

## **KEY TO THE ALBERTA SAXIFRAGACEAE**

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This key was compiled using information primarily from Moss (1983), Douglas et. al. (2000) and the Flora North America Association (2008). Taxonomy follows VASCAN (Brouillet, 2015). The main references are listed at the end of the key. Please try the keys and let us know if there are ways in which they can be improved. Over the winter, we hope to add illustrations for most of the entries.

## Key to the Saxifragaceae of Alberta

- 01a** Sepals 4; petals absent; stamens 2-8, usually 4 or 8; flower base (hypanthium) greenish or yellow-green..... ***Chrysosplenium***
- 01b** Sepals 5(6); petals (0)4-5; stamens 5(6), or 10; flower base (hypanthium) green or greenish to white, cream, yellow, pink, red or purple ..... **02**
- 02a** Stamens 5(6); flowers in racemes or thyrses which sometimes resemble panicles or spikes..... **03**
- 02b** Stamens 10; flowers solitary or in racemes or panicles ..... **07**
- 03a** Petals absent ..... ***Heuchera* (in part)**
- 03b** Petals present..... **04**
- 04a** Petals usually 3- to 11-lobed ..... ***Mitella* (in part)**
- 04b** Petals not lobed..... **05**
- 05a** Flowers cup-shaped, violet or white (usually purplish at the base); rootstock corm-like, bearing tiny bulblets; leaves both basal and on the flowering stem; ovaries/capsules 2-cavitated, with ovules/seeds attached to the central wall ..... ***Suksdorfia***
- 05b** Flowers cone-shaped, white; rootstock elongated and scaly, without bulblets; leaves all basal; ovaries/capsules 1-cavitated, with ovules/seeds attached to the outer wall..... **06**
- 06a** Stamens not conspicuously projecting from the flower; flowers 5-10(12), on short (1-5 mm) stalks, widely spaced in unbranched clusters; rare species of sw AB ..... ***Conimitella williamsii***
- 06b** Stamens conspicuously projecting from the flower; flowers numerous, on thread-like stalks in open, branched clusters; rare species of the Rockies, from Jasper, north ..... ***Heuchera* (in part)**
- 07a** Petals irregularly cut into slender lobes; styles 3; fruits 3-beaked; bulblets sometimes present in stem-leaf axils..... ***Lithophragma***
- 07b** Petals not irregularly cut; styles 2; fruits 2-beaked; bulblets absent..... **08**
- 08a** Petals narrowly lobed or divided into hair-like segments..... **09**
- 08b** Petals neither lobed nor divided ..... **10**
- 09a** Plants ≤20 cm tall; basal leaves 1-3 cm wide; petals divided into (5)7-8(11) hair-like segments....  
..... ***Mitella* (in part)**
- 09b** Plants 40-80 cm tall; basal leaves 3-10 cm wide; petals narrowly 5- to 7-lobed .....  
..... ***Tellima grandiflora***
- 10a** Basal leaves shiny, evergreen, leathery, 3-15 cm long, narrowly egg-shaped to oval, toothed, often lying on the ground; ovaries/capsules 2, separate almost to the base .....  
..... ***Leptarrhena pyrolifolia***
- 10b** Basal leaves various, not leathery; ovaries/capsules united well above the base..... **11**
- 11a** Capsule segments markedly unequal; petals unlobed; ovaries superior; leaves usually divided into 3 leaflets, sometimes simple..... ***Tiarella trifoliata***
- 11b** Capsule segments ± equal; petals lobed; ovaries 1/2 inferior to nearly superior; leaves simple **12**

- 12a Styles joined at the base; petals pink to purple; leaves 1-4 cm wide, stalked ..... *Telesonix heucheriformis*
- 12b Styles free at the base; petals usually white or yellow or purple ..... 13
- 13a Flowers purple, flowers single on stems covered with small, stalkless, tightly overlapping leaves ..... *Saxifraga oppositifolia*
- 13b Flowers yellow or white, sometimes rose-tinged, often with yellow or greenish spots or blotches, flowers single to several, stems leafless or leaves much reduced, not as above ..... 14
- 14a Leaves usually basal and stems leafless; seeds ribbed ..... *Micranthes*
- 14b Leaves both basal and on stems; stem leaves usually much reduced; seeds smooth or with tiny bumps or spines ..... *Saxifraga*

