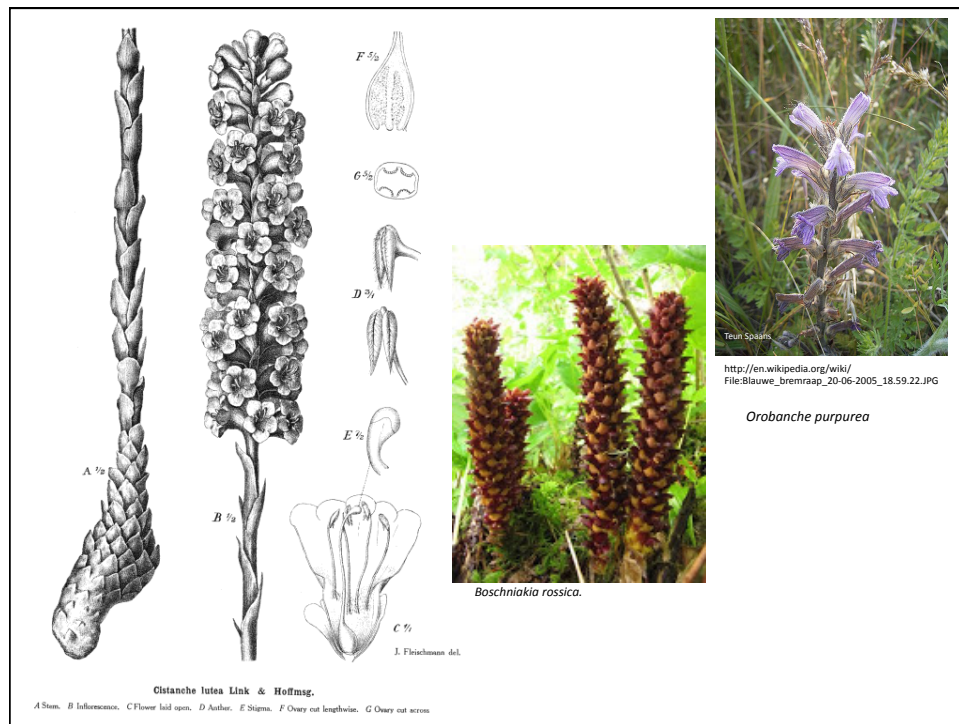


Onagraceae

Evening primrose family

- About 640-650 species in 20-24 genera. Includes many popular garden plants.
- **Growth form:** Perennial herbs in the Arctic, but also shrubs and trees elsewhere.
- **Leaves:** Alternate, simple with pinnate venation.
- **Flowers:** Usually large (but often not in Arctic species) usually with 4 prominent sepals and 4 petals, with well-developed hypanthium, clearly prolonged above the ovary. Pollen grains have unusual connecting threads.
- **Fruit:** Usually 4-carpeled. Many seeded. In arctic species, a very long linear capsule that dehisces longitudinally.
- **Seeds:** Tiny often with fine white hairs for dispersal.



Orobanchaceae

Broomrape Family

Formerly part of the Scrophulariaceae.

