

## **KEY TO THE ALBERTA FIGWORTS AND ALLIES**

**OROBANCHACEAE  
PHRYMACEAE  
PLANTAGINACEAE  
SCROPHULARIACEAE**

**Compiled and written by Lorna Allen and Linda Kershaw**

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The key to the families in this group is based on Lesica (2012). The keys to each family were compiled using information primarily from Moss (1983) and Douglas et. al. (1998, 1999, 2000). Taxonomy follows VASCAN (Brouillet, 2017). References are listed at the end of the key. The 2015 S-ranks of rare species (S1; S1S2; S2; S2S3; SU, according to ACIMS, 2015) are noted in superscript (S1;S2;SU) after the species names. For more details go to the ACIMS web site. Similarly, exotic species are followed by a superscript X, XX if noxious and XXX if prohibited noxious (X; XX; XXX) according to the Alberta Weed Control Act (2016). Please try using the key, and let us know if there are ways in which it can be improved. Next winter we hope to add illustrations.

## Key to Families

In the past few years, the families Orobanchaceae, Plantaginaceae and Scrophulariaceae have undergone some major revision and reorganization. Most of the species in the Scrophulariaceae in the Flora of Alberta (1983) are now in the Orobanchaceae and Plantaginaceae. For this reason, we have grouped the Orobanchaceae, Plantaginaceae, Phrymaceae and Scrophulariaceae together in this file. In addition, species previously placed in the Callitrichaceae and Hippuridaceae families are now included in the Plantaginaceae family.

- 01a** Plants truly aquatic with submersed or floating leaves that become limp when taken from the water, only the flowers sometimes elevated above the water ..... **Plantaginaceae (in part)**
- 01b** Plants emergent (with lower parts in the water but the upper stem, leaves and flowers elevated above the water) or upland species with self-supporting stems (not obligate aquatics) ..... **02**
  
- 02a** Plants without green leaves ..... **Orobanchaceae (in part)**
- 02b** Plants with green leaves ..... **03**
  
- 03a** Flowers without distinct petals and sepals, petals and/or sepals absent, or petals and sepals identical (tepals) ..... **Plantaginaceae (in part)**
- 03b** Flowers with petals different from sepals ..... **04**
  
- 04a** Leaves paired (opposite) on the stem ..... **05**
- 04b** Leaves alternate on the stem or all basal ..... **08**
  
- 05a** Fertile stamens 5 ..... **Scrophulariaceae (in part)**
- 05b** Fertile stamens 2 or 4 (sometimes 5 with 1 sterile) ..... **06**
  
- 06a** Calyx strongly 5-angled ..... **Phrymaceae**
- 06b** Calyx not or weakly 5-angled ..... **07**
  
- 07a** Flowers with 1 sterile stamen; petals reddish-brown ..... **Scrophulariaceae (in part)**
- 07b** Flowers not as above ..... **Plantaginaceae (in part)**
  
- 08a** Corollas with a hood-like upper lip (galea) enclosing the style ..... **Orobanchaceae (in part)**
- 08b** Corollas 2-lipped, but the upper lip not hood-like ..... **Plantaginaceae (in part)**