**CHRYSOSPLENIUM Golden-saxifrage**

- 01a Sepals green, erect or spreading, of equal size; stamens 4; central flowers 2-3 mm wide ..... *Chrysosplenium tetrandrum*
- 01b Sepals golden-yellow, spreading, the outer pair wider than the inner; stamens 5-8 in inner flowers and 2-4 in outer flowers; central flowers 3-5 mm wide ..... *Chrysosplenium iowense*

**HEUCHERA Alum-root**

- 01a Sepals 2.0-3.5 mm long (from tip of flower stalk) ..... 02
- 01b Sepals >4.5 mm long ..... 03
- 02a Stamens projecting from the flower; sepals erect; flowers on slender branches in open clusters; rare species of the Rockies, from Jasper, north ..... *Heuchera glabra*
- 02b Stamens not projecting from the flower; sepals bent sharply back; flowers in dense spike-like clusters, elongating to 10-30 cm long; uncommon species of sw AB ..... *Heuchera parvifolia*
- 03a Flower clusters narrow, but somewhat branched; flowers pink; petals ≈ sepals; stamens ± projecting from the flower; widespread ..... *Heuchera richardsonii*
- 03b Flower clusters spike-like, not branched; flowers yellowish; petals much shorter than sepals or absent; stamens not projecting; s Rockies ..... *Heuchera cylindrica*

**LITHOPHRAGMA Woodland-star**

- 01a Stipules broad, clearly fringed; flower bases bell-shaped (sides curved); petals 5-parted, cut ≥4/5 of the way to the base; stigma covered with pimples; seeds spiny ..... *Lithophragma glabrum*
- 01b Stipules narrow, inconspicuously fringed; flower bases funnel-shaped (sides straight); petals 3-parted, cut ≤1/2 way to the base; stigmas edged with pimples; seeds without spines ..... *Lithophragma parviflorum*

**MICRANTHES Slender-Saxifrage (previously included in *Saxifraga*)**

- 01a** Leaf blades notched at the base (or nearly so), usually wider than long, toothed all around; leaf stalks 1-3 times longer than the blades ..... **02**
- 01b** Leaf blades tapered to a wedge-shaped base, usually much longer than wide, toothed at the tip; leaf stalks absent or shorter than the blades..... **03**
  
- 02a** Stem hairs small, mostly 1-3 celled, often reddish-purple, gland-tipped; flower clusters open and lax; petal blades  $\leq 1.5$  times as long as wide, narrowed abruptly to slender stalk-like base, white with 2 yellow/green spots near the base..... ***Micranthes odontoloma (Saxifraga arguta)***
- 02b** Stem hairs soft, spreading, often wavy, several-celled, rarely gland-tipped; flower clusters usually congested; petal blades  $> 1.5$  times as long as wide, tapered to a relatively wide base, white or pinkish, without spots at the base (rarely orange-spotted)..... ***Micranthes nelsoniana (Saxifraga punctata)***
  
- 03a** Flowering clusters often with bulblets; petals dissimilar, 3 broad and 2 narrow; sepals bent backwards; leaves toothed at the tip, lance-shaped, widest towards above mid-leaf and tapered to a broadly winged stalk; plants hairy, glandular hairy above..... ***Micranthes ferruginea (Saxifraga ferruginea)***
- 03b** Flower clusters without bulblets; petals all similar; sepals erect, spreading or bent backwards; leaves not as above; plants nearly hairless to glandular-hairy ..... **04**
  
- 04a** Leaf stalks winged; leaf blades fan-shaped, tipped with sharp,  $\geq 2$  mm long teeth; flower clusters open, hairless or with a few hairs tipped with purple glands; ovaries superior; sepals sharply bent backwards in fruit..... ***Micranthes lyallii (Saxifraga lyallii)***
- 04b** Leaf stalks not winged; leaf blades egg-shaped, oblong, elliptic or  $\pm$  round, smooth-edged or with small (rarely  $> 1$  mm), blunt teeth all around; flower clusters congested (expanding with age in *M. occidentalis*), with many purple-tipped, glandular hairs; ovaries partly inferior; sepals rarely bent backwards..... **05**
  
- 05a** Plants usually  $< 10$  cm tall; leaves  $< 2$  cm long, leathery; flowers short-stalked, in dense, reddish clusters; sepals erect in flower, spreading in fruit; ovaries  $\frac{1}{2}$  inferior, appearing more superior in fruit..... ***Micranthes nivalis (Saxifraga nivalis)***
- 05b** Plants usually  $> 10$  cm tall; leaves  $> 2$  cm long, fleshy; flowers in greenish-white clusters, compact at first but spreading with age; sepals ascending to spreading (sometimes bent back in fruit); ovaries only slightly inferior ..... ***Micranthes occidentalis (Saxifraga occidentalis)***