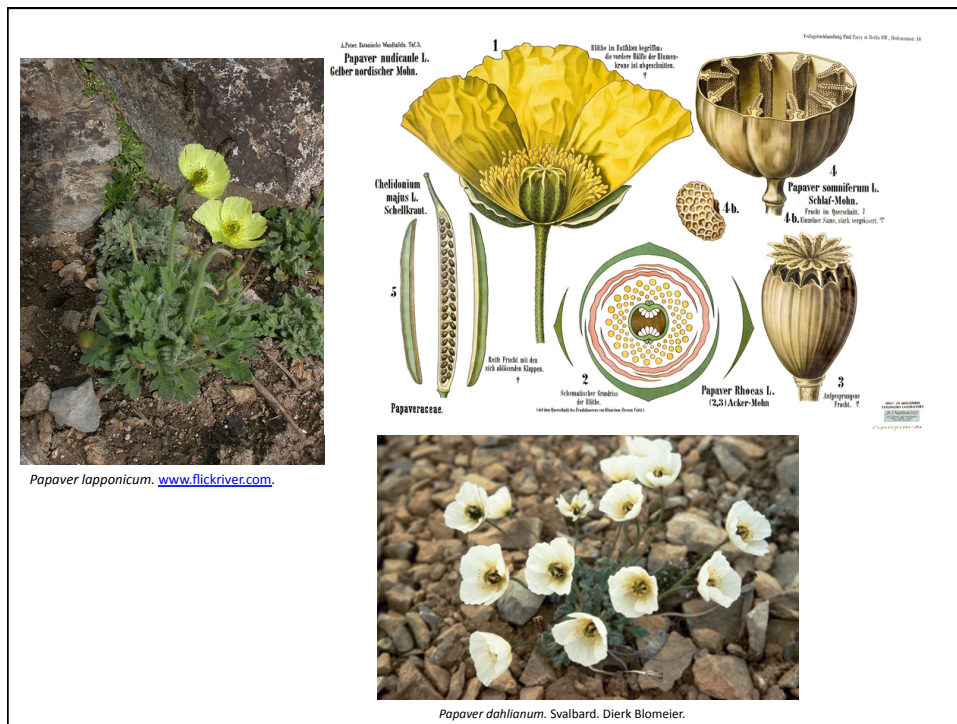
Growth form: Herbs. Lacking green foliage.

Leaves: Many lack chlorophyll. Reduced to fleshy scale sessile scales.

Inflorescence: Racemes

Flowers: Five united bilabiate petals. Upper lip is two lobed, and lower lip 3-lobed.

Fruit: Capsule, many seeded.



Papaveraceae

Poppy family

About 770 species in 44 genera. Includes many popular garden plants.

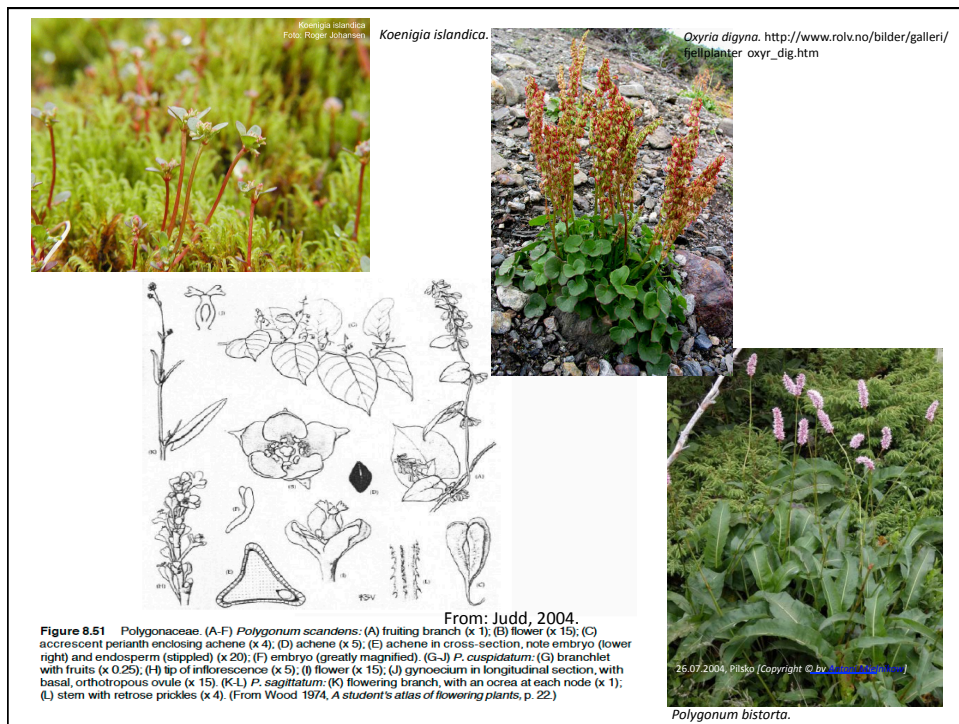
Growth form: Perennial erect forbs, cushion forms (in high Arctic).

Leaves: Pinnately lobed or divided.

Flowers: Solitary, showy on scapes. Flower buds nodding. 2 sepals, soon deciduous, petals, usually 4, thin.

Fruit: Barrel shaped capsule, opening by small pores.