**OROBANCHACEAE [now includes SCROPHULARIACEAE, in part] Broomrape Family**

**Key to Genera**

- 01a** Plants without chlorophyll, parasitic or saprophytic, pinkish white, brown or orange; leaves reduced to scales ..... **02**
- 01b** Plants with chlorophyll, mostly green; leaves well-developed (not scales)..... **03**
- 02a** Plants brown; flowers in a dense, cone-like spike; lower lip of the flower much shorter than the upper; Caribou Mountains..... ***Boschniakia rossica***<sup>s1</sup>
- 02b** Plants pinkish to brownish; flowers single or in spikes; lower lip of the flower = or longer than the upper; sAB..... ***Orobanche***
- 03a** Stem leaves alternate (rarely all basal) ..... **04**
- 03b** Stem leaves paired (opposite)..... **07**
- 04a** Flower bracts brightly coloured (red, yellow, purple) and concealing much (all) of the flower, easily mistaken for petals/sepals; corollas tubular, 2-lipped, usually greenish..... ***Castilleja***
- 04b** Flower bracts green or purplish-brown, not concealing the flowers; flowers varied..... **05**
- 05a** Flowers 40-55 mm long; leaves entire (smooth edged); grasslands, seAB..... ***Castilleja sessiliflora***<sup>s1</sup>
- 05b** Flowers shorter, < 40 mm long, usually less; leaves toothed to lobed, often pinnate; various habitats . **06**
- 06a** Stem leaves smooth edged, slender, the upper ones 3-lobed; basal leaves absent; upper lip of the flower beak-like, ± straight ..... ***Orthocarpus luteus***
- 06b** Stem leaves (at least) toothed, usually 1-2X pinnately lobed; basal leaves present or absent; upper lip of the flower hood-like, rounded, squared or extending into a narrow curved beak ..... ***Pedicularis (in part)***
- 07a** Corolla pinkish purple..... ***Odontites vulgaris***<sup>x</sup> [***Odontites serotina***; ***Odontites vernus***]
- 07b** Corolla white to yellow..... **08**
- 08a** Calyx ±1 cm long in flower, inflated to 12-17 mm long and veiny in fruit ..... ***Rhinanthus minor***
- 08b** Calyx much shorted, not inflated in fruit ..... **09**
- 09a** Leaves 2-10 mm long, egg-shaped, prominently toothed, palmately veined..... ***Euphrasia***
- 09b** Leaves 10-40 mm long, linear to lance-shaped, ± smooth edged, pinnately veined. ***Melampyrum lineare***

**CASTILLEJA Paintbrush**

- 01a** Bracts green, similar to upper leaves; flowers projecting well past the bracts, pale yellow (sometimes pink or purplish), 40-55 mm long; upper lip (galea) strongly curved, 1 cm long; lower lip 3-5 mm long, 3-lobed; grassland species, seAB..... ***Castilleja sessiliflora***<sup>s1</sup>
- 01b** Bracts usually coloured (sometimes greenish); flowers variously coloured, <40 mm long, usually shorter ..... **02**
- 02a** Flower clusters pink, red, scarlet, crimson or purple..... **03**
- 02b** Flower clusters yellow..... **07**
- 03a** Upper leaves usually with 1-5 pairs of slender, spreading lobes ..... **04**
- 03b** Upper leaves usually not lobed ..... **05**
- 04a** Bracts scarlet; cordillera s of Bow R ..... ***Castilleja hispida***
- 04b** Bracts whitish to rose pink, magenta or crimson; n cordillera ..... ***Castilleja parviflora***<sup>s1</sup>

- 05a Flower clusters pink to bright red, scarlet or orange; widespread across the s 2/3 of AB *Castilleja miniata*  
 05b Flower clusters purple to purplish-red (crimson)..... 06
- 06a Leaves 2-5 mm wide; flower clusters 1-2 cm wide, usually much longer than wide; boreal forest in the n 1/3 of AB..... *Castilleja raupii*  
 06b Leaves usually >5 mm wide; flower clusters 2-4 cm wide, 1-2X longer than wide; subalpine to alpine sites in the cordillera ..... *Castilleja rhexiifolia*
- 07a Upper leaves lobed..... 08  
 07b Upper leaves usually not lobed ..... 09
- 08a Stems usually unbranched; leaves angled upwards, overlapping, often hiding the stem; plant hairs sparse, long and soft ..... *Castilleja cusickii*  
 08b Stem usually branched; leaves spreading, not hiding the stem; plant hairs tiny or short, coarse and stiff ..... *Castilleja lutescens*
- 09a Plant hairs tiny or short, coarse and stiff; bracts lobed ..... *Castilleja lutescens*  
 09b Plant hairs sparse long and soft or absent; bracts mostly unlobed ..... 10
- 10a Upper lip of the corolla (galea) usually  $\geq 2/3$  as long as the basal tube ..... *Castilleja miniata*  
 10b Upper lip of the corolla  $< 1/2$  as long as the basal tube ..... *Castilleja occidentalis*