**MITELLA Mitrewort; Bishops-cap**

- 01a** Petals tipped with 3 lobes (rarely undivided), white or purplish ..... ***Mitella trifida***
- 01b** Petals fringed or cut into hair-like divisions, greenish or yellow ..... **02**
  
- 02a** Stamens 10; petals (2)3.5-5 mm long, with 9-11 hair-like lobes; rootstocks slender and creeping ..... ***Mitella nuda***
- 02b** Stamens 5; petals 1.5-3 mm long, with 5-11 hair-like lobes; rootstocks thick and short ..... **03**

- 03a** Stamens opposite petals; petals (1.5)2-3 mm long, cut into 5-11 hair-like lobes; ovary top often purplish, sometimes greenish yellow ..... ***Mitella pentandra***
- 03b** Stamens opposite sepals; petals 1.5-2 mm long, cut into (4)6-10(11) hair-like lobes (mostly in pairs); ovary top usually greenish yellow ..... ***Mitella breweri***

**SAXIFRAGA Leafy-Saxifrage (previously included *Micranthes*)**

- 01a** Plants low, cushion forming, with matted stems; leaves opposite, 2-5 mm long, crowded, in 4 vertical rows; flowers purple (rarely white), single at stem tips ..... ***Saxifraga oppositifolia***
- 01b** Plants not as above; leaves alternate or basal; flowers white or yellow (rarely pinkish or purplish), usually >1 per stem ..... **02**
- 02a** Petals yellow to orange ..... **03**
- 02b** Petals white or cream (rarely pinkish or purplish) ..... **04**
- 03a** Plants in loose mats or cushions, without stolons; leaf blades usually edged with spine-like hairs; flower stalks hairless or with clear-tipped, stalked glands ..... ***Saxifraga aizoides***
- 03b** Plants in small clumps, spreading via stolons; leaf blades usually edged with glandular hairs; flower stalks with purple-tipped, stalked glands ..... ***Saxifraga flagellaris***
- 04a** Largest leaf blades ± round, on distinct slender stalks ..... **05**
- 04b** Largest leaves much longer than wide, with or without distinct slender stalks ..... **07**
- 05a** Basal leaves short-lived, slightly fleshy, round to kidney-shaped, (3)5-18(20) mm wide, cut <1/2 way to the midrib into 3-7(9) lobes; flowers 0-1, replaced by bulblets; bracts conspicuous; sepals erect ..... ***Saxifraga cernua***
- 05b** Basal leaves not as above; flowers several/many; bulblets absent on the main stem but sometimes present in the flower cluster ..... **06**
- 06a** Plants <10 cm tall; leaf blades <2 cm wide, with (2)3-5(7) rounded lobes (not toothed); flowers <3 per cluster; bulblets absent; sepals erect (sometimes purple); petals purple or white, often with a purplish mid-vein ..... ***Saxifraga hyperborea (Saxifraga rivularis in part)***
- 06b** Plants >10 cm tall; leaf blades 2-8(10) cm broad, with forward-pointing teeth on irregular lobes; flowers numerous; bulblets sometimes present in the flower cluster; sepals reflexed in fruit; petals white ..... ***Saxifraga mertensiana***
- 07a** Leaves stalkless, thick, rigid, spine-tipped ..... **08**
- 07b** Leaves ± fleshy and herbaceous, without spines ..... **09**
- 08a** Largest leaves tipped with 1 spine and edged with stiff hairs ..... ***Saxifraga bronchialis***
- 08b** Largest leaves tipped with (0)3 spine-tipped teeth and edged with soft glandular hairs ..... ***Saxifraga tricuspidata***
- 09a** Plants perennial, forming cushions or mats; leaves tipped with 3 equal, slender lobes ..... ***Saxifraga cespitosa***
- 09b** Plants biennial, tufted from basal rosettes of leaves; leaves tipped with (0)3 shallow lobes/teeth, the middle lobe more prominent than the other 2 ..... ***Saxifraga adscendens***

**SUKSDORFIA** *Suksdorfia*

- 01a** Leaves shallowly 5- to 9-lobed; petals erect, pink or violet (rarely white), (5)6-8(9) mm long; calyx cone-shaped; flowers 1-10(20) .....*Suksdorfia violacea*
- 01b** Leaves deeply cut into 3(5) lobes edged with coarse teeth; petals spreading, white (sometimes pink tipped), (3)4-5(6) mm long; calyx bell-shaped; flowers 9-35 .....*Suksdorfia ranunculifolia*

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