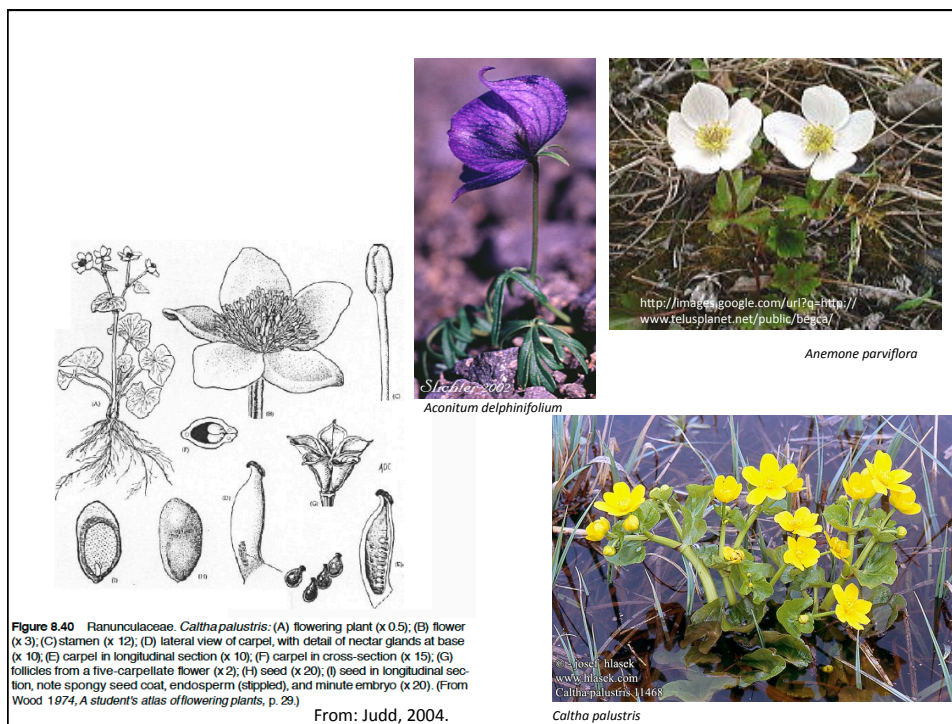
Seeds: Numerous, small.



Polygonaceae

Buckwheat Family

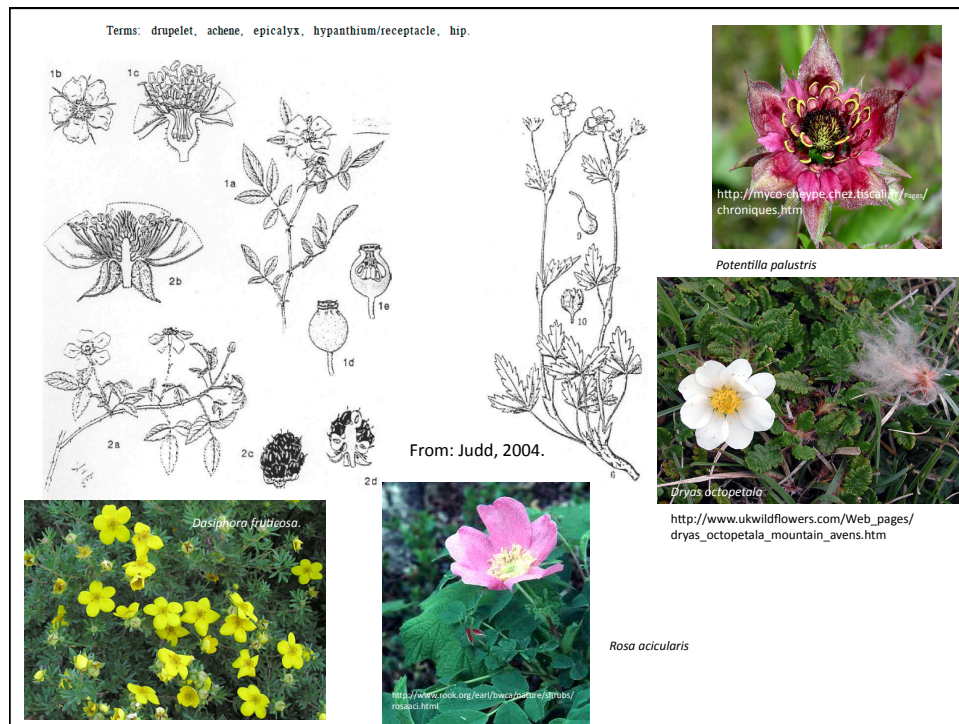
- About 1100 species in 43 genera (including in the Arctic *Koenigia*, *Polygonum*, *Oxyria*, *Rumex*).
- **Growth form:** In the Arctic, mostly erect forbs.
- **Leaves:** Leaf nodes often swollen, with membranous sheathing above the swollen joints. Leaves usually alternate simple, often with oxalic acid.
- **Flowers:** Small perfect, in spike-like racemes. Petals lacking, 3-6 sepals.
- **Fruit:** An achene, often with swollen appendages (wings).
- **Seeds:** Tiny.