**EUPHRASIA Eyebright**

- 01a Flowers showy, 7-8 mm long (to tip of hood), with a strongly spreading, fan-shaped lower lip ..... *Euphrasia nemorosa*<sup>x</sup>  
 01b Flowers relatively inconspicuous, 3-6 mm long, with a relatively narrow (not strongly spreading) lower lip ..... 02
- 02a Leaves and sepals with abundant long-stalked glands; upper leaves  $\pm$  round to broadly egg-shaped, triangular or  $\pm$  heart-shaped, with a rounded to slightly notched base; flowers 3-4 mm long ..... *Euphrasia subarctica*  
 02b Leaves and sepals with long, simple (not glandular) hairs (all 3 species have stalkless glands on the lower leaf surface); upper leaves lance- to egg-shaped, with a wedge-shaped base; flowers 4.5-6 mm long; one AB record, Conklin area ..... *Euphrasia hudsoniana*<sup>s1</sup> [*Euphrasia arctica*; *Euphrasia frigida*]

**OROBANCHE Broomrape**

- 01a Flowers usually >20,  $\pm$  stalkless, in dense, spike-like clusters on thick stems, each with 1-2 bracts below the sepals..... *Orobanche ludoviciana*  
 01b Flowers 1-20, on long, leafless stalks from a thick, underground stem (caudex), without bracts below the sepals; branches ..... 02
- 02a Underground stem  $\pm$  woody, its branches each bearing 2-several flowers; flower stalks usually 5-20,  $\pm$  as long as the stems; calyx lobes  $\leq$  to the tube (in length)..... *Orobanche fasciculata*  
 02b Underground stem soft, its branches each bearing 1 flower; flowering stalks usually 1-3, much longer than the stems; calyx lobes longer than the tube..... *Orobanche uniflora*

**PEDICULARIS Lousewort**

- 01a** Leaves toothed; dry, open subalpine slopes, Banff & Jasper NPs.....*Pedicularis racemosa*<sup>S1</sup>
- 01b** Leaves 1-2X pinnately lobed/divided ..... **02**
- 02a** Stems branched..... **03**
- 02b** Stems unbranched (but sometimes in clumps)..... **04**
- 03a** Corolla hood with 2 blunt, <0.5 mm teeth or without teeth at the tip; flowers pink to purple .....  
.....*Pedicularis parviflora*
- 03b** Corolla hood with 2 slender, 0.5-2 mm teeth at the tip; flowers yellow (often tinged pink or purple) .....  
.....*Pedicularis labradorica*
- 04a** Upper lip of the corolla (galea) extended into a thin, tubular beak >(2)4 mm long..... **05**
- 04b** Galea ending in a broad hood, sometimes toothed but without a tubular beak ..... **06**
- 05a** Flowers pink to purple (rarely white), usually in a dense spikes; tubular beaks up-curved; stems and  
leaves green or dark reddish purple.....*Pedicularis groenlandica*
- 05b** Flowers white or yellow, in loose spikes; tubular beaks down-curved; stems often reddish, leaves usually  
green.....*Pedicularis contorta*
- 06a** Flowers 3.0-3.5 cm long, usually <8(10), in compact heads..... *Pedicularis capitata*
- 06b** Flowers <2.5 cm long, usually >8, in spike-like clusters ..... **07**
- 07a** Flowers pink to purple..... **08**
- 07b** Flowers white, cream or yellow, sometimes crimson tinged especially on the upper lip ..... **11**
- 08a** Stem leaves 0-2; stems hairless; Caribou Mtns.....*Pedicularis sudetica*<sup>S1</sup>
- 08b** Stems leafy, hairless or with sparse to dense, long, soft hairs..... **09**
- 09a** Plants ≥20 cm tall; stems ± hairless; flowers yellowish, often pink tinged ..*Pedicularis bracteosa* (in part)
- 09b** Plants <20 cm tall; stem woolly with long, soft hairs; flowers pink to purple ..... **10**
- 10a** Upper lip of the flower ± as long as the lower lip, not tipped with teeth; leaves pinnately lobed or  
divided; seeds with a loose-fitting, ash grey seed coat..... *Pedicularis lanata*
- 10b** Upper lip of the flower much longer than the lower lip, tipped with 2 small teeth; leaves pinnately lobed  
(not divided into leaflets); seeds smooth, brown ..... *Pedicularis langsdoeffii*<sup>S2</sup> [*Pedicularis arctica*]
- 11a** Plants ≥20 cm tall; stems ± hairless; flowers yellowish, often pink tinged ..*Pedicularis bracteosa* (in part)
- 11b** Plants <20 cm tall; stem hairless or woolly with long, soft hairs; flowers yellow, usually crimson tinged  
especially on the upper lip ..... **12**
- 12a** Flowers orange-yellow, deep purple to burgundy on the upper half of the hood, in nearly hairless  
clusters; Willmore WP south to Banff NP..... *Pedicularis flammea*<sup>S3</sup>
- 12b** Flowers bright yellow with a darker tipped hood, in woolly, somewhat glandular clusters; Willmore WP  
..... *Pedicularis oederi*<sup>S1</sup> [*Pedicularis flammea*, in part]

