DE	Rhode Island	RI
District of Columbia	DC	South Carolina	SC
Florida	FL	South Dakota	SD
Georgia	GA	Tennessee	TN
Hawaii	HI	Texas	TX
Idaho	ID	Utah	UT
Illinois	IL	Vermont	VT
Indiana	IN	Virginia	VA
Iowa	IA	Washington	WA
Kansas	KS	West Virginia	WV
Kentucky	KY	Wisconsin	WI
Louisiana	LA	Wyoming	WY
		Mexico	MX

Notes:

Specific items of importance or problems, especially those related to taxonomy and nomenclature, are noted. If infraspecific taxa require recognition these are keyed here.

A complete floristic bibliography, arranged by families, is also appended for users wishing to study a species further. A glossary and key to families will appear in Part 4.

The absence of descriptions and illustrations, due to severe budget limitations, should not deter from overall treatment. Descriptions and illustrations of most of British Columbia's plant species are available in number of regional floras (Abrams 1923-1951; Ferris 1960; Hitchcock *et al*. 1955-1969) or in treatments some British Columbian plant families (Brayshaw 1976, 1985; Douglas 1982, 1989, 1990; Szczawinski 1959, 1962; Taylor 1963, 1966, 1970, 1973a, 1974a, 1974b, 1983). Additional descriptions for the remaining plants may be found in Argus (1973), Fernald (1950), Packer (1983), Porsild and Cody (1980), Tutin *et* (1964-1980) or Welsh (1974).

DATA BASE

The present manual is based on a wealth of regional publications dating back over a hundred years. addition, most of the species (especially the rare and infrequent ones) have been examined in various Canadian herbaria. Historically, the floristic documentation of British Columbia's flowering plants and vascular cryptogams began with the enumeration of the extensive collections of J. Macoun (Macoun 1883-1890). This was soon followed by the botanical contributions of his son, J.M. Macoun (1889, 1894-1906). In 1915, the first provincial flora appeared (Henry 1915), treating the southern part of the province. A supplement to this work was later provided by Eastham (1947). The southern part of the province was also included in a treatment Pacific Northwest vascular plants by Hitchcock *et al*. (1955-1969) — later edited and revised by Hitchcock and Cronquist (1973). During this same period several other major works also appeared. Boivin (1966-1967), after numerous visits to Canadian and American herbaria, produced a checklist of Canadian vascular plants. In his Flora of Alaska and Neighboring Territories, Hultén (1968) provided brief descriptions with range maps that, in many cases, included British Columbian species. Meanwhile, in a treatment of Queen Charlotte Islands vascular plants, Calder and Taylor (1968) contributed one of the few floras dealing solely with British Columbia. British Columbia was again included in a regional flora of northwestern North America when Welsh (1974) treated the plants of northern British Columbia. A literature review by Taylor and MacBryde (1977), mainly of North American studies, resulted in a resource inventory of vascular plants. Unfortunately, this extensive review treated several hundred erroneous citations as valid records for the province. Recently modern Canadian flora was produced by Scoggan (1978-1979). Finally, all of the province's rare or infrequent plants were examined and verified in various Canadian herbaria by Straley *et al*. (1985).

In addition to the major works mentioned above, there have been numerous taxonomic, floristic and related research papers dealing with British Columbia's vascular plants. Many of these are cited in the floristic bibliography by Douglas *et al*. (1983) and many are specifically referenced in this manual.

TAXONOMIC CONCEPTS

Our view of species limits is a practical one. Therefore, species had to be readily characterized morphologically in order to produce keys usable by a variety of users. Many of the keys were newly constructed while others were adapted for our British Columbia plants from well-tested manuals.

Wherever possible, geographically separate, or largely separate, infraspecific taxa are treated at the subspecies level, while those with geographically sympatric ranges are treated at the varietal level. Since have not made any nomenclatural changes associated with the production of the manual, this choice between subspecies and variety is not always possible. We have not used more than one infraspecific rank in this work for a single species. Taxa are not recognized at the forma level.

GYMNOSPERMS

1. Seeds solitary, surrounded by a red, fleshy, cup-like aril; plants dioecious; leaves needle-like, flat, spreading horizontally in two ranks, and without resin ducts. . . . . .TAXACEAE

1. Seeds several to numerous in a dry cone or berry-like fruit; plants monoecious or dioecious; leaves needle- or scale-like, when needle-like, with resin ducts visible in cross-section at 10 power magnification.

    2. Leaves scale-like, or awl-shaped but opposite or whorled; ovulate cones small, mostly less than 15 mm, woody or fleshy, the scales (2-12), opposite or in threes . . . . . CUPRESSACEAE

    2. Leaves needle-like, spirally arranged or borne in clusters; cones mostly greater than 15 mm, woody to papery, the scales many and spirally arranged . . . . . PINACEAE

CUPRESSACEAE

1. Fruits berry-like; branchlets four-angled; leaves scale-like or awl-shaped . . . . . *Juniperus*

1. Fruits a dry cone; branchlets flattened; leaves scale-like.

    2. Cones reflexed, longer than broad; leaves blunt and tightly appressed; branchlets flattened . . . . . *Thuja*

    2. Cones erect as broad as long or broader; leaf tips often diverging and therefore prickly to touch; branchlets somewhat flattened . . . . . *Chamaecyparis*

CHAMAECYPARIS

Chamaecyparis nootkatensis* (D. Don in Lamb.) Spach (Cupressus nootkatensis* D. Don in Lamb.)**
Yellow cedar or cypress, or Alaska cedar or cypress
Habitat/Range: Mesic to wet sites in the montane (sometimes lowland) to subalpine zones; common west of the Coast Mountains, rare in SE BC; N to SE AK and S to N CA.

JUNIPERUS

1. Leaves awl-shaped, in whorls of 3, spreading; the berry-like fruits sessile in the leaf axils *J. communis*

1. Leaves mostly scale-like, opposite, appressed to stem; the berry-like fruits terminal on the branchlets.

    2. Low, spreading or creeping shrubs; fruits recurved on short pedicel . . . . . *J. horizontalis*

    2. Small trees or erect shrubs; fruits erect or nodding . . . . . *J. scopulorum*

***Juniperus communis* L.** (*J. sibirica* Burgsd., *J. nana* Willd.)
Common or ground juniper
Habitat/Range: Dry slopes and forests to wet coastal muskeg in the lowland and montane zones; occasionally in the subalpine and alpine zones; common throughout BC; circumpolar, N to AK, E to NF and S to CA, AZ, NM, and GA; Eurasia.

***Juniperus horizontalis* Moench** (*J. prostrata* Pers.)
Creeping juniper
Habitat/Range: Rocky or sandy sites in the montane zone; common in N BC, infrequent southward; SE AK, E to NF and S to CO.
Notes: May hybridize with *J. scopulorum* where their ranges coincide; the hybrid has been called *J.* x *fassettii* Boivin.

***Juniperus scopulorum* Sarg.**

Rocky Mountain juniper

Habitat/Range: Dry, open (often calcareous), rocky sites in the lowland, steppe vegetation and montane zones; infrequent in S BC, rare northward to Telegraph Creek; E to SW AB and S to AZ, NM, CO and W NE.

Notes: See *J. horizontalis* for discussion of hybridization.

THUJA

***Thuja plicata* Donn ex D. Don in Lamb.**

Western redcedar

Habitat/Range: Moist to wet sites in the lowland and montane zones; common along the coast and SC to SE BC, locally frequent in C BC; N to SE AK and S to N CA, N WA, ID and MT.

PINACEAE

1. Leaves borne in clusters of 2 or more.
   2. Needles 2-5 in a cluster, evergreen . . . . . *Pinus*
   2. Needles 7-40 in a cluster, deciduous . . . . . *Larix*
1. Leaves solitary.
   3. Young branches smooth where needles have fallen as scar is only a small crater; cones either erect with deciduous scales, or drooping with persistent scales and a prominent three-lobed bract longer than the scales; needles flat.
      4. Cones erect, shed scale by scale at maturity; winter buds blunt; leaf scars circular; leaves blunt and often notched at tip . . . . . *Abies*
      4. Cones drooping, shed whole; winter buds sharp-pointed; leaf scars oval; leaves dull pointed . . . . . *Pseudotsuga*
   3. Young branches rough where needles have fallen as the leaf base persists as a small peg-like structure; cones not erect, have persistent scales without three-lobed bract; needles four-angled or flattened.
      5. Leaves commonly sharp-pointed, four-angled or sometimes somewhat flattened, pungent; leaders erect . . . . . *Picea*
      5. Leaves blunt, strongly flattened, not pungent; leaders often drooping . . . . . *Tsuga*

ABIES[1]

1. Needles with stomata on both surfaces, blue-green and glaucous; branches not spray-like, leaves tending to turn upwards; relatively small trees with narrow crowns. . . . . *A. lasiocarpa*
1. Needles with lines of white stomata on lower surface only, the upper surface green; branches mostly appearing spray-like, the leaves either all horizontally spreading or some spreading and the others depressed and pointing forward; large trees with wide crowns.
   2. Needles (2) 3-4 (5) cm long, nearly all horizontally spreading, the upper side of the twigs bare except for the twisted leaf bases; cones light green . . . . . *A. grandis*
   2. Needles mostly less than 2.5 cm long, the longer ones spreading horizontally, but others (usually shorter) strongly appressed and pointing forward and more or less completely hiding the twigs; cones deep purple . . . . . *A. amabilis*

[1] Key adapted from Hitchcock *et al.* (1969).

***Abies amabilis* (Dougl. ex Loud.) Forbes**

Amabilis or Pacific silver fir[2]

Habitat/Range: Mesic to moist sites in the lowland to subalpine zones; common in and W of Coast-Cascade Mountains, except Queen Charlotte Islands; N to S AK and S to N CA.

***Abies grandis* (Dougl. ex D. Don in Lamb.) Lindl.** (*A. excelsior* Franco)

Grand fir

Habitat/Range: Mesic to moist sites in the lowland to montane zones; frequent in SW BC, infrequent in SC BC; S to N CA, ID, W MT, SE WA and NE OR.

***Abies lasiocarpa* (Hook.) Nutt.**

Subalpine or alpine fir

Habitat/Range: Mesic to moist sites in the montane to alpine zones; common in BC in and E of Coast-Cascade Mountains, locally frequent on Vancouver Island; N to S AK and YT, E to SW AB and S to OR, N NV, AZ and NM.

LARIX

1. Cones about 1-2 cm long, bracts longer than scales; needles 1-2.5 cm, triangular in cross-section. . . . . *L. laricina*

1. Cones usually over 2.5 cm long, bracts shorter than scales; needles 3-4 cm.

   2. Needles four-angled in cross-section; young twigs strongly tomentose; cones usually over 3.5 cm; trees usually at or near timberline. . . . . *L. lyallii*

   2. Needles flattened or triangular in cross-section; young twigs glabrous to somewhat pubescent; cones rarely as much as 3.5 cm; trees of montane forests . . . . . *L. occidentalis*

***Larix laricina* (Du Roi) K. Koch** (*L. alaskensis* W.F. Wight)

Tamarack

Habitat/Range: Wet sites in the montane zone; frequent in NE BC, rare southward to C BC; N to AK, YT and NT, E to NF, and S to C AB, MN, WI, N NJ and ME.

***Larix lyallii* Parl. in DC.**

Subalpine or alpine larch

Habitat/Range: Mesic, often rocky sites in the subalpine zone; frequent in SC BC; E to SW AB, and S to WA, N ID and W MT.

***Larix occidentalis* Nutt.**

Western larch

Habitat/Range: Moist to dry sites in the montane zone; common in SC and SE BC; E to SW AB, and S to OR, NW MT, and N ID.

PICEA

1. Cones 1.5-3 cm long, egg-shaped to almost spherical, persistent on tree for many years; cone scales purplish to dark brown, mean scale[3] length less than 10.5 mm; young twigs densely pubescent with short rusty hairs . . . . . *P. mariana*

1. Cones generally longer, cylindrical, seldom persisting; cone scales brown when mature, mean scale length greater than 10.5 mm; young twigs glabrous or sparsely hairy.

   2. Needles somewhat flattened in cross-section, stiff and sharp; young twigs glabrous; cones 5-9 cm long; cone scales rounded, finely irregularly-toothed, with mean scale width generally less than 9 mm. . . . . *P. sitchensis*

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[2] All Abies are commonly called "balsam"; however, this name does not differentiate the species in B.C. and is used for *Abies balsamea (L.)* Mill. in the rest of Canada.

[3] Mean scale measurements should be taken from the middle of 5-10 mature cones from several trees in a population.

2. Needles 4-angled in cross-section, sharp but not particularly stiff to only prickly; young twigs glabrous to lightly hairy; cones 2.5-6 cm long; cone scales rounded to sharp-pointed, smooth to wavy margined, with mean scale width greater than 9 mm.

    3. Young twigs generally glabrous; leaves mostly less than 1.5 cm long; cones 2.5-3.5 (6) cm long; cone scales closely fitting, stiff, elliptical, rounded to blunt at tip, smooth-margined, and mean scale length about 11-13 mm . . . . . *P. glauca*

    3. Young twigs usually sparsely hairy; leaves often 2-3 cm long; cone scales loosely fitting, flexible, tapered at both ends, finely irregular wavy-margined, and mean scale length about 13-17 mm . . . . . *P. engelmannii*

***Picea glauca* (Moench) Voss** (*P. canadensis* [P. Mill.] B.S.P.)

White spruce

Habitat/Range: Dry to wet sites in the montane zone; common in C and N BC, except on coast; N to AK, YT and NT, E to NF and S to N MT and WY.

Notes: Hybridizes with *P. engelmannii* and *P. sitchensis*. Hybrids with *P. sitchensis* have been called *P.* x *lutzii* Little and occur in the Coast Mountains. Hybrids with *P. engelmannii* occur throughout much of interior B.C.; pure *P. glauca* is found mostly N of 56°N lat. and in the Chilcotin.

***Picea engelmannii* Parry ex. Engelm.** (*P. glauca* ssp. *engelmannii* [Parry ex. Engelm.] T.M.C. Taylor, *P. glauca* var. *engelmannii* [Parry ex. Engelm.] Boivin)

Engelmann spruce

Habitat/Range: Dry to wet sites in the upper montane to subalpine zones; very common in C and S BC, except on coast; E to W AB and S to N CA, AZ and NM.

Notes: Known to hybridize with *P. sitchensis* and *P. glauca*; see notes under *P. glauca*. Pure *P. engelmannii* is found mainly in the Rocky Mountains.

***Picea mariana* (P. Mill.) B.S.P.**

Black spruce

Habitat/Range: Mesic to wet sites in the montane zone; common in C and N BC interior; N to AK, E to NF and S to MN and PA.

Notes: Reports of hybrids with *P. glauca* are probably erroneous; see Parker and McLachlan (1978).

***Picea sitchensis* (Bong.) Carr.**

Sitka spruce

Habitat/Range: Mesic to moist sites in the lowland and montane zones; common in extreme W BC; N to SE AK and S to N CA.

Notes: Hybridizes with *P. glauca* and *P. engelmannii*; see notes under *P. glauca*.