Ranunculaceae

Crowfoot or buttercup family

- About 1700 species in 60 genera including in the Arctic *Aconitum*, *Anemone*, *Caltha*, *Delphinium*, *Pulsatilla*, *Ranunculus*.
- **Growth form:** Herbaceous perennials (in Arctic).
- **Leaves:** Often divided leaves.
- **Flowers:** 5 colored sepals instead of petals (except in *Ranunculus*). Central mass of many stamens surrounding fused carpels.
- **Fruit:** Commonly a follicle or an achene.
- **Notes:** Many species have toxic alkaloids and other compounds.



Rosaceae

Rose Family

- Very variable family!
- Growth forms: Highly variable, trees, shrubs, herbs.
- Leaves often serrate.
- Flowers: 5-merous, 5 sepals, many spirally arranged stamens.
- All flower parts fused at base into a hypanthium.
- Fruits: Highly variable (achenes, drupes (plums), hips (rose), pomes (apple), nuts (almonds), and aggregates (strawberry, raspberry)).
- Many showy flowers and edible fruits.

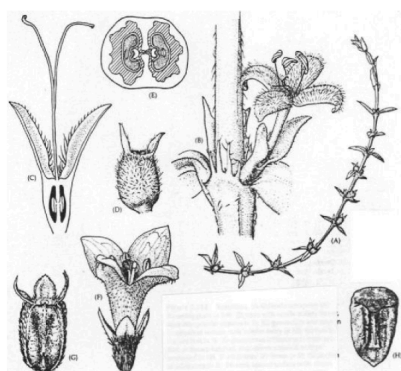
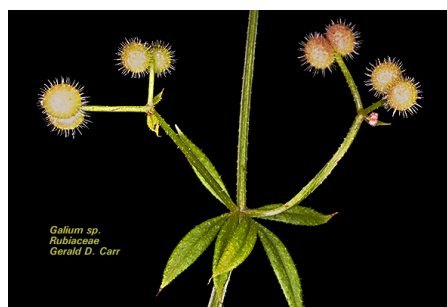


Figure 8.112 Rubiaceae. (A-E) *Diodia tetragona*: (A) flowering plant (x 0.4); (B) node with sessile axillary flower, note interpetiolar stipules (x 5); (C) gynoecium and calyx in longitudinal section, note inferior ovary (x 10); (D) nearly mature fruit (x 5); (E) drupaceous schizocarp in cross-section, endocarp hatched, endosperm stippled, embryo unshaded (x 10). (F-H) *D. leres*: (F) flower (x 5); (G) portion of schizocarp (x 5); (H) seed, adaxial surface (x 8). (From Wood 1974, *A student's atlas of flowering plants*, p. 106.)

From: Judd, 2004.



Interpetiolar stipule of *Galium*.

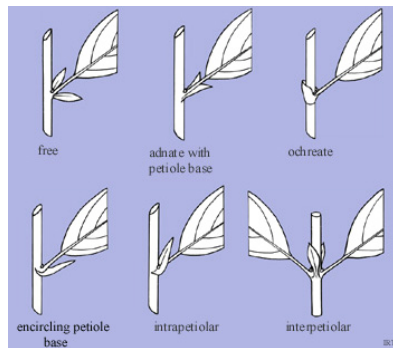


Bicarpellate fruit of *Galium*.