**PHRYMACEAE [previously SCROPHULARIACEAE, in part]    Lopseed Family**

**Key to Genera**

- 01a**    Flowers purple or blue; leaf veins forming weak loops; plants hairless; La Butte Creek W, ne AB.....  
..... *Mimulus ringens*<sup>S1</sup>
- 01b**    Flowers crimson, red or yellow (often dotted with red); leaves with 2 strong secondary veins arching  
from near the base to the tip ..... *Erythranthe*

**ERYTHRANTHE    Monkeyflower**

- 01a**    Flowers crimson to reddish or pinkish; plants glandular hairy; Rocky Mtns. .... **02**
- 01b**    Flowers yellow (often dotted with red) ..... **03**
- 02a**    Stems >30 cm tall; leaves 3-7 cm long ..... *Erythranthe lewisii* [*Mimulus lewisii*]
- 02b**    Stems <15 cm tall; leaves 1-2 cm long; Waterton Lakes NP ..... *Erythranthe breweri*<sup>S1</sup> [*Mimulus breweri*]
- 03a**    Calyx ± regular; corolla 5-12 mm long; mtn springs, s from Crowsnest Pass.....  
..... *Erythranthe floribunda*<sup>S2</sup> [*Mimulus floribundus*]
- 03b**    Calyx distinctly 2-lipped; corolla 12-40 mm long ..... **04**
- 04a**    Stems mostly creeping; calyx 5-12 mm long; corolla ≤25 mm long; springs, Central Parkland.....  
..... *Erythranthe geyeri*<sup>S1</sup> [*Mimulus glabratus*]
- 04b**    Stems mostly erect; calyx 12-17 mm long; corolla 25-45 mm long ..... **05**
- 05a**    Plant with creeping stems (stolons), rarely also creeping rootstocks (rhizomes); flowers usually ≥5;  
corolla sometimes <20 mm long; southern mtns and plains ..... *Erythranthe guttata* [*Mimulus guttatus*]
- 05b**    Plant with creeping rootstocks and often also creeping stems; flowers mainly 1 -3; corolla 20-40 mm  
long; mtns, south from Crowsnest Pass ..... *Erythranthe tilingii*<sup>S1</sup> [*Mimulus tilingii*]