PINUS

1. Needles 2 or 3 in a bundle.

    2. Needles in bundles of 3, 12-20 cm long . . . . . *P. ponderosa*

    2. Needles generally in bundles of 2, 2-6 cm long.

        3. Cones spreading at right angles or reflexed, the scales armed with prickles . . . . . *P. contorta*

        3. Cones directed towards the apex of the shoot, strongly incurved or divergent, the scales unarmed or armed with minute prickles . . . . . *P. banksiana*

1. Needles usually 5 in a bundle.

    4. Cones long-stalked, 15-25 cm long, and 6-9 cm thick at maturity; cone scales thin and flexible . . . . . *P. monticola*

    4. Cones sessile or subsessile, 5-25 cm long; the scales thick, woody, and sometimes remaining closed.

5. Cones 8-25 cm long, opening at maturity; scales light brown, thinned somewhat toward the tip. . . . . *P. flexilis*

5. Cones 5-8 cm long, remaining closed and tardily shedding the seeds at maturity; scales purplish, becoming thickened rather than thinnish toward the tip . . . . . *P. albicaulis*

***Pinus albicaulis* Engelm.**

Whitebark pine

Habitat/Range: Dry to mesic sites in the subalpine to alpine zones; frequent in S BC in and E of Coast-Cascade Mountains, rare northward to C and NE BC; E to SW AB and S to CA, NV and WY.

***Pinus banksiana* Lamb.** (*P. divaricata* [Ait.] Dumort.; see Argus [1971])

Jack pine

Habitat/Range: Dry sites in the montane zone; rare in extreme NE BC; N to NT, E to PQ, PE and NS, and S to MN, MS, IL and NY.

Notes: Hybridizes with *P. contorta* var. *latifolia*; these have been named *P.* x *murraybanksiana* Righter & Stockwell.

***Pinus contorta* Dougl. ex Loud.**

Lodgepole or shore pine

Habitat/Range: Dry to wet sites in the lowland, montane and subalpine zones; common throughout BC; N to S AK, YT, and SW NT, E to W AB, and S to CA, UT, CO and SD.

Notes: See above re: hybridization with *P. banksiana*. Two varieties are generally recognized in BC.[4]

1. Trees usually with rounded crown, rarely over 15 m tall; bark dark brown to grayish-black, 2-2.5 cm thick on older trees; needles deep green; coastal . . . . . var. *contorta* (shore pine)

1. Trees usually columnar when close together, up to 20-35 m tall; bark reddish-brown, very thin, rarely over 1 cm thick; needles yellow-green; inland . . . var. *latifolia* Engelm. (lodgepole pine)

***Pinus flexilis* James**

Limber pine

Habitat/Range: Dry to mesic sites in the subalpine zone; infrequent in extreme SE BC; E to SW AB and S to S CA, AZ, NM, and NE.

***Pinus monticola* Dougl. ex D. Don in Lamb.**

Western white pine

Habitat/Range: Dry to moist sites in the lowland and montane zones; frequent in S BC; E to SW AB and S to CA, NV, ID, and MT.

***Pinus ponderosa* Dougl. ex P.& C. Lawson**

Ponderosa or yellow pine

Habitat/Range: Dry to mesic sites in the steppe vegetation and montane zones; common in SC and SE BC; S to CA, NM, TX, NE, and SD.

PSEUDOTSUGA

***Pseudotsuga menziesii* (Mirb.) Franco** (*P. taxifolia* [Lamb.] Britt.)

Douglas-fir

Habitat/Range: Dry to moist sites in the lowland and montane zones; common in S BC, infrequent northward to C BC; E to SW AB and S to CA and MX.

Notes: Two varieties are recognized in BC.[5]

1. Cones mostly 6-10 cm long, the bracts straight and appressed toward the cone tip; leaves deep (yellowish) green; primarily coastal . . . . . var. *menziesii* (Coast Douglas-fir)

[4] Key adapted from Hitchcock *et al.* (1969).
[5] *Ibid.*

1. Cones mostly 4-7 cm long, the bracts appressed to spreading or reflexed; leaves more bluish-green; primarily interior . . . . . var. *glauca* (Beissn.) Franco (Rocky Mountain Douglas-fir)

TSUGA

1. Needles flattened in cross-section, grooved and greenish on upper surface, with two white (stomatiferous) bands below, tending to form flat spraylike branches; cones ovoid, 1.5-2.5 cm long *T. heterophylla*

1. Needles nearly semi-circular in cross-section (flat on top), bluish-green on both surfaces, not forming flat spray-like branches, but spreading in all directions; cones cylindrical, narrowed at each end, 3-7 cm long . . . . . *T. mertensiana*

***Tsuga heterophylla* (Raf.) Sarg.**

Western hemlock

Habitat/Range: Mesic to moist sites in the lowland and montane zones; common along coast and in SC to SE BC; N to SE AK and S to N CA, N ID and NW MT.

Notes: Hybridizes with *T. mertensiana*; these have been named *T.* x *jeffreyi* (Henry) Henry.

***Tsuga mertensiana* (Bong.) Carr.**

Mountain hemlock

Habitat/Range: Mesic to wet sites in the lowland to subalpine zones; common at high elevations along coast and frequent in SE BC and lower elevations of N coastal BC; N to SE AK and S to C CA, N ID and W MT.

Notes: See above for hybridization with *T. heterophylla*.

TAXACEAE

TAXUS

***Taxus brevifolia* Nutt.**

Western or Pacific yew

Habitat/Range: Mesic to moist forests in the lowland and montane zones; common along the coast and in SE BC; N to SE AK and S to N CA, NE OR, ID, and NW MT.

DICOTYLEDONS

ACERACEAE

ACER

1. Leaves pinnately compound; petals absent . . . . . *A. negundo*

1. Leaves simple, palmately lobed; petals usually present.

    2. Flowers 10-50; inflorescence racemose; or if corymbose then leaf petioles with milky juice when cut; trees up to 30 m tall.

        3. Leaves grey or white below, the petioles without milky juice when cut; inflorescence racemose; fruits glabrous . . . . . *A. pseudoplatanus*

        3. Leaves green below, the petioles with milky juice when cut; flowers racemose or corymbose; fruits glabrous or hairy.

            4. Leaves lobed beyond the middle, the tips acute; inflorescence racemose; fruits hairy . . . . . *A. macrophyllum*

4. Leaves not lobed beyond the middle, the tips bristle-like; inflorescence corymbose; fruits glabrous . . . . . *A. platanoides*

2. Flowers usually less than 10; inflorescence umbellate or corymbose; plants usually shrublike and less than 10 m tall.

5. Leaves 3-5-lobed, glabrous to sparsely glandular-puberulent; sepals green . . . . . *A. glabrum*

5. Leaves 7-9 lobed, pilose beneath and often hairy above; sepals red . . . . . *A. circinatum*

***Acer circinatum* Pursh**

Vine maple

Habitat/Range: Moist to mesic sites in the lowland and montane zones; common in SW BC, rare on S Vancouver Island; N to SE AK and S to N CA.

***Acer glabrum* Torr. var. *douglasii* (Hook.) Dippel** (*A. douglasii* Hook.)

Douglas or Rocky Mountain maple

Habitat/Range: Mesic to dry sites in the lowland and montane zones; common throughout BC, except Queen Charlotte Islands and adjacent coast and NE BC; N to SE AK, E to AB and S to OR and MT.

***Acer macrophyllum* Pursh**

Bigleaf or Oregon maple

Habitat/Range: Moist to mesic sites in the lowland and montane zones; common in SW BC W of Coast-Cascade Mountains; S to CA, disjunct in ID.

***Acer negundo* L.**

Box elder, or Manitoba maple

Habitat/Range: Mesic to dry sites in the lowland to montane zones; rare (? garden escape) in SE and SW BC; SE AB to W ON, disjunct along Great Lakes.

***Acer platanoides* L.**

Norway maple

Habitat/Range: Mesic forest openings in the lowland zone; rare horticultural escape in forests near UBC, and possibly elsewhere; introduced from Europe.

***Acer pseudoplatanus* L.**

Sycamore maple

Habitat/Range: Mesic forest openings in the lowland zone; rare horticultural escape in forests near UBC, and possibly elsewhere; introduced from Europe.

ADOXACEAE

ADOXA

***Adoxa moschatellina* L.**

Moschatel

Habitat/Range: Moist sites in the montane zone; infrequent in N and C BC; N to NT, E to ON and S to NY and CO.

AMARANTHACEAE

AMARANTHUS

1. Flowers in small axillary clusters; leaf blades rarely over 3 cm long.

2. Stems prostrate or decumbent; seeds 1.3-1.7 mm long; tepals 4-5; stamens 3-4 . . . . . *A. blitoides*

2. Stems erect or ascending; seeds 0.6-1.0 mm long; tepals mainly 3; stamens 1-3 . . . . . *A. albus*

1. Flowers in terminal and axillary spikes; leaf blades usually over 3 cm long.

3. Plants scurfy-villous below the inflorescence; leaves usually hairy beneath, at least along the veins; stamens usually 5 . . . . . *A. retroflexus*

3. Plants glabrous to puberulent or sparsely pubescent below the inflorescence; leaves glabrous or nearly so; stamens usually 3 . . . . . *A. powellii*

***Amaranthus albus* L.**
Tumbleweed, or white pigweed
Habitat/Range: Dry disturbed sites and waste places in the montane zone; rare in S BC; throughout N. America, S. America and the Old World.

***Amaranthus blitoides* S. Wats.**
Prostrate pigweed or tumbleweed
Habitat/Range: Dry, often disturbed sites; infrequent in S BC; throughout N. America and W. Indies.
Notes: This species has often been treated as *A. graecizans* L., an Eurasian species.

***Amaranthus powellii* S. Wats.** (*A. retroflexus* L. var. *powellii* [S. Wats.] Boiv.)
Powell's amaranth, or green pigweed
Habitat/Range: Dry disturbed sites and waste places; rare in the Gulf Islands and the Vancouver area, also known from Oliver; throughout N. America, S. America and the Old World.

***Amaranthus retroflexus* L.**
Rough or red pigweed, or pigweed amaranth
Habitat/Range: Dry disturbed sites and waste places; infrequent in S BC, rare northward; throughout N. America and the Old World.

ANACARDIACEAE

RHUS

1. Fruits red, hairy; leaflets 7-29 . . . . . *R. glabra*

1. Fruits white or yellowish, glabrous; leaflets 3.

2. Leaflets acute or acuminate . . . . . *R. radicans*

2. Leaflets rounded, obtuse or sometimes abruptly acute . . . . . *R. diversiloba*

***Rhus diversiloba* T.& G.** (*Toxicodendron diversilobum* [T.& G.] Greene)
Poison-oak
Habitat/Range: Dry to mesic sites in the lowland zone; rare on SE Vancouver Island and the Gulf Islands, also known from Howe Sound; S to MX.

***Rhus glabra* L.**
Smooth sumac
Habitat/Range: Dry to mesic sites in the montane zone; infrequent in SC and SE BC; E to PQ and S to FL, TX and MX.

***Rhus radicans* L.** (*Toxicodendron rydbergii* [Small ex Rydb.] Greene)
Poison-ivy
Habitat/Range: Dry to mesic sites in the montane zone; infrequent in SC and SE BC, rare in SW BC; E to PQ, NB and NS and S to MX.

APIACEAE[6]

1. Leaves simple, entire, toothed or palmately lobed.
    2. Inflorescences densely capitate, without rays, the flowers and fruits sessile; leaves spiny-toothed . . . . . *Eryngium*
    2. Inflorescences umbellate, with rays, the flowers and fruits more or less pedicellate; leaves not spiny-toothed.
        3. Leaves reduced to long, narrow phyllodes, without differentiated blades . . . . . *Lilaeopsis*
        3. Leaves with rounded or narrow blades.
            4. Plants aquatic to semi-aquatic; leaves rounded and palmately lobed . . . . . *Hydrocotyle*
            4. Plants not aquatic or semi-aquatic; leaves narrow and entire . . . . . *Bupleurum*
1. Leaves, or at least most of them, compound or deeply cleft.
    5. Leaves, or at least many of them, with well-defined leaflets, not dissected into small and narrow segments.
        6. Basal leaves simple, toothed . . . . . *Zizia*
        6. Basal leaves, when well developed, compound or deeply cleft.
            7. Leaflets 3, very large, usually more than 1 dm long and wide . . . . . *Heracleum*
            7. Leaflets usually more than 3, usually less than 1 dm long and wide.
                8. Plants perennial from fibrous or fleshy-thickened, fascicled roots.
                    9. Leaves palmately deeply cleft or palmately once compound; fruits armed with hooked prickles . . . . . *Sanicula*
                    9. Leaves pinnately to ternately once to several times compound.
                        10. Base of the stem thickened, hollow, with well-developed transverse partitions; some of the roots usually tuberous-thickened; primary lateral veins of the leaflets tending to be directed toward the sinuses between the teeth *Cicuta*
                        10. Base of the stem without transverse partitions; roots not tuberous thickened; veins not directed to the sinuses.
                            11. Ribs of the fruit inconspicuous; calyx teeth minute or obsolete, fruits rounded.
                                12. Leaves pinnate, plants aquatic or semi-aquatic . . . . . *Berula*
                                12. Leaves biternate, plants not aquatic or semi-aquatic . . . . . *Aegopodium*
                            11. Ribs of the fruit conspicuous; calyx teeth well-developed or minute or obsolete, fruits oblong or elliptic.
                                13. Plants usually reclining or scrambling-ascending; primary lateral veins of the leaflets tending to be directed to the teeth; calyx teeth well-developed . . . . . *Oenanthe*
                                13. Plants erect; veins not directed to the teeth; calyx teeth minute or obsolete . . . . . *Sium*
                8. Plants annual, biennial, or perennial from a taproot or stout caudex (or sometimes with fleshy-fibrous roots from a rhizome-caudex in *Conioselinum*).
                    14. Annual or biennial weeds . . . . . *Pastinaca*
                    14. Perennials, not weedy.

[6] *Ibid*

15. Umbellets capitate, the flowers and fruits sessile . . . . . *Glehnia*

15. Umbellets not capitate, the flowers and fruits pedicellate.

16. Fruits dorsally flattened.

17. Stylopodium obsolete or nearly so . . . . . *Lomatium*

17. Stylopodium well-developed . . . . . *Angelica*

16. Fruits subterete or flattened laterally.

18. Fruits linear or linear-oblong to clavate, not winged, 8-22 mm long *Osmorhiza*

18. Fruits broader, usually winged, 2-6 mm long . . . . . *Ligusticum*

5. Leaves more or less dissected into rather small, narrow ultimate segments, without well-defined leaflets.

19. Stems purple-spotted; robust biennial weeds 0.5-3 m tall . . . . . *Conium*

19. Stems not purple-spotted; habit various.

20. Ultimate leaf-segments all linear-filiform.

21. Fruits strongly flattened dorsally, the lateral ribs winged . . . . . *Anethum*

21. Fruits not strongly flattened, the ribs not winged . . . . . *Foeniculum*

20. Ultimate leaf-segments linear, lanceolate or broader (linear-filiform only in upper leaves of *Carum*).

22. Fruits bristly or prickly.

23. Fruits beaked.

24. Sheaths of the upper leaves villous-ciliate; stems glabrous . . . . . *Anthriscus*

24. Sheaths of the upper leaves entire; stems hispid . . . . . *Torilis*

23. Fruits beakless.

25. Bristles of the fruit not in straight rows . . . . . *Sanicula*

25. Bristles of the fruit in straight rows corresponding to the ribs.

26. Fruits dorsally somewhat compressed, bristles barbed at the tip . . . . . *Daucus*

26. Fruits laterally somewhat compressed, bristles hooked at the tip . . . . . *Caucalis*

22. Fruits not bristly or prickly.

27. Plants annual or biennial introduced weeds, taprooted.

28. Fruits distinctly beaked, 6-15 mm long, tipped by a stout beak 2-7 mm long . . . . . *Scandix*

28. Fruits beakless, 3-4 mm long . . . . . *Carum*

27. Plants perennial natives, with or without a taproot.

29. Plants strictly maritime . . . . . *Conioselinum*

29. Plants not strictly maritime.

30. Plants with a fascicled root . . . . . *Perideridia*

30. Plants definitely taprooted, the taproot sometimes fleshy-thickened, but distinctly elongate; taproot often surmounted by a stout branching caudex.