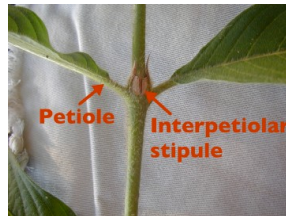
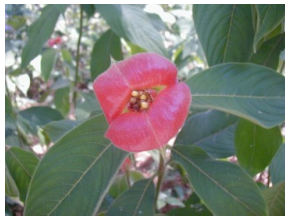
Rubiaceae

Madder family, Coffee family,
Bedstraw family

- Fourth largest member of flowering plants (following Asteraceae, Orchidaceae, Fabaceae). Over 13,000 species in 611 genera worldwide. In the Arctic only genus is *Galium*. Other plants in family include many shrubs and trees, mostly in the tropics, such as coffee (*Coffea*), quinine (*Cinchona*), madder (*Rubia*), jasmine (*Ixora*).
- **Stems:** 4 sided.
- **Leaves:** Opposite, whorled, entire, with interpetiolar stipules.
- **Flowers:** Tubular sympetalous corollas and an inferior ovary.
- **Flowers:** Regular corolla, 3-4 lobed, greenish or white.
- **Fruit:** Globular, bristly or smooth, when ripe dividing into 2 indehiscent mericarps.

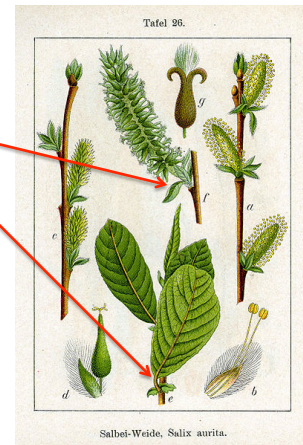


<http://www.environment.gov.au/biodiversity/abrs/online-resources/glossaries/vascular/stiparr.html>



Interpetiolar stipules in *Psychotria poeppigiana*, "hot lips of pepper family" <http://ntsavanna.com/wp-content/uploads/2007/02/red-lips.jpg>

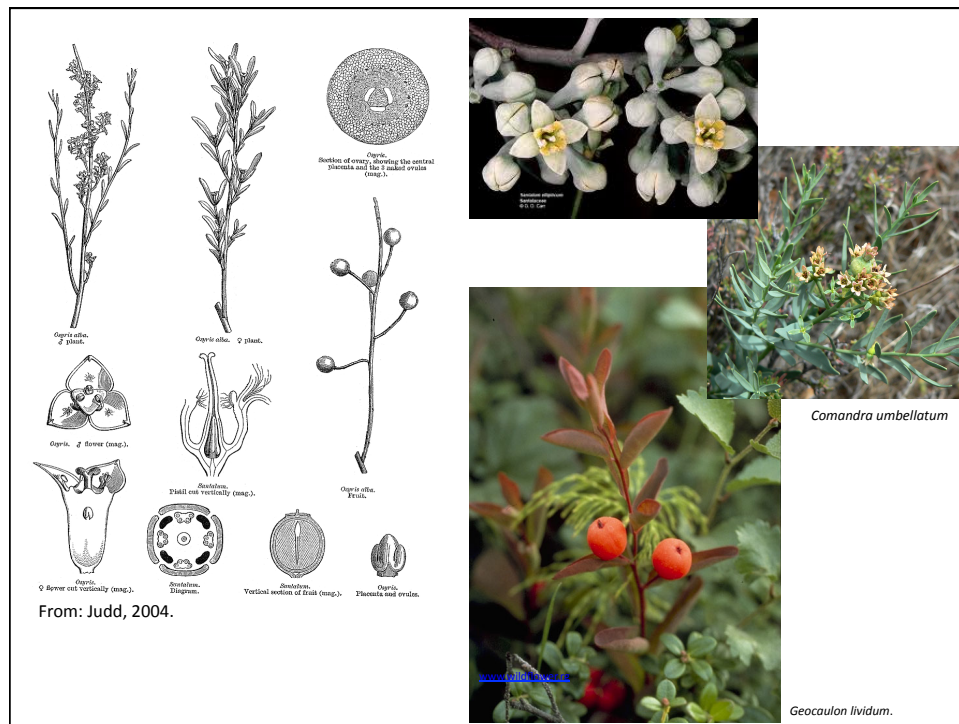
Many species of willow (*Salix*) have prominent leafy stipules at base of petioles and penduncles..