**PLANTAGINACEAE Plantain Family**

[now includes CALLITRICHACEAE, HIPPURIDACEAE, and SCROPHULARIACEAE, in part]

**Key to Genera**

- 01a** Plants submersed, free floating aquatics or emergent aquatics (with lower parts in the water but the upper stem, leaves and flowers well elevated above the water) ..... **02**
- 01b** Plants of upland sites ..... **04**
  
- 02a** Leaves in rings (whorls); stems unbranched ..... *Hippuris*
- 02b** Leaves paired (opposite); stems branched or unbranched..... **03**
  
- 03a** Leaves succulent, ± round to broadly egg-shaped, 1-3 cm long; plants floating; flowers white with a yellow centre, 5-10 mm across, tubular, bell-shaped with 5 equal, spreading lobes, single (rarely 2) in leaf axils..... *Bacopa rotundifolia*<sup>s1</sup>
- 03b** Leaves small, egg-shaped to linear; plants usually rooted, submersed or partly floating (sometimes on mud); flowers greenish, minute, 1-3 in leaf axils .....*Callitriche*
  
- 04a** Petals absent; leaves mostly basal (small, alternate stem leaves sometimes present, but soon shed); stamens 2, exserted, purplish ..... *Veronica wyomingensis* [*Besseyia wyomingensis*]
- 04b** Petals present; leaves not mostly basal, opposite or whorled, alternate upper leaves sometimes present; stamens various..... **05**
  
- 05a** Corollas with a spur ..... **06**
- 05b** Corollas not spurred ..... **08**
  
- 06a** Flowers yellow; flower clusters elongating, branched (racemes) at stem tips; plants perennial.....*Linaria*
- 06b** Flowers blue, violet or purple; flowers single in axils of leaf-like bracts or in elongating clusters (racemes) at stem tips; plants annual, sometimes germinating in autumn, over-wintering and producing seed the following spring ..... **07**
  
- 07a** Stems 1-several, unbranched, bluish-green with a pale waxy coating (glaucous), ± hairless; plants often with a basal rosette of short, sprawling stems with up-turned tips; flowers on 2-4 mm long stalks in elongating, branched clusters (racemes) at stem tips; spurs 2-9 mm long.....  
..... *Nuttallanthus texanus*<sup>s2</sup> [*Linaria canadensis* var. *texanus*]
- 07b** Stems usually single, branched, glandular to glandular-hairy; plants without a rosette of stems at the base; flowers 5-7 mm long, on slender, ±1 cm long stalks in axils of leaf-like bracts; spurs 1.5-2 mm long .....*Chaenorhinum minus*<sup>x</sup>
  
- 08a** Calyx 4-lobed; stamens 2, projecting from the flower (exserted); corolla barely 2-lipped .....  
..... *Veronica* (in part)
- 08b** Calyx 5-lobed; stamens 2 or 4, included within the flower or exserted corolla 2-lipped ..... **09**
  
- 09a** Stamens 2 ..... *Gratiola neglecta*<sup>s3</sup>
- 09b** Stamens 4, sometimes with a sterile stamen (staminode) ..... **10**
  
- 10a** Sterile stamen (staminode) present, thread-like; flowers blue, purple, pink or white; upper leaves paired (opposite) .....*Penstemon*
- 10b** Staminode absent or scale-like; flowers blue; upper leaves often in rings (whorls) ..... *Collinsia parviflora*

**CALLITRICHE Water-starwort**

- 01a** Fruits without a wing, or winged at the tip ; pollen colored; scales present on stem and leaves; lower leaves linear, upper leaves egg- or spoon-shaped ..... ***Callitriche palustris [Callitriche verna]***
- 01b** Fruits winged throughout; pollen colorless; scales absent on stem and leaves; leaves all linear ..... **02**
  