    31. Fruit bodies subterete or slightly compressed laterally . . . . . *Ligusticum*

    31. Fruit bodies distinctly compressed dorsally . . . . . *Lomatium*

AEGOPODIUM

***Aegopodium podagraria* L.**
Goutweed
Habitat/Range: Roadsides and waste places; rare in SW BC; introduced from Eurasia.

ANETHUM

***Anethum graveolens* L.**
Common dill
Habitat/Range: Roadsides and waste places; rare garden escape on SE Vancouver Island; introduced from Asia.

ANGELICA

1. Fruits slightly flattened, the subequal wings scarcely winged; plants mainly coastal . . . . . *A. lucida*

1. Fruits strongly flattened, the lateral wings broadly winged; plants not essentially coastal.

    2. Flowers yellowish; involucres present, leafy . . . . . *A. dawsonii*

    2. Flowers white, greenish-white or sometimes pinkish; involucres absent or rarely a few bracts present.

        3. Rachis of leaves bent, pinnae deflexed . . . . . *A. genuflexa*

        3. Rachis of leaves straight, pinnae not deflexed . . . . . *A. arguta*

***Angelica arguta* Nutt.**
Sharptooth angelica
Habitat/Range: Wet to moist sites in the lowland, steppe vegetation and montane zones; frequent in extreme S BC; E to AB and S to WY, UT and N CA.

***Angelica dawsonii* S. Wats.**
Dawson's angelica
Habitat/Range: Wet to moist sites in the montane zone; rare in extreme SE BC; E to SW AB and S to ID and MT.

***Angelica genuflexa* Nutt.**
Kneeling angelica
Habitat/Range: Moist sites in the montane zone; common throughout BC except Queen Charlotte Islands and adjacent coast; amphiberingian, N to AK, E to AB and S to N CA; E Asia.

***Angelica lucida* L.**
Seacoast angelica, or sea-watch
Habitat/Range: Moist to mesic beaches and coastal bluffs in the lowland zone; common in and W of the Coast-Cascade Mountains, rare eastward; amphiberingian, N to AK and S to CA; Siberia.

ANTHRISCUS

***Anthriscus caucalis* Bieb.** (*A. scandicina* [Web.] Mansf.)
Bur chervil
Habitat/Range: Moist disturbed sites and waste places; rare on SE Vancouver Island and Gulf Islands; introduced from Eurasia.

BERULA

***Berula erecta* (Huds.) Cov. var. *incisa* (Torr.) Cronq.** (*Sium incisum* Torr.)
Cut-leaved water-parsnip
Habitat/Range: Wet sites in the montane and steppe vegetation zones; infrequent in S BC; E to NY and S to FL and MX.

BUPLEURUM

***Bupleurum americanum* Coult. & Rose** (*B. triradiatum* Adams ssp. *arcticum* [Reg.] Hult.)
American thorough-wax
Habitat/Range: Dry sites in the montane zone; rare in S BC, known only from Kootenay Pass; N to AK, YT and NT, E to AB and S to ID and WY.

CARUM

***Carum carvi* L.**
Caraway
Habitat/Range: Fields and waste places; infrequent throughout BC S of 56°N; introduced from Eurasia.

CAUCALIS

***Caucalis microcarpa* H.& A.**
California hedge-parsley, or false carrot
Habitat/Range: Moist vernal sites and streambanks in the lowland zone; rare on SE Vancouver Island and the Gulf Islands; S to ID and MX.

CICUTA[7]

1. Axils of leaves bulbiferous; leaflets with narrowly linear segments . . . . . *C. bulbifera*

1. Axils of leaves nonbulbiferous; leaflets lanceolate.

    2. Fruits slightly broader than long; midvein on upper leaflet surface scabrous . . . . . *C. virosa*

    2. Fruits from as broad as long to longer than broad; midvein on upper leaflet surface glabrous.

        3. Enclosures of net veins on undersurface of leaflets usually elongate; fruit with a narrow raised border along edge of dark interval . . . . . *C. douglasii*

        3. Enclosures of net veins on undersurface of leaflets usually rounded; fruit without a raised border along edge of dark interval . . . . . *C. maculata*

***Cicuta bulbifera* L.**
Bulbous water-hemlock
Habitat/Range: Wet sites in the montane zone; frequent in BC N of 52°N and E of the Coast-Cascade Mountains; N to AK, YT and NT, E to NF and S to FL, NE and OR.

***Cicuta douglasii* (DC.) Coult. & Rose**
Douglas' water-hemlock
Habitat/Range: Wet sites in the lowland, steppe vegetation and montane zones; common throughout BC except Queen Charlotte Islands; N to AK and S to ID, NV and CA.

[7] Key adapted from Mulligan (1980).

***Cicuta maculata* L. var. *angustifolia* Hook.**

Spotted cowbane

Habitat/Range: Wet sites in the steppe vegetation and montane zones; common in BC E of the Coast-Cascade Mountains; N to AK, YT and NT, E to ON and S to TX and MX.

Notes: A single collection of var. *maculata* is known from SW BC (Mulligan 1980). It is distinguished from var. *angustifolia* by its longer styles, elongate fruit and broader stem leaflets.

***Cicuta virosa* L.** (*C. mackenzieana* Raup)

European water-hemlock

Habitat/Range: Wet sites in the montane zone; rare in NE BC; N to AK, YT and NT and E to PQ.

CONIOSELINUM

***Conioselinum pacificum* (S. Wats.) Coult. & Rose**

Pacific hemlock-parsley

Habitat/Range: Moist to mesic bluffs and sandy beaches in the lowland zone; common along the coast in BC; N to AK and S to CA.

CONIUM

***Conium maculatum* L.**

Poison-hemlock

Habitat/Range: Wet to mesic ditches and disturbed sites; locally common near Victoria, also known from Vancouver and Kamloops; introduced from Europe.

DAUCUS

1. Involucral bracts scarious-margined below, the segments filiform-subulate and elongate; plants relatively coarse perennials up to 12 dm tall . . . . . *D. carota*

1. Involucral bracts not scarious-margined below, the segments linear or lanceolate, scarcely elongate; plants slender annuals up to about 7 dm tall . . . . . *D. pusillus*

***Daucus carota* L.**

Wild carrot, or Queen Anne's lace

Habitat/Range: Roadsides, fields and waste places; common on SE Vancouver Island, the Gulf Islands and adjacent mainland, also known from Vernon; introduced from Eurasia.

***Daucus pusillus* Michx.**

American wild carrot

Habitat/Range: Dry sites in the lowland zone; locally common on SE Vancouver Island, the Gulf Islands and adjacent mainland; S to MO, SC, FL and MX.

ERYNGIUM

***Eryngium planum* L.**

Plains eryngo

Habitat/Range: Waste places; rare garden escape in S BC; introduced from Eurasia.

FOENICULUM

***Foeniculum vulgare* P. Mill.**
Sweet fennel
Habitat/Range: Roadsides, fields and waste places; rare garden escape on SE Vancouver Island and the Gulf Islands; introduced from Europe.

GLEHNIA

***Glehnia littoralis* F. Schmidt ssp. *leiocarpa* (Mathias) Hult.**
American glehnia
Habitat/Range: Moist to mesic coastal dunes and sandy beaches; infrequent on the Queen Charlotte Islands and Vancouver Island; amphiberingian, N to AK and S to N CA, E Asia.

HERACLEUM

1. Plants 1.5-4.5 m tall; fruits obtuse basally . . . . . *H. mantegazzianum*
1. Plants 1-3 m tall; fruits narrowed basally . . . . . *H. lanatum*

***Heracleum lanatum* Michx.** (*H. sphondylium* L. ssp. *lanatum* [Michx.] Löve & Löve, *H. sphondylium* ssp. *montanum* [Gaud.] Schz. & Kell.)
Cow-parsnip
Habitat/Range: Wet to moist sites from the lowland to alpine zones; common throughout BC; amphiberingian, E to NF and S to GA, NM and CA, Siberia.

***Heracleum mantegazzianum* Sommier & Lev.**
Giant cow-parsnip
Habitat/Range: Wet to moist sites; rare garden escape on S Vancouver Island and the Gulf Islands; introduced from Asia.

HYDROCOTYLE

1. Leaves suborbicular to reniform, crenate or shallowly lobed, centrally peltate . . . . . *H. verticillata*
1. Leaves 5-6 lobed nearly or quite to the middle, not peltate . . . . . *H. ranunculoides*

***Hydrocotyle ranunculoides* L.f.**
Floating water pennywort
Habitat/Range: Ponds, marshes and wet sites in the lowland zone; rare on SE Vancouver Island; S to DE, AR and CA, disjunct to tropical America.

***Hydrocotyle verticillata* Thunb.**
Whorled water pennywort
Habitat/Range: Streams, marshes and wet sites in the lowland zone; rare, known only from the lower Fraser Valley; S to MA, MO, OK, FL, TX and MX, disjunct to tropical America.

LIGUSTICUM

1. Leaves twice ternate into broad, crenate to coarsely serrate leaflets . . . . . *L. scoticum*
1. Leaves once ternate into pinnate-pinnatifid leaflets.

2. Rays of terminal umbels 15, or less; plants endemic to the BC coast . . . . . *L. calderi*

2. Rays of terminal umbels usually 15-40; plants of SE BC.

3. Plants 5-12 dm tall; leaflets 1-5 cm long . . . . . *L. canbyi*

3. Plants 10-20 dm tall; leaflets 3-8 cm long . . . . . *L. verticillatum*

***Ligusticum calderi* Mathias & Const.**

Calder's lovage

Habitat/Range: Wet to moist sites from the lowland to alpine zones; locally frequent on the Queen Charlotte Islands, also N Vancouver Island; endemic.

***Ligusticum canbyi* Coult. & Rose**

Canby's lovage

Habitat/Range: Moist sites in the montane zone; locally frequent in SE BC; S to ID, MT and NE OR.

***Ligusticum scoticum* L. ssp. *hultenii* (Fern.) Calder & Taylor** (*L. hultenii* Fern.)

Beach lovage

Habitat/Range: Moist to mesic beaches and coastal bluffs; infrequent on the Queen Charlotte Islands and adjacent mainland; N to AK.

***Ligusticum verticillatum* (Geyer) Coult. & Rose**

Verticillate-umbel lovage

Habitat/Range: Mesic sites in the montane to subalpine zones; rare in the Selkirk Mountains of SE BC; S to N ID and W MT.

LILAEOPSIS

***Lilaeopsis occidentalis* Coult. & Rose**

Western lilaeopsis

Habitat/Range: Wet to moist marshes, lakesides and tidal shores; infrequent along the coast; N to S AK and S to CA.

LOMATIUM[8]

1. Ultimate segments of the leaves relatively large, mostly 1 cm long, or longer.

2. Ultimate segments of the leaves forming more or less definite leaflets, these entire to deeply cleft; usually more than 5 mm wide.

3. Leaflets strongly toothed or cleft; flowers usually white or ochroleucous, sometimes yellow . . . . . *L. martindalei*

3. Leaflets mostly entire or shallowly toothed; flowers yellow.

4. Leaflets mostly 10-60 mm, rarely 4 mm, wide; longest rays of the umbel mostly 6-20 cm long in fruit . . . . . *L. nudicaule*

4. Leaflets mostly 2-8 mm wide; longest rays of the umbel mostly 3-5 mm long in fruit . . . . . *L. brandegei*

2. Ultimate segments of the leaves narrow and scarcely leaflike, usually less than 5 mm wide.

5. Leaves cleft into long, linear segments or leaflets.

6. Involucels generally wanting; leaves glabrous . . . . . *L. ambiguum*

6. Involucels present; leaves usually finely hirtellous-puberulent . . . . . *L. triternatum*

5. Leaves much dissected ('fern-like').

[8] Key adapted from Hitchcock *et al.* (1969).

7. Flowers white, rarely purple; plants 1.5-4 dm tall; wings of the fruit more than 1 mm wide ..... *L. geyeri*

7. Flowers yellow or purple; plants 5-20 dm tall; wings of the fruit 1 mm wide, or less ..... *L. dissectum*

1. Ultimate segments of the leaves relatively small, rarely any of them as much as 1 cm long.

8. Bractlets of the involucel broadly oblanceolate to ovate, sometimes more or less strongly connate.

9. Involucel more or less strongly connate; plants rare in NE BC ..... *L. foeniculaceum*

9. Involucel not connate; plants locally common in SW BC ..... *L. utriculatum*

8. Bractlets of the involucel narrow, mostly linear or lanceolate, distinct or merely connate at the base, or absent.

10. Wings of the fruit more or less corky-thickened, narrow ..... *L. dissectum*

10. Wings of the fruit thin, either narrow or broad.

11. Leaves not much dissected, more nearly with toothed or cleft leaflets, flowers usually white or ochroleucous, sometimes yellow ..... *L. martindalei*

11. Leaves much dissected, the small and narrow ultimate segments not resembling leaflets.

12. Flowers white or somewhat purplish, rarely purple; wings of the fruit broad.

13. Herbage essentially glabrous ..... *L. geyeri*

13. Herbage sparsely to densely puberulent or villous-puberulent ..... *L. macrocarpum*

12. Flowers yellow; wings of the fruit broad or narrow.

14. Ovaries and young fruits granular-scaberulous or short-hairy, elliptic or suborbiculor; wings of the fruit narrow, less than ½ as wide as the body.

15. Herbage granular-scaberulous to subglabrous; plants rare in SE BC ..... *L. sandbergii*

15. Herbage short-hairy; plants rare in NE BC ..... *L. foeniculaceum*

14. Ovaries and fruits glabrous, elliptic or narrowly oblong; wings of the fruit broad or narrow.

16. Fruits elliptic; wings of the fruit ⅓-½ as wide as the body ..... *L. grayi*

16. Fruits narrowly oblong; wings of the fruit less than ⅓ as wide as the body *L. ambiguum*

***Lomatium ambiguum* (Nutt.) Coult. & Rose**

Swale desert-parsley

Habitat/Range: Dry sites in the montane zone; frequent in S BC E of the Coast-Cascade Mountains, rare westward; S to WY, UT and OR.

***Lomatium brandegei* (Coult. & Rose) J.P. Macbr.**

Brandegee's lomatium

Habitat/Range: Mesic to dry sites in the steppe vegetation and montane zones; rare in SC BC; S to WA.

***Lomatium dissectum* (Nutt.) Math. & Const.**

Fern-leaved desert-parsley or lomatium

Habitat/Range: Dry meadows and rocky slopes in the steppe vegetation and montane zones; var. *dissectum* infrequent in S BC, var. *multifidum* frequent in SC and SE BC; E to SK and S to CO, AZ and CA.

Notes: Two varieties occur in BC.

1. Fruits sessile or pedicels short, shorter than sterile flowers . . . . . var. *dissectum*

1. Fruits with well-developed (4-20 mm) pedicels . . . . . var. *multifidum* (Nutt.) Math. & Const.

Lomatium foeniculaceum* (Nutt.) Coult. & Rose var. *foeniculaceum

Fennel-leaved desert-parsley or lomatium

Habitat/Range: Dry sites in the steppe vegetation zone; rare disjunct in NE BC; E to MB and S to TX, AZ and OR.

***Lomatium geyeri* (S. Wats.) Coult. & Rose**

Geyer's desert-parsley or lomatium

Habitat/Range: Dry sites in the steppe vegetation and montane zones; frequent in SC and SE BC; S to ID and WA.

***Lomatium grayi* (Coult. & Rose) Coult. & Rose**

Gray's desert-parsley or lomatium

Habitat/Range: Dry sites in the lowland zone; rare in the Gulf Islands; S to WY, CO, NV and OR.