Rubiaceae

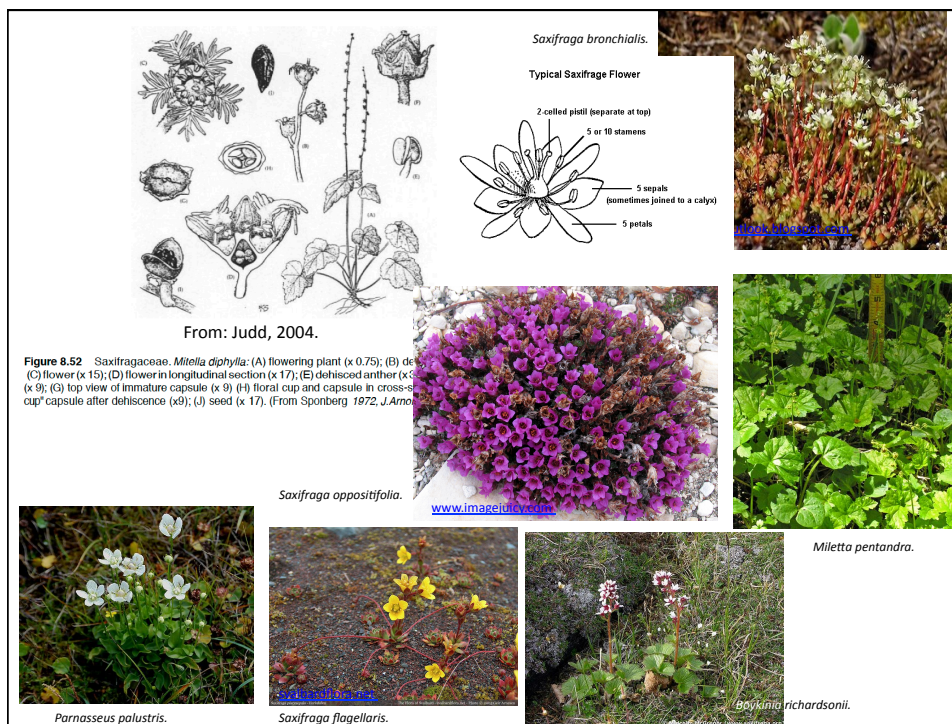
Interpetiolar stipules

- **Stipule:** outgrowth of the lower part of a young leaf, part of the leaf base.
- Relatively easy to observe and diagnose when these appendages are attached to the base of the petiole (i.e., the proximal end), but often the stipules deceptively appear to arise from the stem.



Santalaceae
Sandalwood family

- **General:** About 36 genera and 400 species of semiparasitic shrubs, herbs, and trees, mostly in tropical and temperate regions. *Comandra* and *Geocaulon* occur in Alaska. The aromatic sandalwood (*Santalum album*) is the only economically important member of the family. All Santalaceae are parasites to a certain extent and form connections (haustoria) to their hosts to obtain water and nutrients (many of the mistletoes are now placed in this family).
- **Leaves:** The green leaves contain some chlorophyll, which allows the plants to manufacture food, but in some genera the unlobed, usually alternate leaves are reduced to scalelike structures.
- **Flowers:** Most have small, inconspicuous, bisexual or unisexual flowers, which occur singly, although a few species have groups of flowers in the leaf axils or on short spikes.
- **Fruit:** The one-seeded fruit may be surrounded by a brightly colored nutlike structure.



Saxifragaceae

Saxifrage family

General: 30 genera and 580 species worldwide, mostly in northern temperate regions. Mostly forbs. Many grow in rocky places, one of the most common families in the extreme High Arctic. Some ornamentals as *Saxifraga*, *Heuchera*, and *Bergenia*.

Leaves: primarily basal, simple but often palmately lobed or cleft.

Flowers: Radially symmetric, distinct calyx and corolla of 5 (less frequently 4) separate petals and petals. There are generally twice as many stamens as petals. Pistils are usually divided into 2 (rarely 4). The ovaries may be fused only at the base, making it look as if there are two simple pistils, or they may be fused almost to the stigmas. The ovary can be either superior or inferior. Fruit: Capsule with manyseeds.