- 02a** Wings narrower than the seed width, < 0.1 mm wide, even at the tip of the fruit; fruit stalks >0-1 mm long ..... ***Callitriche stenoptera*** <sup>SU</sup>
- 02b** Wing width ≥ the seed width; fruit stalkless ..... ***Callitriche hermaphroditica***

**HIPPURIS Mare's-tail**

- 01a** Stems and rootstocks <1 mm wide; leaves generally <1 mm x 2-6(10) mm, without side veins, but often with a conspicuous midvein; flowers mostly either ♂ or ♀; northern Rockies, s to w of Calgary ..... ***Hippuris montana*** <sup>S1</sup>
- 01b** Stems and rootstocks (1.5)3-5(7) mm wide; leaves generally >1 mm x >(30)60 mm, with side veins (sometimes obscure) and an inconspicuous midvein; flowers mostly with ♂ and ♀ parts; widespread .... ***Hippuris vulgaris***

**LINARIA Toadflax**

- 01a** Stem leaves egg-shaped-lance-shaped, clasping at the base; flowers 3-4 cm long..... ***Linaria dalmatica*** <sup>XX</sup>
- 01b** Stem leaves linear, with a stalk-like base; flowers 2-3 cm long ..... ***Linaria vulgaris*** <sup>XX</sup>

**PENSTEMON Beardtongue**

- 01a** Plants shrubby; stems distinctly woody at base, sprawling to ascending or erect ..... **02**
- 01b** Plants herbaceous; stems not distinctly woody at base, erect or nearly so ..... **04**
  
- 02a** Plants 30-80 cm tall; leaves all on the stem; largest leaves often >6 cm long or >2.5 cm wide or both ..... ***Penstemon lyallii***
- 02b** Plants 5-40 cm tall; leaves basal or near-basal as well as along the stem, not >6 cm long or >2.5 cm wide ..... **03**
  
- 03a** Plants ascending to erect, 20-50 cm tall; leaves lance-shaped, 2-10X as long as wide ..... ***Penstemon fruticosus***
- 03b** Plants sprawling, matted, ≤20 cm tall; leaves elliptic to circular, 1-2.5X as long as wide..... ***Penstemon ellipticus***
  
- 04a** Flowers 8-12 mm long, in dense clusters at stem tips or at stem joints..... **05**
- 04b** Flowers 15-40 mm long, not densely clustered ..... **06**
  
- 05a** Flowers yellow to yellowish-white; bracts of the flower clusters papery and ragged at the edges..... ***Penstemon confertus***
- 05b** Flowers blue to purple (rarely white); bracts of the flower cluster smooth-edged, not ragged or papery at the edges ..... ***Penstemon procerus***
  
- 06a** Anthers densely long-woolly; plants 30-80 cm tall ..... ***Penstemon lyallii***
- 06b** Anthers smooth or with inconspicuous short hairs; plants mostly <40 cm tall ..... **07**



- 07a Plants not glandular-hairy, with a whitish, waxy coating; leaves smooth-edged or nearly so; lower bracts broadly egg-shaped to ± round; flowers broadly funnel-shaped..... *Penstemon nitidus*
- 07b Plants glandular hairy (at least in the flower cluster), without a whitish, waxy coating; leaves smooth edged or toothed; lower bracts lance-shaped; flowers not much expanded towards the tip ..... 08
- 08a Flowers white, finely purplish lined or spotted.....*Penstemon albidus*
- 08b Flowers blue or purplish..... 09
- 09a Sterile stamen with long yellow hairs, projecting from the flower.....*Penstemon eriantherus*<sup>S2</sup>
- 09b Sterile stamen without long yellow hairs, not projecting from the flower..... 10
- 10a Stems arising from above ground stem bases; flowers blue, mostly 1.2-1.5 cm long.....  
.....*Penstemon albertinus*
- 10b Stems arising singly or few together from short underground stem bases; flowers lilac, mostly 1.5-2.5 cm long.....*Penstemon gracilis*