***Lomatium macrocarpum* (Hook. & Arn.) Coult. & Rose**

Large-fruited desert-parsley or lomatium

Habitat/Range: Dry sites in the lowland, steppe vegetation and montane zones; common in SC BC, rare in SW and SE BC; E to MB and S to SD, CO, UT and CA.

***Lomatium martindalei* (Coult. & Rose) Coult. & Rose**

Martindale's or few-fruited lomatium

Habitat/Range: Dry sites in the montane to alpine zones; infrequent in SW BC; S to OR.

***Lomatium nudicaule* (Pursh) Coult. & Rose**

Barestem desert-parsley or lomatium

Habitat/Range: Dry sites in the lowland and steppe vegetation zones; locally common on SE Vancouver Island and the Gulf Islands, rare eastward in S BC; E to SW AB and S to UT and CA.

***Lomatium sandbergii* (Coult. & Rose) Coult. & Rose**

Sandberg's desert-parsley or lomatium

Habitat/Range: Dry sites in the upper montane to subalpine zones; rare in extreme SE BC; E to SW AB and S to ID and MT.

***Lomatium triternatum* (Pursh) Coult. & Rose**

Nine-leaved desert-parsley or lomatium

Habitat/Range: Dry sites in the lowland, steppe vegetation and montane zones; frequent in SC and SE BC, rare on S Vancouver Island; E to SW AB and S to CO, UT and CA.

Notes: Two subspecies occur in BC.

1. Fruits broadly elliptic, wings nearly or fully as wide as body; ultimate leaf segments linear . . . . . ssp. *platycarpum* (Torr.) Cronq.

1. Fruits usually relatively narrow, wings usually half as wide as body; ultimate leaf segments lanceolate . . . . . ssp. *triternatum*

***Lomatium utriculatum* (Nutt.) Coult. & Rose**

Spring gold, or common or fine-leaved lomatium

Habitat/Range: Mesic to dry sites in the lowland zone; locally common on SE Vancouver Island and the Gulf Islands; S to CA.

OENANTHE

***Oenanthe sarmentosa* Presl**

Pacific water-parsley

Habitat/Range: Wet sites in the lowland and montane zones; common in and W of the Coast-Cascade Mountains; N to AK and S to CA.

OSMORHIZA

1. Fruits glabrous, obtuse at base; flowers yellow; stems clustered . . . . . *O. occidentalis*
1. Fruits bristly, attenuate at base; flowers whitish, sometimes pink or purple; stems usually solitary.
   2. Fruits concavely narrowed to the summit, the terminal portion a beaklike apex.
      3. Fruits usually 12-22 mm long, the beaklike apex as tall as wide . . . . . *O. chilensis*
      3. Fruits usually 8-13 mm long, the beaklike apex wider than tall . . . . . *O. purpurea*
   2. Fruits convexly narrowed to the rounded or obtuse summit, the apex not beaklike . . . . . *O. depauperata*

***Osmorhiza chilensis* H.& A.**
Mountain sweet-cicely
Habitat/Range: Mesic sites in the lowland and montane zones; common throughout BC; N to AK, E to NF and S to SD, CO, AZ and CA, disjunct to S. America.

***Osmorhiza depauperata* Phil.**
Blunt-fruited sweet-cicely
Habitat/Range: Moist to mesic sites in the lowland and montane zones; frequent in BC E of the Coast-Cascade Mountains, rare in SW BC; N to AK and YT, E to NF and S to SD, NM and CA, disjunct to S. America.

***Osmorhiza occidentalis* (Nutt. ex T.& G.) Torr.**
Western sweet-cicely
Habitat/Range: Mesic to dry sites in the montane zone; infrequent in extreme SC and SE BC; E to SW AB and S to CO and CA.

***Osmorhiza purpurea* (Coult. & Rose) Suksd.** (*O. chilensis* var. *purpurea* [Coult. & Rose] Boivin)
Purple sweet-cicely
Habitat/Range: Mesic to moist sites in the lowland and montane zones; common throughout BC; N to AK, S to ID, MT and CA.

PASTINACA

***Pastinaca sativa* L.**
Common parsnip
Habitat/Range: Fields, roadsides and waste places; rare garden escape in SW BC; introduced from Europe.

PERIDERIDIA

***Perideridia gairdneri* (H.& A.) Mathias**
Gairdner's yampah
Habitat/Range: Moist to dry sites in the lowland and montane zones; locally frequent on SE Vancouver Island and the Gulf Islands, rare in SE BC; E to SK and S top SD, CO, NM and CA.

SANICULA

1. Plants with fibrous roots from a short, simple caudex; flowers greenish-white . . . . . *S. marilandica*
1. Plants with taproots; flowers yellow to purple.
   2. Plants prostrate or ascending; involucel conspicuous, usually surpassing the heads . . . . . *S. arctopoides*

2. Plants erect; involucel inconspicuous.

    3. Principal leaves once or twice pinnatifid, with a distinctly toothed rachis; flowers purple . . . . . S. *bipinnatifida*

    3. Principal leaves palmately or pinnipalmately lobed or divided to ternate-pinnate, without a toothed rachis; flowers yellow.

        4. Leaves palmately or pinnipalmately lobed or divided, without a narrow rachis, the primary divisions merely lobed or serrate . . . . . *S. crassicaulis*

        4. Leaves more or less ternate-pinnate, the primary divisions tending to be pinnatifid, the lowest pair of primary divisions separated from the terminal segment or segments by a narrow, entire rachis . . . . . *S. graveolens*

***Sanicula arctopoides* H.& A.**
Snake-root, or bear's-foot sanicle
Habitat/Range: Mesic coastal bluffs; rare on SE Vancouver Island; S to CA.

***Sanicula bipinnatifida* Dougl. ex Hook.**
Purple sanicle
Habitat/Range: Mesic to dry sites in the lowland zone; rare on SE Vancouver Island; S to CA and MX.

Sanicula crassicaulis* Poepp. var. *crassicaulis
Pacific sanicle
Habitat/Range: Moist to dry sites in the lowland zone; frequent on S Vancouver Island, the Gulf Island and adjacent coast, infrequent in the Queen Charlotte Islands; S to CA and MX, disjunct to Chile.

***Sanicula graveolens* Poepp. ex DC.**
Sierra sanicle
Habitat/Range: Mesic to dry sites in the lowland to montane zones; infrequent in BC S of 53°N; S to MT, WY and CA, disjunct to S. America.

***Sanicula marilandica* L.**
Black sanicle or snake-root
Habitat/Range: Wet to moist sites in the steppe vegetation and montane zones; frequent in S BC; E to NF and S to MO, FL, CO and NM.

SCANDIX

***Scandix pecten-veneris* L.**
Venus'-comb, or shepherd's-needle
Habitat/Range: Dry roadsides and waste places; rare on SE Vancouver Island; introduced from Eurasia.

SIUM

***Sium suave* Walt.**
Hemlock water-parsnip
Habitat/Range: Wet sites in the lowland and montane zones; common throughout BC except Queen Charlotte Islands and adjacent coast; N to AK, YT and NT, E to NF and S to FL, VA, KS and CA.

TORILIS

***Torilis japonica* (Houtt.) DC.**

Upright hedge-parsley

Habitat/Range: Mesic disturbed sites or open forests in the lowland and montane zones; rare, known only from the Gulf Islands and Agassiz; introduced from Japan.

ZIZIA

***Zizia aptera* (A. Gray) Fern. var. *occidentalis* Fern.**

Heart-leaved Alexanders

Habitat/Range: Moist to wet sites in the steppe vegetation and montane zones; locally frequent in the Peace River area of NE BC, rare southward along the Rocky Mountains; N to YT, E to PQ and S to AL, GA, MO, CO and NV.

APOCYNACEAE

1. Flowers greenish-white to pink, 2-10 mm long . . . . . *Apocynum*
1. Flowers blue, rarely white, 3-5 cm long . . . . . *Vinca*

APOCYNUM [9]

1. Corollas greenish-white to white, 2-4.5 mm long, usually less than twice as long as the calyces; leaves ascending.
    2. Pods usually greater than 12 cm long; coma of seeds 2-3 cm long; leaves of the main stems petiolate . . . . . *A. cannabinum*
    2. Pods less than 12 cm long; coma of seeds 1-2 cm long; leaves of the main stems sessile or subsessile . . . . . *A. sibiricum*
1. Corollas pinkish, 3.5-10 mm long, usually more than twice as long as the calyces; leaves spreading to pendulous.
    3. Calyces usually at least half as long as the corollas, lobes acute to acuminate . . . . . *A. medium*
    3. Calyces usually less than half as long as the corollas, lobes obtuse . . . . . *A. androsaemifolium*

***Apocynum androsaemifolium* L.**

Spreading dogbane

Habitat/Range: Dry fields and meadows from the lowland to subalpine zones; common throughout BC except the Queen Charlotte Islands and adjacent coast; N to AK, YT and NT, E to NF and S to GA, TX, NM and CA.

Notes: Two varieties occur in BC.

1. Corollas campanulate, 5-10 mm long; pods pendulous . . . . . var. *androsaemifolium*
1. Corollas more tubular, 4-7 mm long; pods usually erect . . . . . var. *pumilum* A. Gray

***Apocynum cannabinum* L. var. *glaberrimum* A. DC.**

Hemp or common dogbane

Habitat/Range: Dry sites in the lowland, steppe vegetation and montane zones; frequent in S BC; N to NT, E to NF and S to FL, TX and CA.

[9] Key adapted from Hitchcock and Cronquist (1973).

***Apocynum medium* Greene**
Western dogbane
Habitat/Range: Mesic to dry sites in the steppe vegetation and montane zones; rare in S BC east of the Coast-Cascades Mountains; E to NF and S to VA, TN, TX and NM.
Notes: Apparently this 'species' is of hybrid origin through *A. androsaemifolium* and *A. cannabinum*.

***Apocynum sibiricum* Jacq. var. *salignum* (Greene) Fern.** (*A. hypericifolium* Ait.)
Clasping-leaved dogbane
Habitat/Range: Moist to mesic sites in the lowland and montane zones; rare, scattered throughout BC S of 55°N; E to MB and S to MN, TX and CA.

VINCA

1. Flowers usually 20-30 mm wide, usually solitary, calyx lobes glabrous; leaves narrowed at the base ..... *V. minor*

1. Flowers usually 30-50 mm wide, up to 4 per stem, calyx lobes ciliate; leaves truncate or subcordate at base ..... *V. major*

***Vinca major* L.**
Large periwinkle
Habitat/Range: Roadsides and waste places; infrequent garden escape on SE Vancouver Island and the Gulf Islands; introduced from Europe.

***Vinca minor* L.**
Common periwinkle
Habitat/Range: Roadsides and waste places; infrequent garden escape on SE Vancouver Island, the Gulf Islands and lower mainland; introduced from Eurasia.

AQUIFOLIACEAE

ILEX

***Ilex aquifolium* L.**
English holly
Habitat/Range: Mesic disturbed sites and lowland forests; locally frequent garden escape on S Vancouver Island, less frequent on the lower mainland; introduced from Europe.

ARALIACEAE

1. Leaves compound ..... *Aralia*

1. Leaves simple.

   2. Stems erect; leaves deciduous and spiny ..... *Oplopanax*

   2. Stems climbing by aerial roots; leaves evergreen and glabrous ..... *Hedera*

ARALIA

***Aralia nudicaulis* L.**
Wild sarsaparilla
Habitat/Range: Moist sites in the montane zone; frequent throughout S BC east of the Coast-Cascade Mountains, infrequent northward; E to NB and NS and S to TN, GA, CO and WA.

HEDERA

***Hedera helix* L.**
English ivy
Habitat/Range: Moist to mesic disturbed sites and lowland forests; infrequent garden escape on SE Vancouver Island, the Gulf Islands and adjacent mainland; introduced from Eurasia.

OPLOPANAX

***Oplopanax horridus* (Smith) Miq.**
Devil's club
Habitat/Range: Wet to moist sites in the lowland and montane zones; common throughout BC; N to SW AK and YT, E to AB and S to MT and OR; disjunct in ON and MI.

ARISTOLOCHIACEAE

ASARUM

***Asarum caudatum* Lindl.**
Wild ginger
Habitat/Range: Moist to mesic sites in the lowland and montane zones; common in S BC S of 55°N, absent in Queen Charlotte Islands and adjacent coast; S to ID, MT and CA.

ASCLEPIADACEAE

ASCLEPIAS

1. Leaves ovate or lanceolate, tapered at the base; pods lacking tubercles . . . . . *A. ovalifolia*

1. Leaves oblong or oval, rounded or cordate at the base; pods with soft tubercles . . . . . *A. speciosa*

***Asclepias ovalifolia* Dcne.**
Oval-leaved milkweed
Habitat/Range: Dry sites in the steppe vegetation and montane zones; rare, known only from the Revelstoke area; E to W ON and S to NE, IA and IL.

***Asclepias speciosa* Torr.**
Showy milkweed
Habitat/Range: Moist to mesic sites in the steppe vegetation and montane zones; common in SC and SE BC; E to MB and S to MO, TX and CA.

ASTERACEAE [10]

1. Flowers all ligulate and perfect; juice milky (Lactuceae [Cichorieae]) . . . . . Group I

1. Flowers not all ligulate, the ligulate (ray) flowers marginal if present, either pistillate or neutral; juice usually watery.

    2. Heads radiate.

        3. Ray flowers white, pink, purple, red or blue, never yellow or orange . . . . . Group II

[10] Keys for Asteraceae have been adapted from either Cronquist (1955) or Douglas (1982, 1989, 1990).

3. Ray flowers yellow or orange (sometimes purplish, dark brown or reddish brown at the base).
    4. Pappus chaffy or of firm awns (or sometimes absent); receptacles chaffy, bristly or naked . . . . . Group III
    4. Pappus partly or wholly of capillary (sometimes plumose) bristles; receptacles naked . . . . . Group IV
2. Heads discoid or disciform (without ray flowers).
    5. Pappus partly or wholly of numerous capillary (sometimes plumose) bristles . . . . . Group V
    5. Pappus of scales, awns or very short chaffy bristles, or a mere crown (or sometimes absent) . . . . . Group VI

Group I (Flowers all ligulate and perfect; juice milky)

1. Achenes without a pappus . . . . . *Lapsana*
1. Achenes with a pappus.
    2. Pappus of simple (sometimes barbellate) capillary bristles.
        3. Cauline leaves well developed, broad, usually well over 1 cm wide.
            4. Leaves simple, entire to shallowly toothed; achenes cylindric . . . . . *Prenanthes*
            4. Leaves, or at least some of them, pinnatifid; achenes more or less strongly flattened.
                5. Achenes beaked (or beakless in *Lactuca biennis*), somewhat enlarged near summit where pappus attached; leaves not auriculate . . . . . *Lactuca*
                5. Achenes beakless, not enlarged near summit; leaves auriculate . . . . . *Sonchus*
        3. Cauline leaves narrow, usually less than 1 cm wide, reduced upwards, sometimes merely scales or plants scapose.
            6. Achenes spinulose or muricate . . . . . *Taraxacum*
            6. Achenes smooth or nearly so.
                7. Rays pink (rarely white); cauline leaves reduced to merely scales . . . . . *Lygodesmia*
                7. Rays bright yellow to orange or red; plants scapose or with at least a few cauline leaves.
                    8. Plants scapose or nearly so; heads solitary.
                        9. Achenes beaked . . . . . *Agoseris*
                        9. Achenes beakless.
                            10. Outer involucral bracts less than one-half the length of the inner ones . . . . . *Microseris* (*borealis*)
                            10. Outer involucral bracts more than one-half the length of the inner ones . . . . . *Agoseris* (*glauca*)
                    8. Plants caulescent, with at least a few cauline leaves; heads few to numerous.
                        11. Perennials from a short rhizome, not taprooted; pappus mostly sordid or brown . . . . . *Hieracium*
                        11. Annuals, biennials or more often perennials from a taproot or several strong roots or rarely with rhizomes; pappus mostly white or nearly so . . . . . *Crepis*

2. Pappus of plumose bristles, bristlelike scales, scales and bristles, or minute scales.

12. Pappus of minute scales; rays blue (rarely white) . . . . . *Cichorium*

12. Pappus well developed; rays pink, yellow, orange or purple (occasionally white).

13. Rays pink (occasionally white); leaves small, mainly cauline and often scalelike . . . . . *Stephanomeria*

13. Rays yellow, orange or purple; leaves well developed.

14. Pappus of scales and bristles or bristlelike scales.

15. Pappus of long, narrow, tapering bristlelike scales; leaves usually crisped or wavy . . . . . *Nothocalais*

15. Pappus of scales and bristles; leaves entire or with linear lobes.

16. Pappus of 5 short scales alternating with as many bristles; achenes 1.5-2 mm long . . . . . *Krigia*

16. Pappus of 5 or 15-20 narrow scales, each bearing a long bristle; achenes 3.5-13 mm long . . . . . *Microseris*

14. Pappus of plumose bristles.

17. Plume branches of the pappus interwebbed; plants not scapose, leaves somewhat grasslike . . . . . *Tragopogon*

17. Plume branches of the pappus not interwebbed; plants scapose.

18. Receptacles chaffy-bracted; achenes with beaks as long or longer than the achenes . . . . . *Hypochaeris*

18. Receptacles naked; achenes beakless or with beaks shorter than the achenes . . . . . *Leontodon*

Group II (Heads radiate, ray flowers white, pink, purple, red or blue)

1. Receptacles chaffy or bristly throughout (or only towards the middle in *Anthemis cotula*); pappus of scales, awns or very short chaffy bristles, or a mere crown (or sometimes absent).