**PLANTAGO Plantain**

- 01a Leaves linear to thread-like, without a clearly defined stalk ..... 02
- 01b Leaves lance-shaped or elliptic to egg-shaped, usually with a clearly defined stalk ..... 04
- 02a Corolla tubes hairy; plants perennial; leaves thick and fleshy; salt flats in neAB .....*Plantago maritima*<sup>S1</sup>
- 02b Corolla tubes hairless; plants annual (sometime biennial); leaves not fleshy; grasslands in seAB ..... 03
- 03a Leaves linear, >1 mm wide, ± strongly long woolly-hairy; stamens 4; corolla lobes ≈2 mm long, spreading or bent back/down ..... *Plantago patagonica*
- 03b Leaves thread-like, ≈1 mm wide, hairless or sparsely hairy; stamens 2; corolla lobes 0.5-1.0 mm long, often erect ..... *Plantago elongata*
- 04a Plants densely brown-woolly at the base ..... *Plantago eriopoda*
- 04b Plants not densely brown-woolly at the base, or only sparsely so ..... 05
- 05a Leaves lance-shaped 3- to 5-nerved.....*Plantago canescens*
- 05b Leaves elliptic to egg-shaped, 5- to 9-nerved ..... 06
- 06a Leaf blades usually ± hairless, sprawling, lying ± flat on the ground, abruptly narrowed to a long stalk; flowers with inconspicuous stamens; capsule 5- to 25-seeded, seeds 1 mm long.....  
..... *Plantago major*<sup>x</sup>
- 06b Leaf blades white-hairy, spreading to slightly ascending, gradually tapered to a short stalk; flowers with conspicuous stamens set on long pink filaments; capsule usually 4-seeded, seeds 2 mm long .....  
..... *Plantago media*<sup>x</sup>

**VERONICA Speedwell**

- 01a Leaves mainly basal and long-stalked, sometimes also a few small, sessile blades alternate along the stem; corolla absent; stamens purplish ..... *Veronica wyomingensis* [*Besseyia wyomingensis*]
- 01b Leaves mostly paired (opposite) along the stem, sometimes alternate on the upper stem, short stalked to clasping; corolla present; stamens variously colored ..... 02
- 02a Main stems tipped with flower clusters; upper leaves/ bracts alternate ..... 03
- 02b Main stems never tipped with flower clusters; all leaves and bracts paired..... 09