2. Cauline leaves regularly opposite, well developed . . . . . *Galinsoga*

2. Cauline leaves all or nearly all alternate, or the plants subscapose.

3. Marginal disk flowers enlarged into an irregular, falsely subradiate corolla; true ray flowers absent; receptacles densely bristly, the bristles not individually subtending the flowers . . . . . *Centaurea* (*cyanus*)

3. Marginal disk flowers not enlarged conspicuously; ray flowers present; receptacles chaffy, the bracts individually subtending the flowers.

4. Rays large, 1.5-4.5 cm long . . . . . *Ratibida*

4. Rays small, seldom over 1 cm long.

5. Rays few, usually 3-5, short, less than 5 mm long; perennials . . . . . *Achillea*

5. Rays more numerous, usually 10-25, larger, mostly 5-10 mm long; annuals . . . . . *Anthemis*

1. Receptacles naked, or with a row of chaff between the ray and disk flowers; pappus various.
    6. Pappus of the disk flowers composed partly or wholly of capillary bristles.
        7. Basal leaves cordate, sagittate or palmately lobed . . . . . *Petasites*
        7. Basal leaves not cordate, sagittate or palmately lobed.
            8. Rays numerous, filiform, short, scarcely longer than the disk flowers; involucres and styles approaching that of *Erigeron*; annuals . . . . . *Conyza*
            8. Rays few to numerous, well developed, conspicuous, obviously surpassing the disk (except for a few species which are either perennials or have the involucres and styles of *Aster*)
                9. Involucral bracts subequal or more or less imbricate, often green in part but neither definitely leafy nor with chartaceous base and herbaceous green tip; style branches lanceolate or broader, acute to obtuse, 0.5 mm long or less, or absent . . . . . *Erigeron*
                9. Involucral bracts either subequal and the outer leafy or more commonly evidently imbricate, with chartaceous base and evident green tip, sometimes chartaceous throughout; style branches lanceolate or narrower, acute to acuminate, usually more than 0.5 mm long.
                    10. Plants distinctly taprooted; leaves spinulose-tipped and often spinulose-toothed . . . . . *Machaeranthera*
                    10. Plants with fibrous roots or rhizomes; leaves not spinulose . . . . . *Aster*
    6. Pappus of scales, awns, distinctly flattened chaffy bristles or a mere crown (or sometimes absent).
        11. Receptacles evidently conic or hemispheric.
            12. Plants scapose; pappus absent . . . . . *Bellis*
            12. Plants leafy-stemmed; pappus a minute crown or border . . . . . *Matricaria*
        11. Receptacles flat or nearly so.
            13. Pappus a short crown, or absent . . . . . *Leucanthemum*
            13. Pappus of the disk flowers of about 10 or more flattened, bristlelike scales . . . . . *Townsendia*

Group III (Heads radiate; ray flowers yellow or orange; pappus chaffy or of firm awns, or absent)

1. Receptacles chaffy or bristly throughout.
    2. Involucral bracts in two distinct, dissimilar series; achenes strongly flattened at right angles to the radius of the head (or subterete in *Bidens beckii*).
        3. Pappus of 2-6 firm, mostly retrorsely barbed awns . . . . . *Bidens*
        3. Pappus of 2 minute teeth, or absent . . . . . *Coreopsis*
    2. Involucral bracts in one or more similar series; achenes either not much flattened, or if so, then flattened parallel to the radius of the head.
        4. Receptacles merely bristly . . . . . *Gaillardia*
        4. Receptacles chaffy with definite bracts, not bristly.
            5. Plants scapose or subscapose, the cauline leaves, if any, much reduced *Balsamorhiza*
            5. Plants leafy-stemmed.
                6. Cauline leaves alternate.

7. Leaves pinnatifid; receptacles columnar; rays yellow . . . . . *Ratibida*

7. Leaves simple, entire; receptacles hemispheric; rays orange . . . . . *Rudbeckia*

6. Cauline leaves opposite, at least below.

8. Pappus persistent; disk achenes strongly flattened, thin edged; involucral bracts densely ciliate . . . . . *Helianthella*

8. Pappus readily deciduous (at least as to the two principal awn scales); achenes only slightly or moderately flattened; involucral bracts not densely ciliate . . . . . *Helianthus*

1. Receptacles naked, or with a single row of chaff between the ray and disk flowers.

9. Rays well developed and conspicuous, mostly 5-30 mm long; receptacles naked.

10. Pappus of firm, deciduous awns; involucres more or less strongly sticky-resinous . . . . . *Grindelia*

10. Pappus of chaffy or hyaline scales, or a mere crown, or absent; involucres not resinous although sometimes glandular-pubescent.

11. Leaves mostly pinnatifid; ray flowers ascending, minutely notched at the apex; receptacles low conic . . . . . *Eriophyllum*

11. Leaves simple, toothed; ray flowers soon deflexed, prominently 3-lobed; receptacles hemispheric to subglobose . . . . . *Helenium*

9. Rays short and inconspicuous, mostly 1-5 mm long or, if longer (in some *Madia*), then receptacle with a row of bracts between the ray and disk flowers.

12. Leaves bipinnatifid to pinnately dissected . . . . . *Tanacetum*

12. Leaves entire to toothed.

13. Involucres fusiform, ovoid or urn-shaped, enfolding the ray flowers, more or less glandular . . . . . *Madia*

13. Involucres only slightly convex, not enfolding the ray flowers, not glandular.

14. Involucral bracts well imbricated in several series; pappus absent . . . . . *Jaumea*

14. Involucral bracts in a single series; pappus of 3-5 awns and about as many alternating, laciniate, shorter scales . . . . . *Lasthenia*

Group IV (Heads radiate; ray flowers yellow or orange; pappus partly or wholly of numerous [sometimes plumose] bristles)

1. Leaves, except some of the reduced uppermost ones, opposite . . . . . *Arnica*

1. Leaves alternate, or all basal.

2. Receptacles strongly conic; annuals . . . . . *Crocidium*

2. Receptacles flat or nearly so; perennials.

3. Heads large, involucres 2-2.5 cm high; disks 3-5 cm wide; larger leaves densely velvety below; plants taprooted, weeds, up to 2 m tall . . . . . *Inula*

3. Heads smaller, if larger, then characters otherwise than those above.

4. Involucral bracts uniseriate, equal, narrow, commonly with a few much shorter outer ones at the base . . . . . *Senecio*

4. Involucral bracts in 2 or more series, equal or imbricate, narrow to broad.

5. Pappus double, bristles of the outer series inconspicuous, distinctly shorter than the inner.
    6. Heads solitary; leaves linear or mainly basal . . . . . *Erigeron* (*aureus* and *linearis*)
    6. Heads several; leaves oblong to oblong-spatulate, mainly cauline . . . . . *Heterotheca*
5. Pappus single, bristles sometimes unequal but not distinctly divided into an inner and outer series.
    7. Heads solitary or if several then plants taprooted . . . . *Haplopappus* (*carthamoides* and *lyallii*)
    7. Heads usually several to many.
        8. Plants shrubby . . . . . *Haplopappus* (*bloomeri*)
        8. Plants herbaceous.
            9. Lower leaves deeply cordate . . . . . *Doronicum*
            9. Lower leaves not cordate.
                10. Leaves punctate (sometimes obscurely so); heads mostly sessile in small clusters; rays mostly 15-30 . . . . . *Euthamia*
                10. Leaves not punctate; heads not clustered; rays 7-13, rarely 17 . . . . . *Solidago*

Group V (Heads discoid or disciform; pappus partly or wholly of numerous capillary [sometimes plumose] bristles)

1. Leaves more or less spiny and thistlelike and/or the receptacles densely bristly.
    2. Leaves more or less spiny and thistlelike.
        3. Outer and middle involucral bracts foliaceous with spreading, rigidly-spiny blades, these similar to the upper leaves . . . . . *Carthamus*
        3. Outer and middle involucral bracts not at all foliaceous.
            4. Pappus bristles plumose . . . . . *Cirsium*
            4. Pappus bristles merely barbellate or smooth.
                5. Pappus-bristles smooth; stems smooth . . . . . *Silybum*
                5. Pappus-bristles barbellate; stems with conspicuous spiny-margined wings.
                    6. Receptacles honey-combed; stems densely tomentose . . . . . *Onopordum*
                    6. Receptacles not honey-combed; stems glabrate . . . . . *Carduus*
    2. Leaves entire to toothed, not at all bristly or spiny, the plants not thistlelike.
        7. Involucres with some bracts pectinate, lacerate, spiny, erose or subentire; plants not subalpine or alpine . . . . . *Centaurea*
        7. Involucres with all bracts entire; plants subalpine or alpine . . . . . *Saussurea*
1. Leaves not spiny; receptacles naked, or nearly so.
    8. Shrubs.
        9. Involucral bracts 4-6, equal . . . . . *Tetradymia*
        9. Involucral bracts more numerous, imbricate, or at least in several series.
            10. Involucral bracts aligned in more or less vertical ranks . . . . . *Chrysothamnus*
            10. Involucral bracts not aligned in vertical ranks . . . . . *Brickellia*

8. Herbs (subshrubby in *Luina hypoleuca*).
    11. Flowers all perfect and fertile (heads discoid).
        12. Leaves opposite; flowers yellow or orange . . . . . *Arnica* (*parryi*)
        12. Leaves alternate, or if rarely opposite or whorled, then the flowers not yellow or orange.
            13. Involucral bracts uniseriate, equal, sometimes with a few short outer ones at the base.
                14. Leaves toothed and some of them more or less pinnatifid, never palmately cleft . . . . . *Senecio* (*indecorus* and *pauciflorus*)
                14. Leaves simple and entire or palmately cleft.
                    15. Leaves simple and entire . . . . . *Luina*
                    15. Leaves palmately cleft . . . . . *Cacaliopsis*
            13. Involucral bracts more or less imbricate in 2-several series.
                16. Pappus bristles plumose . . . . . *Saussurea*
                16. Pappus bristles merely barbellate or smooth.
                    17. Achenes 5-angled, not ribbed; leaves toothed, in whorls of three or four . . . . . *Eupatorium*
                    17. Achenes 10-ribbed; leaves (in ours) entire or nearly so and alternate . . . . . *Brickellia*
    11. Flowers all, or at least the outer ones, pistillate (heads disciform).
        18. Basal leaves cordate or sagittate . . . . . *Petasites*
        18. Basal leaves, if any, not cordate or sagittate.
            19. Herbage more or less white-woolly; involucral bracts mostly with dry, scarious, thin, white, to yellowish, brownish, or blackish green tips.
                20. Receptacles chaffy, at least near the margin, and simulating an involucre . . . . . *Filago*
                20. Receptacles naked.
                    21. Plants taprooted annuals or perennials; heads all with outer pistillate and central (or functionally staminate) perfect flowers . . . . . *Gnaphalium*
                    21. Plants fibrous-rooted perennials, often with rhizomes or stolons; dioecious or nearly so, the heads on at least some of the plants wholly staminate or wholly pistillate.
                        22. Basal leaves usually conspicuous, tufted, and persistent, the cauline ones mostly reduced upwards and often few or lacking . . . . . *Antennaria*
                        22. Basal leaves soon deciduous, scarcely if at all larger than the numerous cauline ones . . . . . *Anaphalis*
            19. Herbage often pubescent but not white-woolly; involucral bracts not markedly scarious at the tip.
                23. Perennials . . . . . *Erigeron* (*acris*)
                23. Annuals . . . . . *Aster* (*brachyactis*)

Group VI (Heads discoid or disciform; pappus of scales, awns or very short chaffy bristles, or a mere crown, or sometimes absent)

1. Involucres, or at least some of them, either armed with short, hooked prickles, or nutlike or burlike and provided with tubercles and spines.
    2. Heads of two types; involucres of the pistillate heads nutlike or burlike and provided with hooked prickles, tubercles and spines, those of the staminate heads unarmed; receptacles chaffy; corollas small and inconspicuous, or absent.
        3. Pistillate involucres with hooked prickles . . . . . *Xanthium*
        3. Pistillate involucres with tubercles or straight spines . . . . . *Ambrosia*
    2. Heads all alike with numerous perfect flowers; involucral bracts hooked at the tip; receptacles bristly; corollas more or less evident . . . . . *Arctium*
1. Involucres neither nutlike or burlike nor provided with hooked prickles, all about alike, spiny only in *Centaurea*.
    4. Receptacles chaffy or bristly throughout, or a few of the central flowers bractless.
        5. Plants more or less white-woolly; flowers inconspicuous . . . . . *Psilocarphus*
        5. Plants either not white-woolly or flowers conspicuous, or both.
            6. Heads small, involucres 1.5-4 mm high; the disks up to about 5 mm wide . . . . . *Iva*
            6. Heads obviously larger, involucres over 6 mm high; the disks usually over 1 cm wide.
                7. Receptacles chaffy; involucral bracts biseriate and obviously dimorphic . . . . . *Bidens*
                7. Receptacles bristly; involucral bracts not biseriate . . . . . *Centaurea*
    4. Receptacles naked or with a single row of chaffy bracts between the ray and disk flowers.
        8. Lowermost leaves deltoid-ovate to subreniform below, white-woolly beneath; involucral bracts few, usually only 4-5 . . . . . *Adenocaulon*
        8. Lowermost leaves not deltoid-ovate to subreniform; involucre bracts usually more numerous
            9. Leaves regularly opposite.
                10. Involucral bracts well imbricated in several series; pappus absent . . . . . *Jaumea*
                10. Involucral bracts in a single series; pappus of 3-5 awns and about as many alternating, laciniate, shorter scales . . . . . *Lasthenia*
            9. Leaves alternate, or occasionally some of the lower ones opposite.
                11. Pappus of short, distinct awns or scales . . . . . *Chaenactis*
                11. Pappus a mere minute crown or absent.
                    12. Involucral bracts in a single series, equal, each subtending and wholly enclosing an achene, or nearly so . . . . . *Madia*
                    12. Involucral bracts in several series, not enclosing the achenes.
                        13. Heads in an elongate inflorescence, relatively small, usually numerous . . . . . *Artemisia*
                        13. Heads in an open, round- or flat-topped inflorescence, small to large, solitary to few, sometimes numerous.

14. Receptacles conspicuously hemispherical or conical .... *Matricaria*

14. Receptacles flat or somewhat convex.

    15. Leaves fern-like (pinnate or bipinnate) throughout; achenes sparsely glandular; pappus a minute toothed crown ..... *Tanacetum* (*vulgare*)

    15. Leaves toothed or lobed below, becoming entire above, somewhat succulent and sheathing at the base; achenes nonglandular; pappus lacking ..... *Cotula*

ACHILLEA

1. Leaves pinnately dissected, the divisions again dissected; plants widespread in BC *A. millefolium*

1. Leaves incised, the divisions of the latter merely toothed; plants of northeastern BC ..... *A. sibirica*

***Achillea millefolium* L.** (*A. borealis* Bong. = var. *borealis*, *A. lanulosa* Nutt. = var. *lanulosa*)

Yarrow

Habitat/Range: Mesic to dry sites in every vegetation zone; extremely common throughout BC; N to AK, YT and NT, E to NF and S to FL, TX, CA and MX.

Notes: Taxonomically, one of our most complex and difficult species. For an extensive synonomy see Tyrl (1980) and Douglas (1990). Four ecogeographical forms are recognized at the varietal level.

1. Leaves gray, villous to woolly; plants usually in and east of the coastal mountains.

    2. Involucral bract margins light brown to black, stems usually less than 30 cm tall; plants of the subalpine and alpine zones ..... var. *alpicola* (Rydb.) Garrett

    2. Involucral bract margins light brown to straw-coloured; stems usually more than 30 cm tall; plants of the montane and steppe vegetation zones ..... var. *lanulosa* (Nutt.) Piper in Piper & Beattie

1. Leaves usually green, moderately villous; plants of coastal regions.

    3. Involucral bract margins dark brown to black; stems 10-40 cm tall ..... var. *borealis* (Bong.) Farwell

    3. Involucral bract margins hyaline to light straw-coloured; stems 30-100 cm tall ..... var. *pacifica* (Rydb.) G.N. Jones

***Achillea sibirica* Ledeb.**

Siberian yarrow

Habitat/Range: Mesic sites in the montane zone; frequent in NE BC; N to AK, YT, and NT and E to MB, disjunct to the Gaspe Peninsula.

ADENOCAULON

***Adenocaulon bicolor* Hook.**

Pathfinder

Habitat/Range: Moist to mesic forests in the montane zone; common in S BC; E to AB, S to ID, MT and N CA, disjunct in N MI.

AGOSERIS

1. Achenes often beakless, if beaked then the beak stout and up to about half as long as the body . . . . . *A. glauca*

1. Achenes always beaked, the beak slender and more than half as long as the body.

   2. Beak up to 2 times as long as the body; rays usually burnt orange, rarely yellow . . . . . *A. aurantiaca*

   2. Beak 2-4 times as long as the body; rays always yellow.

      3. Plants annual; involucres with conspicuous purple crosswalls on multicellular hairs . . . . . *A. heterophylla*

      3. Plants perennial; involucres without purple crosswalls on the multicellular hairs . . . . . *A. grandiflora*

Agoseris aurantiaca* (Hook.) Greene ssp. *aurantiaca
Orange agoseris
Habitat/Range: Mesic to dry sites from the upper montane to the alpine zones; frequent throughout BC; N to YT and NT, E to PQ, and S to NM and CA.

***Agoseris glauca* (Pursh) Raf. var. *dasycephala* (T.& G.) Jeps.**
Short-beaked agoseris
Habitat/Range: Mesic to dry sites from the steppe vegetation and montane to the alpine zones; frequent throughout BC except rare in coastal BC; E to AB and S to WA.

***Agoseris grandiflora* (Nutt.) Greene**
Large-flowered agoseris
Habitat/Range: Mesic to dry sites from the lowland to the lower montane zones; infrequent in extreme S BC; S to UT, NV and CA.

Agoseris heterophylla* (Nutt.) Greene ssp. *heterophylla
Annual agoseris
Habitat/Range: Dry, open sites in the lowland, steppe vegetation and lower montane zones; frequent in extreme S BC; E to ID and S to AZ, UT and CA.

AMBROSIA

1. Involucres with 2-4 series of short, sharp spines; leaves mostly alternate . . . . . *A. chamissonis*

1. Involucres with a single series of short spines or tubercles above the middle; leaves or at least the lower ones, opposite.

   2. Plants annual from fibrous roots; leaves mostly petiolate, mostly twice pinnatifid; involucres with short spines . . . . . *A. artemisiifolia*

   2. Plants perennial from creeping roots, leaves short-petiolate or subsessile, only once pinnatifid; involucres with tubercles . . . . . *A. psilostachya*

***Ambrosia artemisiifolia* L.** (*A. elatior* L., *A. artemisiifolia* var. *elatior* [L.] Desc.)
Annual or common ragweed
Habitat/Range: Dry sites; rare, known from only four locations in SC and SE BC; introduced from SW USA.

***Ambrosia chamissonis* (Less.) Greene** (*Franseria chamissonis* Less., *F. chamissonis* var. *bipinnatisecta* Less.)
Silver burweed
Habitat/Range: Beaches and gravelly sites along coastal shores; common on the coast; S to CA.

***Ambrosia psilostachya* DC.** (*A. coronopifolia* T.& G., *A. psilostachya* var. *coronopifolia* [T.& G.] Farw.)
Western ragweed
Habitat/Range: Dry sites; rare, known from only four locations in S BC; introduced from SW USA.

ANAPHALIS

***Anaphalis margaritacea* (L.) Benth. & Hook f. ex C.B. Clarke**
Pearly everlasting
Habitat/Range: Moist to dry sites in the lowland, montane and subalpine zones; common throughout all but NE BC; N to AK and NT, E to NF and NS and S to NM and CA.

ANTENNARIA

Notes: The treatment presented here is traditional and largely artificial. The recent work of Dr. R.J. Bayer and his colleagues (see references), based mainly on cytological investigations, is beginning to shed some light on the genus, especially where apomixis, polyploidy and hybridization are involved. The latter research will eventually lead to a more meaningful and, in many cases, markedly different classification of the genus.

1. Heads solitary, terminal.
    2. Plants with short or elongate stolons; leaves glabrous or glabrate and greenish above; heads on sparsely leafy stems; plants of northern BC . . . . . *A. monocephala*
    2. Plants lacking stolons; leaves densely tomentose above and below; heads on leafy stems; plants of extreme south-central BC . . . . . *A. dimorpha*

1. Heads several to many.
    3. Basal leaves distinctly less pubescent and greener above than below, sooner or later glabrate.
        4. Heads usually borne in an open racemiform inflorescence; plants regularly sexual, the staminate plants occurring with the pistillate ones, the stigmas equalling or surpassing the pappus . . . . . *A. racemosa*
        4. Heads borne in a crowded or sometimes subcapitate inflorescence; plants chiefly apomictic, the staminate plants rare, the pappus surpassing the stigmas . . . . . *A. neglecta*
    3. Basal leaves nearly as densely hairy above as below, glabrate only in extreme age.
        5. Plants mat-forming, with numerous leafy stolons.
            6. Terminal scarious portion of the involucral bracts (at least the outer or middle ones) brownish to darkish green.
                7. Terminal scarious portion of the middle and outer involucral bracts brownish (rarely dark green), inner ones usually white (at least near the tip); involucral bracts usually blunt . . . . . *A. umbrinella*
                7. Terminal scarious portion of the involucral bracts dark green throughout; involucral bracts usually sharp-pointed . . . . . *A. alpina*
            6. Terminal scarious portion of the involucral bracts white, or pink or reddish.

8. Pistillate involucres 7-11 mm high; the dry pistillate corollas 5-8 mm long . . . . . *A. parviflora*

8. Pistillate involucres 4-7 mm high (rarely 10 mm in the far north); the dry pistillate corollas 2.5-4.5 mm long . . . . . *A. microphylla*

5. Plants not mat-forming, without stolons, often multiple-stemmed from a branched rhizome or caudex.

9. Involucral bracts scarious to the base, glabrous or nearly so, the outermost bracts occasionally slightly woolly at the base . . . . . *A. luzuloides*

9. Involucral bracts with a densely pubescent, not at all scarious lower portion, the pubescence extending even to the inner bracts.

10. Plants mostly 1-2 dm tall; involucres blackish in aspect, although the inner bracts may be white at the tip; plants of the subalpine to alpine zones in BC . . . . . *A. lanata*

10. Plants mostly 2-5 dm tall; involucres whitish to blackish in aspect; plants of the steppe vegetation, montane and occasionally the subalpine zones of BC *A. pulcherrima*

***Antennaria alpina* (L.) Gaertn. var. *media* (Greene) Jeps.** (*A. media* Greene)
Alpine pussytoes
Habitat/Range: Mesic to dry well drained sites in the alpine and subalpine zones; common throughout BC; N to AK, YT and NT, E to AB and S to CO and CA.
Notes: For an extensive synonomy see Douglas (1980).

***Antennaria dimorpha* (Nutt.) T.& G.**
Low pussytoes
Habitat/Range: Dry sites in the steppe vegetation and adjacent lower montane zones; frequent in SC BC, E to SK, S to NE, CO and CA.

***Antennaria lanata* (Hook.) Greene**
Woolly pussytoes
Habitat/Range: Moist to mesic, mainly snowbed sites in the subalpine and alpine zones; common east of the Coast-Cascade Mountains in S BC; E to AB and S to WY and OR.

***Antennaria luzuloides* T.& G.**
Woodrush pussytoes
Habitat/Range: Dry, open, gravelly sites in the lower montane zone; infrequent east of the Coast-Cascade Mountains in extreme S BC; E to AB and S to MO, WY, CO, UT and CA.

***Antennaria microphylla* Rydb.** (*A. alborosea* A.E. & M.P. Porsild, *A. nitida* Greene, *A. rosea* Greene)
Rosy pussytoes
Habitat/Range: Mesic to dry sites from the lowland to the alpine zones; common throughout BC; N to AK, YT and NT, E to PQ and S to NM and CA.
Notes: For an extensive synonomy see Douglas (1980).

***Antennaria monocephala* DC.** (*A. angustata* Greene, *A. glabrata* [Vahl] Greene, *A. philonipha* Porsild, *A. pygmaea* Fern.)
One-headed pussytoes
Habitat/Range: Moist to mesic sites in the subalpine and alpine zones; frequent in N BC, infrequent in E BC; amphiberingian, N to AK, YT and NT and E to NF.
Notes: For an extensive synonomy see Douglas (1980).

***Antennaria neglecta* Greene** (*A. howellii* Greene and *A. neodioica* Greene ssp. *howellii* [Greene] Bayer = var. *howellii*, *A. neodioica* var. *attenuata* Fern. = var. *attenuata*)
Field pussytoes
Habitat/Range: Mesic to dry forests in the montane zone; frequent throughout most of BC; N to YT and NT, E to NF and S to VA, AZ and CA.

Notes: Three varieties occur in BC.

1. Plants less than 1.5 dm tall . . . . . var. *athabascensis* (Greene) Tayl. & MacBryde

1. Plants more than 1.5 dm tall.

   2. Leaves glabrous above from the beginning . . . . . var. *howellii* (Greene) Cronq.

   2. Leaves thinly tomentose above when young, sometimes glabrate with age . . . . . var. *attenuata* (Fern.) Cronq.

***Antennaria parviflora* Nutt.** (*A. aprica* Greene)

Nuttall's pussytoes

Habitat/Range: Mesic to dry sites in the lowland, steppe vegetation and montane zones; frequent in S BC, east of the Coast-Cascade Mountains, infrequent on Vancouver Island, the Gulf Islands and the adjacent coast; E to AB and S to AZ, NV and WA.

***Antennaria pulcherrima* (Hook.) Greene** (*A. anaphaloides* Rydb. = var. *anaphaloides*)

Showy pussytoes

Habitat/Range: Mesic sites from the lowland to montane zones; rare on the coast, frequent throughout the remainder of BC; N to AK, YT and NT, E to NF and S to UT, NV and CA.

Notes: Two varieties occur in BC.

1. Involucre blackish in aspect, although some of the bracts may be white at the tip . . . . . var. *pulcherrima*

1. Involucre white or whitish in aspect, although the bracts may have a small dark spot at the base . . . . . var. *anaphaloides* (Rydb.) G.W. Dougl.

***Antennaria racemosa* Hook.**

Racemose pussytoes

Habitat/Range: Mesic sites from the lowland to the alpine zones; frequent throughout BC; E to AB and S to WY and OR.

***Antennaria umbrinella* Rydb.**

Umber pussytoes

Habitat/Range: Mesic to dry sites from the lowland to the alpine zones; frequent throughout BC; N to AK, YT and NT, E to AB and S to AZ, CO and CA.

Notes: For an extensive synonomy see Douglas (1980).

ANTHEMIS

1. Rays yellow . . . . . *A. tinctoria*

1. Rays white.

   2. Receptacles chaffy throughout; achenes with smooth ribs . . . . . *A. arvensis*

   2. Receptacles chaffy only above the middle; achenes with glandular-tuberculate (bumpy) ribs . . . . . *A. cotula*

***Anthemis arvensis* L.**

Corn chamomile

Habitat/Range: Roadsides and disturbed sites; common on S Vancouver Island, infrequent through S BC; introduced from Europe.

***Anthemis cotula* L.**

Stinking chamomile or mayweed

Habitat/Range: Roadsides and disturbed sites; common in S BC; rare in NE BC; introduced from Europe.

***Anthemis tinctoria* L.**
Yellow chamomile
Habitat/Range: Roadsides and disturbed sites; infrequent in S BC; introduced from Eurasia.

ARCTIUM

1. Involucral bracts flat, straight and spreading; heads usually exceeding 2.5 cm wide . . . . . *A. lappa*

1. Involucral bracts angled or narrowed, curved and generally ascending; heads usually less than 2.5 cm wide . . . . . *A. minus*

***Arctium lappa* L.**
Great burdock
Habitat/Range: Roadsides and disturbed areas, rare in BC, known from only two collections in the lower Fraser Valley; introduced from Eurasia.

***Arctium minus* (Hill) Bernh.**
Common burdock
Habitat/Range: Roadsides, disturbed areas and pastures; frequent along the coast and in S BC; introduced from Eurasia.

ARNICA

1. Cauline leaves mostly 5-12 pairs.
    2. Involucral bracts blunt or abruptly pointed, bearing a conspicuous tuft of long, white hairs at or near the tip . . . . . *A. chamissonis*
    2. Involucral bracts more or less sharply pointed, lacking a tuft of white hairs at the tip.
        3. Leaves entire or nearly so . . . . . *A. longifolia*[11]
        3. Leaves more or less toothed . . . . . *A. amplexicaulis*
1. Cauline leaves mostly 1-4 pairs.
    4. Anthers purplish-black . . . . . *A. lessingii*
    4. Anthers yellow.
        5. Heads characteristically discoid (rayless); a few marginal corollas sometimes appear ray-like . . . . . *A. parryi*
        5. Heads characteristically radiate, rarely rayless.
            6. Pappus subplumose, tawny or straw-coloured.
                7. Heads broad (wider than high), subhemispheric . . . . . *A. mollis*
                7. Heads narrow, more or less turbinate (higher than wide) . . . . . *A. diversifolia*
            6. Pappus barbellate, usually white or nearly so.
                8. Leaves broad, basal ones 1-2.5 (rarely 3) times as long as wide.
                    9. Achenes short-hairy throughout; involucre densely white-pilose; leaves often cordate . . . . . *A. cordifolia*
                    9. Achenes glabrous below, or glabrous throughout; involucre with few or no long hairs; leaves various, cauline ones seldom cordate . . . . . *A. latifolia*

[11] This species, although occurring within a few km of the British Columbia border, has yet to be collected in the province.