<b>03a</b>	Plants perennial, with spreading rootstocks (rhizomes).....	<b>04</b>
<b>03b</b>	Plants annual, with fibrous roots and/or taproots.....	<b>07</b>
<b>04a</b>	Flower clusters (racemes) well-defined, dense; leaves 5-15 cm long, often in rings (whorls) .....	
	..... <i>Veronica longifolia</i> <sup>x</sup>	
<b>04b</b>	Flower clusters not well-defined, loose; leaves mostly <5 cm long, paired (not in rings) .....	<b>05</b>
<b>05a</b>	Leaves all short-stalked .....	<i>Veronica americana</i>
<b>05b</b>	Leaves (at least the middle and upper ones) unstalked and clasping.....	<b>06</b>
<b>06a</b>	Leaves all stalkless; capsule longer than wide, barely notched .....	
	..... <i>Veronica wormskjoldii</i> [ <i>Veronica alpina</i> ; <i>Veronica nutans</i> ]	
<b>06b</b>	Lower leaves stalked; capsule as long as wide, deeply notched.....	<i>Veronica serpyllifolia</i>
<b>07a</b>	Flower stalks elongating, mostly 5-35 mm long in fruit, longer than the leaves; stems sprawling.....	
	..... <i>Veronica persica</i> <sup>x</sup>	
<b>07b</b>	Flower stalks short, 1-2 mm long, shorter than leaves; stems erect .....	<b>08</b>
<b>08a</b>	Leaves narrowly oblong to oblong-lance-shaped; capsule hairless; widespread in AB <i>Veronica peregrina</i>	
<b>08b</b>	Leaves (at least middle ones) deeply cut into linear lobes, egg-shaped to broadly elliptic; capsule glandular hairy; reported from Waterton area .....	<i>Veronica verna</i> <sup>x</sup>
<b>09a</b>	Plants hairy; leaf blades egg-shaped, blunt- to sharp-toothed; plants of relatively dry areas .....	<b>10</b>
<b>09b</b>	Plants usually hairless; leaf blades oblong egg-shaped to linear, finely saw-toothed to smooth-edged; wetland plants .....	<b>11</b>
<b>10a</b>	Leaves ± stalkless; flowers few, in loose, stalked clusters from upper leaf axils, flowers ~1 cm across, blue with a white eye set on 5-9 mm long ascending stalks.....	<i>Veronica chamaedrys</i> <sup>x</sup>
<b>10b</b>	Leaves short-stalked (uppermost sometimes stalkless); flowers solitary in leaf axils, small, blue or blueish white, on a slender stalk recurved in fruit and up to 1.5 cm long .....	<i>Veronica agrestis</i> <sup>x</sup>
<b>11a</b>	Capsules much wider than long, broadly notched at tip; leaves (3)4-20X as long as wide .....	
	..... <i>Veronica scutellata</i>	
<b>11b</b>	Capsules not wider than long, slightly or not at all notched at tip; leaves 1.5 5X as long as wide.....	<b>12</b>
<b>12a</b>	Leaves 1.5-3X as long as wide; fruiting stalks mostly strongly angled upwards; flowers blue or violet .....	<i>Veronica anagallis-aquatica</i>
<b>12b</b>	Leaves (2.5)3-5X as long as wide; fruiting stalks wide-spreading; flowers white to pink or pale blue .....	<i>Veronica catenata</i>

**SCROPHULARIACEAE Figwort Family**

**Key to Genera**

- 01a** Leaves all in basal rosettes, with blades 1-3 cm long on slender 1-8(12) cm stalks; plants with slender runners (stolons); flowers solitary, 2-3 mm wide, on long stalks arising from the base ..... *Limosella aquatica*
- 01b** Leaves not usually all basal (*Verbascum* a basal rosette in 1<sup>st</sup> year plants); plant without runners; flowers in clusters of ≥10-50, ≥6 mm wide ..... **02**
- 02a** Plants perennial, glandular hairy, not woolly; leaves paired (opposite) on erect stems; petals green with a reddish brown to purple tinge, 6-10 mm wide, bilaterally symmetric (irregular) ..... *Scrophularia lanceolata*<sup>x</sup>
- 02b** Plants biennial, with star-shaped or branched (not glandular) hairs, sometimes with dense, matted hairs (tomentose); leaves in a basal rosette (1<sup>st</sup> year), basal and alternate on an erect stems (2<sup>nd</sup> year); petals yellow, 15-55 mm wide, ± radially symmetric (regular)..... *Verbascum*

**VERBASCUM Mullein**

- 01a** Lower stem leaves long-stalked, egg- to heart-shaped; plants sparsely hairy above; stamen stalks (filaments) with violet hairs; flowering clusters freely branched or unbranched..... *Verbascum nigrum*<sup>x</sup>
- 01b** Lower stem leaves stalkless, egg- to lance-shaped; plants densely matted hairy throughout; filaments with white or yellow hairs; flower clusters unbranched (sometimes a few branches near the base) ..... **02**
- 02a** Lower edges of upper stem leaves extending down the stem (stem appearing winged); filaments of upper stamens 3-4X as long as the anthers ..... *Verbascum thapsus*<sup>xx</sup>
- 02b** Lower edges of upper stem leaves not or only slightly extending down the stem (stem not appearing winged); filaments of upper stamens 1.5-2X as long as the anthers ..... *Verbascum phlomoides*<sup>x</sup>

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