8. Leaves narrow, basal ones 3-10 times as long as wide.
    10. Achenes usually glabrous below, or glabrous throughout.
        11. Heads usually 3-9, usually erect . . . . . *A. gracilis*
        11. Heads solitary (rarely 3), usually nodding.
            12. Involucral bracts becoming glabrous above, scarcely glandular; achenes scarcely glandular; plants of N BC . . . . . *A. frigida*
            12. Involucral bracts short stipitate-glandular throughout; achenes usually moderately glandular and hirsute above; plants of SE BC . . . . . *A. louiseana*
    10. Achenes usually short-hairy throughout.
        13. Lower cauline leaves sessile (sometimes sub-sessile); ray flowers minutely toothed or entire . . . . . *A. rydbergii*
        13. Lower cauline leaves short to long-petiolate; ray flowers prominently 3-toothed.
            14. Disk corollas densely stipitate-glandular, sometimes also with glandless hairs . . . . . *A. fulgens*
            14. Disk corollas sparsely to densely hairy, scarcely glandular . . . . . *A. angustifolia*

Arnica amplexicaulis* Nutt. ssp. *amplexicaulis

Streambank arnica

Habitat/Range: Moist to mesic sites in montane forests; common in S BC, rare northwards; N to S AK and YT and S to CA and NM.

***Arnica angustifolia* Vahl in Hornem.** (*A. alpina* [L.] Olin & Ladau = ssp. *angustifolia*, *A. lonchophylla* Greene = ssp. *lonchophylla*)

Alpine arnica

Habitat/Range: Mesic to xeric sites from the montane to alpine zones; common in BC; circumboreal, N to AK, YT, E to NF, and S to MN, SD and WA; Eurasia.

Notes: Four subspecies occur in BC:

1. Involucre and herbage conspicuously white woolly-villous; plants 0.5-2 dm tall . . . . . ssp. *tomentosa* (Macoun) G.W. Dougl. & G. Ruyle-Dougl.
1. Involucre and herbage never conspicuously white woolly-villous; plants 1-5 dm tall.
    2. Leaves regularly toothed (at least the basal ones), lower leaves long-petiolate; plants 2-4.5 dm tall . . . . . ssp. *lonchophylla* (Greene) G.W. Dougl. & G. Ruyle-Dougl.
    2. Leaves entire or sometimes irregularly toothed, lower leaves short-petiolate; plants 1-4.5 dm tall.
        3. Heads solitary (rarely 3); cauline leaves 2-3 pairs; plants 1-2.5 (rarely 3) dm tall . . . . . ssp. *angustifolia*
        3. Heads 3-5 (rarely 1 or 7), cauline leaves 4-5 pairs, (rarely 3 pairs); plants 1.5-4.5 dm tall . . . . . ssp. *attenuata* (Greene) G.W. Dougl. & G. Ruyle-Dougl.

***Arnica chamissonis* Less.**

Meadow arnica

Habitat/Range: Mesic to wet meadows in the montane and subalpine zone; widespread in BC; N to AK and YT, E to ON and S to CA and NM.

Notes: Three subspecies occur in BC:

1. Pappus subplumose, tawny; involucre densely villous with some sessile glands, basal hairs of involucre with prominent crosswalls; leaves usually sessile (lowermost sometimes short-petiolate) and toothed; widespread in BC . . . . . ssp. *chamissonis*

1. Pappus barbellate, whitish to straw-coloured; involucre densely villous without sessile glands, basal hairs of involucre with less prominent crosswalls; leaves long-petiolate (at least the lowermost ones) and usually entire.

    2. Leaves densely silver-tomentose; known from only seven stations in S BC . . . . . ssp. *incana* (Gray) Maguire

    2. Leaves less densely hairy, never silvery; rare in N BC; common southward . . . . . ssp. *foliosa* (Nutt.) Maguire

***Arnica cordifolia* Hook.**

Heart-leaved arnica

Habitat/Range: Xeric to mesic montane forests; less frequent in mesic alpine and subalpine sites; very common throughout the province except for coastal areas where it is known only from Bella Coola and the southern tip of Vancouver Island. N to AK, YT and the NT and S to NM and CA; disjunct in N MI.

Notes: Hybridizes with *A. latifolia*, numerous intermediates may be encountered. A poorly defined alpine phase, var. *pumila* (Rydb.) Maguire, may be recognized by its smaller stature (less than 2 dm) narrower and slightly or scarcely cordate leaves, and more glandular achenes.

***Arnica diversifolia* Greene**

Diverse arnica

Habitat/Range: Mainly in montane forests in BC; infrequent in S BC; N to AK and YT, S to N MT and CA.

Notes: This ‘‘species’’ is merely a convenient name for a series of apparent hybrids involving either *A. mollis* or *A. amplexicaulis* and *A. cordifolia* or *A. latifolia*.

***Arnica frigida* C.A. Mey. ex Iljin** (*A. louiseana* ssp. *frigida* [C.A. Mey. ex Iljin] Maguire)

Northern arnica

Habitat/Range: Moist bogs and meadows in the subalpine and alpine zones; infrequent in extreme N BC; amphiberingian, N to AK, YT, and NT, E USSR.

Notes: This species is closely related to *A. louiseana*.

***Arnica fulgens* Pursh** (*A. sororia* Greene = var. *sororia*)

Orange arnica

Habitat/Range: Xeric lower montane forests and steppe vegetation zones; var. *sororia* and var. *fulgens* are common in the southern interior of BC; the latter extends some 400 km farther north (into the Peace River drainage) than the former; E to AB and SK, S to N UT and N CA.

Notes: Recent research by Downie and Denford (1987) clearly verifies that two separate entities are involved here. To recognize them at the specific level, however, would be inconsistent with our taxonomic concepts. Two varieties are recognized in BC.

1. Disk corollas with spreading white hairs among the stipitate-glandular hairs; old leaf bases often with dense tufts of long brown woolly hairs in the axils . . . . . var. *fulgens*

1. Disk corollas without, or occasionally with a few spreading white hairs among the stipitate-glandular hairs, old leaf bases with only a few, if any, long white woolly hairs in the axils . . . . . var. *sororia* (Greene) G.W. Dougl. & G. Ruyle-Dougl. in Taylor & MacBryde

***Arnica gracilis* Rydb.** (*A. latifolia* Bong. var. *gracilis* [Rydb.] Cronq.)

High mountain or slender arnica

Habitat/Range: Mesic to dry, rocky sites in the subalpine and alpine zones; common in S BC; E to AB and S to WY and WA.

Notes: A natural hybrid between *A. cordifolia* and *A. latifolia* (Wolf and Denford 1984a).

***Arnica latifolia* Bong.**

Mountain arnica

Habitat/Range: Moist to mesic sites from the lowland to alpine zones; is extremely common throughout all BC; N to AK, YT and NT, S to CO and CA.

Notes: Hybridizes with *A. cordifolia*, numerous intermediates may be encountered.

***Arnica lessingii* (T.& G.) Greene**
Purple arnica
Habitat/Range: Moist snowbed sites in the alpine zone; infrequent in the northern half of the province; amphiberingian, eastern USSR through AK, YT, and NT and S to N BC.

***Arnica louiseana* Farr**
Lake Louise arnica
Habitat/Range: Mesic alpine fellfields; rare, known from only one station in Kootenay National Park; E to SW AB.

***Arnica mollis* Hook.**
Hairy arnica
Habitat/Range: Moist to mesic sites from the montane to the alpine zones; common in S BC, less frequent northward; N to AK, YT and NT and S to UT, CO and CA.

Arnica parryi* A. Gray ssp. *parryi
Parry's arnica
Habitat/Range: Mesic to xeric montane forests and subalpine meadows; common in the S BC, infrequent or rare northward; N to S YT and S to CO and CA.

***Arnica rydbergii* Greene**
Rydberg's arnica
Habitat/Range: Mesic to dry alpine meadows; frequent in the southern half of the province; S to UT and CO, N to CA.

ARTEMISIA

1. Marginal flowers pistillate; herbs or shrubs.
    2. Receptacle covered with long hairs.
        3. Plants large, usually 4-12 dm tall; the larger leaves 3-8 cm long . . . . . *A. absinthium*
        3. Plants small, usually 1-4 dm tall; the larger leaves less than 3 cm long . . . . . *A. frigida*
    2. Receptacle glabrous.
        4. Annuals or biennials from a taproot; leaves essentially glabrous . . . . . *A. biennis*
        4. Perennials from a rhizome, caudex, or a taproot, leaves more or less hairy.
            5. Leaves mainly basal, few and reduced upwards.
                6. Pubescence of the leaves densely sericeous, the ultimate segments acute or obtuse . . . . . *A. furcata*
                6. Pubescence of the leaves loosely villous, the ultimate segments acuminate to attenuate.
                    7. Heads relatively large, the disks 5-10 mm wide . . . . . *A. norvegica*
                    7. Heads smaller, the disks less than 4.5 mm wide . . . . . *A. campestris*
            5. Leaves mainly cauline.
                8. Leaves usually with one or two pairs of stipule-like lobes at the base . . . . *A. vulgaris*
                8. Leaves without stipule-like lobes at the base.
                    9. Leaves entire or merely lobed or toothed.

10. Leaves essentially entire, rarely pinnately lobed.

    11. Stems clustered from a woody caudex; plants of the Peace River drainage . . . . . *A. longifolia*

    11. Stems loosely clustered or solitary from spreading, creeping rhizomes; plants widespread.

        12. Leaves white-tomentose below . . . . . *A. ludoviciana* var. *ludoviciana*

        12. Leaves glabrous or occasionally villous below, not tomentose . . . . . *A. dracunculus*

10. Leaves lobed or toothed.

    13. Leaves narrow; plants somewhat shrubby at the base; restricted to the interior of S BC . . . . . *A. lindleyana*

    13. Leaves broadly lanceolate to elliptic; plants herbaceous to the base, not taprooted, restricted to coastal BC . . . . . *A. suksdorfii*

9. Leaves deeply divided or subpinnatifid to tripinnatifid.

    14. Leaves bipinnatifid, often with the ultimate segments again toothed.

        15. Involucres usually densely tomentose . . . . *A. ludoviciana* var. *incompta*

        15. Involucres sparingly tomentose or glabrous . . . . . *A. michauxiana*

    14. Leaves deeply divided or pinnatifid.

        16. Involucres narrow, higher than wide . . . . . *A. ludoviciana* var. *latiloba*

        16. Involucres relatively broad, wider than high.

            17. Plants herbs, from a rhizome; leaves tomentose below and green to sparsely tomentose above . . . . . *A. tilesii*

            17. Plants shrubs, from a woody caudex; leaves tomentose on both sides . . . . . *A. alaskana*

1. Flowers all perfect; shrubs.

    18. Leaves deeply divided into 3-5 segments . . . . . *A. tripartita*

    18. Leaves mostly entire or merely 3-toothed at the apex.

        19. Leaves mostly entire, occasionally with 1 or 2 teeth or lobes . . . . . *A. cana*

        19. Leaves 3-toothed at the apex, the upper becoming entire . . . . . *A. tridentata*

***Artemisia absinthium* L.**

Wormwood, common wormwood, or absinthe

Habitat/Range: Roadsides and disturbed sites; common in S BC, rare northward to Dawson Creek; introduced from Eurasia.

***Artemisia alaskana* Rydb.**

Alaska sagebrush

Habitat/Range: Sandy or gravelly river terraces and deltas in the montane zone; rare, known from only a single collection along the Haines Road in N BC; N to YT and AK.

***Artemisia biennis* Willd.**

Biennial wormwood

Habitat/Range: Mesic sites along streambanks and in disturbed areas from the lowland to montane zones; frequent throughout all but extreme N BC; N to AK, E to PQ and NS and S to CA.

***Artemisia campestris* L.** (*A. borealis* Pall. = ssp. *borealis*, *A. campestris* var. *scouleriana* [Bess.] Cronq. = ssp. *pacifica*)

Northern wormwood

Habitat/Range: Mesic to dry habitats in all vegetation zones; common throughout BC east of the Coast-Cascade Mountains, ssp. *pacifica* also found on S Vancouver Island and the adjacent lower mainland; circumboreal, N to AK, YT and NT, E to AB and S to NM and AZ.

Notes: The taxonomy of this species remains unclear, see Douglas (1988) for an extensive synonomy. Two subspecies occur in BC.

1. Plants usually 1-4 dm tall; involucres 3-4.5 mm high . . . . . ssp. *borealis* (Pall.) Hall & Clem.

1. Plants usually 3-10 dm tall; involucres 2-3 mm high . . . . . ssp. *pacifica* (Nutt.) Hall & Clem.

Artemisia cana* Pursh ssp. *cana

Silver sagebrush

Habitat/Range: Dry sites in the steppe vegetation zone; rare, known only from two collections in SC BC; E to SK and S to WA, CA and NM.

***Artemisia dracunculus* L.**

Tarragon

Habitat/Range: Dry sites in the steppe vegetation zones; frequent in S BC, infrequent northward to Dawson Creek; circumboreal, N to AK, YT and NT, E to MB and ME, and S to TX, NM and MX.

***Artemisia frigida* Willd.**

Prairie sagewort

Habitat/Range: Dry, open sites in all vegetation zones; common east of the Coast-Cascade Mountains, especially SC BC, circumboreal, N to AK, YT and NT, E to MB and S to TX, AZ, WI and KS.

***Artemisia furcata* Bieb. var. *heterophylla* (Bess.) Hult.** (*A. heterophylla* Bess., *A. trifurcata* Steph.)

Three-forked mugwort

Habitat/Range: Dry sites in the alpine zone; rare, known only from the Brooks Peninsula, N Vancouver Island; circumpolar, N to AK, YT and NT; Eurasia.

Notes: A problematic species, taxonomically. The closely related var. *furcata* (*A. hyperborea* Rydb.), differing mainly in its once (sometimes twice) palmately or pinnately divided leaves, is known from near the BC border in AB and YT.

***Artemisia lindleyana* Bess. in Hook.**

Columbia River mugwort

Habitat/Range: Below high water levels along rivers; infrequent along Columbia and Fraser River drainages in central BC; S to WA, ID and MT.

***Artemisia longifolia* Nutt.**

Long-leaved mugwort

Habitat/Range: Mesic to dry sites in the steppe vegetation zone; infrequent, restricted to the Peace River drainage in NE BC; E to SK and SD and S to WY.

***Artemisia ludoviciana* Nutt.**

Western mugwort

Habitat/Range: Mesic sites in the steppe vegetation, montane and subalpine zones; var. *ludoviciana* is common in the S half of BC, east of the Coast-Cascade Mountains, var. *latiloba* is frequent only in the SE quarter of BC, var. *incompta* is rare, known only from Nelson; E to ON and IL and S to MX.

Notes: Misidentifications of these taxa are common (see Douglas 1989). Three varieties occur in BC.

1. Leaves mostly entire, sometimes with a few lobes . . . . . var. *ludoviciana*

1. Leaves deeply lobed to bipinnatifid with the ultimate segments often again divided.

   2. Leaves merely lobed, seldom subpinnatifid . . . . . var. *latiloba* Nutt.

   2. Leaves bipinnatifid with the ultimate segments often again divided . . . . . var. *incompta* (Nutt.) Cronq.

***Artemisia michauxiana* Bess. in Hook.**

Michaux's mugwort

Habitat/Range: Mesic to dry sites, mainly in the montane zone but sometimes in the steppe vegetation or subalpine zones; common throughout BC east of the Coast-Cascades Mountains; N to YT and S to WY, UT and CA.

***Artemisia norvegica* Fries ssp. *saxatilis* (Bess. ex Hook.) Hall & Clem.** (*A. arctica* Less.)

Mountain sagewort

Habitat/Range: Moist to mesic sites in all vegetation zones; common throughout BC east of the Coast-Cascade Mountains; circumboreal, N to AK, YT and NT and S to CO and CA; Eurasia.

Notes: Taxonomists using the epithet *A. arctica* for this taxon, often follow, but are not familiar with, the totally inadequate paper by Hulten (1954) nor are they familiar with the species throughout its range.

***Artemisia suksdorfii* Piper**

Suksdorf's mugwort

Habitat/Range: Moist to mesic, gravelly sites along the coast; common from N Vancouver Island S in BC; S to CA.

***Artemisia tilesii* Ledeb.** (*A. tilesii* var. *elatior* T.& G. = var. *unalaschcensis*)

Aleutian mugwort

Habitat/Range: Moist to mesic sites in all vegetation zones; var. *unalaschcensis* is common throughout BC while var. *tilesii* is common and usually restricted to N BC; circumboreal, N to AK, YT and NT and S to MO and OR; Eurasia.

Notes: Two varieties occur in BC.

1. Inflorescences relatively short and compact, usually overtopped by the upper leaves . . . . . var. *tilesii*

1. Inflorescences ample and open to subcompact, always surpassing the upper leaves . . . . . var. *unalaschcensis* (Bess.) Hult.

***Artemisia tridentata* Nutt.**

Big sagebrush

Habitat/Range: Dry open sites in the steppe vegetation or lower montane zones (var. *tridentata*) and mesic open sites in the upper montane to subalpine zones (var. *vaseyana*); both varieties common in SC BC; E to AB and ND, S to NM, CA and MX.

1. Involucres narrowly campanulate, about 4 mm high and 2 mm wide; plants of arid sites at lower elevations . . . . . var. *tridentata*

1. Involucres broader, about 5 mm high and 4 mm wide; plants of cooler, mesic sites at higher (greater than 1150 m) elevations . . . . . var. *vaseyana* (Rydb.) Boivin

***Artemisia tripartita* Rydb.**

Threetip or cutleaf sagebrush

Habitat/Range: Dry sites in the steppe vegetation zone; common in SC and SE BC; S to CO and CA.

***Artemisia vulgaris* L.**

Common mugwort

Habitat/Range: Roadsides and in waste places; infrequent in S BC; introduced from Europe.

ASTER

1. Heads disciform, the rays essentially wanting, the corolla of the pistillate flowers tubular, shorter than the styles . . . . . *A. brachyactis*

1. Heads radiate, the rays usually conspicuous.

    2. Pappus distinctly double, with an outer series of very short bristles in addition to the principal bristles; heads solitary, narrow (less than 4 mm wide); plants of SE BC . . . . . *A. stenomeres*

    2. Pappus simple or occasionally double; heads, habit and range various but not precisely as in *A. stenomeres*.

        3. Rays few, 1-3, white, shorter than the pappus: plants of Vancouver Island and the Gulf Islands . . . . . *A. curtus*

        3. Rays more numerous, 5 or more, white to pink or purple, longer than the pappus; range various.

            4. Rays commonly 13, sometimes 8 or 21, white; involucral bracts tending to be keeled; pappus often with a few short outer setae.

                5. Leaves large, mostly 15-35 mm wide; plants 6-15 dm tall; plants of the Cascade Ranges and eastward in S BC . . . . . *A. engelmannii*

                5. Leaves smaller, 4-13 mm wide; plants 2-5 dm tall; plants of C Vancouver Island . . . . . *A. paucicapitatus*

            4. Plants differing in one or more respects from those above.

                6. Achenes 2-nerved, flattened; heads solitary; plants with the habit of *Erigeron* . . . . . *A. alpinus*

                6. Achenes mostly several-nerved; heads usually numerous; usually not with the habit of *Erigeron*.

                    7. Involucre and peduncles glandular.

                        8. Leaves thick, ovate to elliptic, usually sharply toothed . . . . . *A. conspicuus*

                        8. Leaves thin, linear to lanceolate, entire to remotely toothed.

                            9. Leaves narrow, mostly 2-10 mm wide, entire . . . . . *A. campestris*

                            9. Leaves broader, mostly 10-40 mm wide, remotely toothed, rarely entire . . . . . *A. modestus*

                    7. Involucre and peduncles without glands (or apparently so).

                        10. Involucral bracts usually with purple tips and margins; disk corollas with the tube (basal part) equalling or surpassing the slender limb (including lobes); leaves rough at least beneath.

                            11. Leaves sharply toothed over nearly all of the margin; heads several to many; lowland plants of S Vancouver Island . . . . . *A. radulinus*

                            11. Leaves entire or with relatively few small teeth in the apical portion; heads few, arctic-alpine plants throughout BC . . . . . *A. sibiricus*

                        10. Involucral bracts without purple tips and margins (except in some forms of *A. foliaceus*); disk corollas with tube shorter than the limb; leaves not rough beneath.

                            12. Basal or lower cauline leaves cordate or subcordate and distinctly petiolate . . . . . *A. ciliolatus*

12. Basal or lower cauline leaves not cordate or subcordate and usually sessile or subpetiolate.

    13. Plants slender, leaves less than 1 cm wide; rhizomes slender, less than 2 mm thick; plants of cold bogs and lake margins . . . . . *A. borealis*

    13. Plants differing in one or more respects from the above.

        14. Stems and branchlets pubescent in decurrent lines from the leaf bases; inflorescence generally large and leafy . . . . . *A. hesperius*

        14. Stems and branchlets with uniform pubescence on the peduncles, or if in lines, then uniform below the heads; inflorescence various.

            15. Involucral bracts, at least the outer, with loose or squarrose, minutely spinulose-mucronate tips; rays white (rarely pinkish to purplish).

                16. Plants with well developed, creeping rhizomes; heads few to many, often solitary at the ends of branches which are rarely secund . . . . . *A. falcatus*

                16. Plants with a short rhizome or caudex; heads numerous, usually secund on upwards-curving branches . . . . . *A. ericoides*

            15. Involucral bracts appressed to spreading, without a spinulose-mucronate tip (rarely obscurely so in *A. ascendens* and *A. chilensis*); rays usually blue to purple (pink or white in *A. bracteolatus*).[12]

                17. Involucres strongly graduated, the outer bracts spatulate, or slightly so, and usually obtuse, not foliaceous.

                    18. Heads few to many in a nearly naked, narrow to closed inflorescence; middle cauline leaves usually less than 1 cm wide and more than 7 times as long as wide, plants of SE BC . . . . . *A. ascendens*

                    18. Heads usually numerous on leafy-bracted branches; middle cauline leaves usually more than 1 cm wide and less than 7 times as long as wide, plants of S Vancouver Island . . . . . *A. chilensis*

                17. Involucres not strongly graduated or, if so, then the outer bracts markedly acute; involucral bracts acute, or, if obtuse, then the outer foliaceous.

                    19. Achenes glabrous, or nearly so; herbage glabrous, or nearly so and tending to be glaucous . . . . . *A. laevis*

                    19. Achenes more or less pubescent; herbage variously hairy to subglabrous, not glaucous.

                        20. Outer involucral bracts usually with scarious (not green) margins near the base, the chartaceous portion tending to be darkened, yellowish or brownish rather than white . . . . . *A. subspicatus*

                        20. Outer involucral bracts with inconspicuous or no scarious margins, the chartaceous portion, if present, usually whitish or greenish.

                            21. Inflorescence a long, narrow leafy panicle with numerous heads; ray flowers usually pink or white . . . . . *A. bracteolatus*

                            21. Inflorescence few-headed, or if more, then shorter, more open, and cymose-paniculate; ray flowers usually blue or violet.

[12] This last part of the key (often referred to as the *Aster occidentalis* complex) contains some of the most variable and complex taxa in the Asteraceae. The many intermediates between two or more species result in numerous plants that are extremely difficult to place.

22. Leaves relatively narrowly lanceolate, the bases rounded but not clasping, the middle cauline leaves less than 1 cm wide and more than 7 times as long as wide; involucral bracts small and narrow, never enlarged or leafy . . . . . *A. occidentalis*

22. Leaves broadly lanceolate to lance-ovate, the bases sometimes auriculate clasping, the middle cauline leaves mostly over 1 cm wide and less than 7 times as long as wide, some of the outer involucral bracts often more or less enlarged and leafy . . . . . *A. foliaceous*

***Aster alpinus* L. ssp. *vierhapperi* Onno**
Alpine aster
Habitat/Range: Calcaerous meadows from the montane to alpine zones; infrequent in NE BC; circumboreal, N to AK, YT and NT, E to AB and S to CO; Eurasia.

***Aster ascendens* Lindl. in Hook.** (*A. chilensis* Nees ssp. *adscendens* [Lindl. in Hook.] Cronq.)
Long-leaved aster
Habitat/Range: Dry sites in the steppe vegetation and lower montane zones; rare, known from only three collections in SC and SE BC; S to CO and CA.

***Aster borealis* (T.& G.) Prov.** (*A. junciformis* Rydb.)
Rush or boreal aster
Habitat/Range: Marshes, bogs, fens and lakesides from the lowland to the subalpine zones; frequent throughout BC; N to AK, E to PQ and NJ, and S to CO.

***Aster brachyactis* Blake**
Rayless alkali aster
Habitat/Range: Moist saline or alkaline sites in the steppe vegetation and lower montane zones; frequent in SC and SE BC; E to MB and S to WY, CO and UT.

***Aster bracteolatus* Nutt.** (*A. eatonii* [A. Gray] Howell)
Eaton's aster
Habitat/Range: Moist to wet sites in the lowland and montane zones; frequent in S BC; S to CA and NM.

Aster campestris* Nutt. var. *campestris
Meadow aster
Habitat/Range: Dry sites in the steppe vegetation and montane zones; frequent in SC and SE BC; E to AB and S to WA and UT.

***Aster chilensis* Ness**
Common California aster
Habitat/Range: Moist to mesic sites in the lowland zone; frequent on Vancouver Island, rare on the adjacent mainland; S to S CA.

***Aster ciliolatus* Lindl. in Hook.** (*A. lindleyanus* T.& G.)
Lindley's or fringed aster
Habitat/Range: Moist to dry sites in the montane zone; common in S BC, infrequent in NE BC; N to S NT, E to PQ, NS and NB, and S to OR and WY.

***Aster conspicuus* Lindl. in Hook.**
Showy aster
Habitat/Range: Mesic to dry sites in the montane zone; common in SC, SE and NE BC; E to SA and S to OR and WY.

***Aster curtus* Cronq.** (*Sericocarpus rigidus* Lindl. in Hook.)
White-top aster
Habitat/Range: Dry meadows and rocky areas in the lowland zone; rare on S Vancouver Island and the Gulf Islands; S to SW OR.

***Aster engelmannii* (D.C. Eat.) A. Gray**
Engelmann's aster
Habitat/Range: Mesic meadows and forest openings in the montane and sub-alpine zones; frequent in SC and SE BC; E to SW AB and S to CO and NV.

***Aster ericoides* L. ssp. *pansus* (Blake) A.G. Jones** (*A. pansus* [Blake] Cronq.)
Tufted white prairie aster
Habitat/Range: Mesic to dry sites in the steppe vegetation and montane zones; common in SC, SE and NE BC; E to MB and S to WY and NV.

Aster falcatus* Lindl. in Hook. ssp. *falcatus
Little gray aster
Habitat/Range: Dry sites in the steppe vegetation and montane zones; frequent in SC, SE and NE BC; N to AK, YT, and NT, E to MB, and S to AZ and NM.

***Aster foliaceus* Lindl. in DC.**
Leafy aster
Habitat/Range: Moist to mesic sites from the lowland to the alpine zones; common throughout BC; N to AK and YT, E to AB, and S to CA, AZ and NM.

Aster hesperius* A. Gray var. *hesperius
Western willow aster
Habitat/Range: Moist sites in the lowland and montane zones; infrequent in SE BC; E to SK and WI and S to NM to CA.

***Aster laevis* L. ssp. *geyeri* (A. Gray) Piper**
Smooth aster
Habitat/Range: Mesic to dry open sites in the lowland and montane zones; common in and east of the Coast-Cascade Mountains in S BC, infrequent in NE BC and on Vancouver Island; N to AK, E to SK and S to OR, UT and NM.

***Aster modestus* Lindl. in Hook.**
Great northern aster
Habitat/Range: Moist to mesic sites in the lowland and montane zones; common throughout BC; N to AK, E to ON and MN and S to MO, ID and OR.

***Aster occidentalis* (Nutt.) T.& G.**
Western mountain aster
Habitat/Range: Mesic open sites in the lowland and montane zones; infrequent throughout BC, the var. *intermedius* occurs east of the Coast-Cascade Mountains while var. *occidentalis* also occurs with the latter as well as along the coast; N to NT and S to CO and CA.
Notes: Two often obscure varieties occur in BC.

1. Heads one to several in a sparsely leafy inflorescence . . . . . var. *occidentalis*

1. Heads numerous in a branched, leafy inflorescence . . . . . var. *intermedius* A. Gray

***Aster paucicapitatus* (B.L. Robins.) B.L. Robins.**
Olympic mountain aster
Habitat/Range: Mesic to dry meadows and rock outcrops in the lowland, montane and subalpine zones; rare on C Vancouver Island; S to NW WA (Olympic Mountains).

***Aster radulinus* A. Gray**
Rough-leaved aster
Habitat/Range: Dry open forests and rock outcrops in the lowland zone; rare on SE Vancouver Island; S to CA and disjunct to central OR.

***Aster sibiricus* L.**
Arctic aster
Habitat/Range: Mesic to dry, usually gravelly sites from the montane to the alpine zones; common throughout BC; N to AK, YT and NT and S to OR and WY.
Notes: Two subspecies occur in BC. They are sometimes difficult to distinguish in the herbarium.

1. Involucres usually strongly imbricate, 6-9 mm high; heads often several to many; plants of S BC . . . . . ssp. *meritus* (A. Nels.) G.W. Dougl.

1. Involucres usually scarcely imbricate, 7-16 mm high; heads solitary to several; plants of N BC . . . . . ssp. *sibiricus*

***Aster stenomeres* A. Gray**
Rocky Mountain aster
Habitat/Range: Dry, open sites in the steppe vegetation and montane zones; infrequent in SE BC; S to NE WA, ID and MO.

***Aster subspicatus* Nees** (*A. douglasii* Lindl. in Hook.)
Douglas' aster
Habitat/Range: Moist to mesic sites in the lowland and montane zones; common in S BC; N to AK, E to AB and S to and CA.

BALSAMORHIZA

1. Plants densely and softly hairy, the leaves silvery, especially below; involucres densely woolly-tomentose; plants of the interior of BC . . . . . *B. sagittata*

1. Plants sparsely hairy, the leaves green; involucres sparsely hairy; plants of the SW coast of BC . . . . . *B. deltoidea*

***Balsamorhiza deltoidea* Nutt.**
Deltoid balsamroot
Habitat/Range: Dry, open, grassy areas in the lowland zone; rare on S Vancouver Island; S to CA.

***Balsamorhiza sagittata* (Pursh) Nutt.**
Arrow-leaved balsamroot
Habitat/Range: Dry, open sites in the steppe vegetation and lower montane zones; common in SC and SE BC; E to AB and S to CO and CA.

BELLIS

***Bellis perennis* L.**
English daisy
Habitat/Range: Lawns, pastures and waste places; common along the coast, introduced from Europe.