

Outline

Questions and answers

Plant names

Boraginaceae—borage family

Oleaceae, olive family

Apocynaceae, dogbane family

Rubiaceae, madder family

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What are “s.l.” and “s.str.”?

Previous final question: the answer

What are “s.l.” and “s.str.”?

- ▶ “S.l.” = “sensu lato”, in wide sense
- ▶ “S.str.” = “sensu stricto”, in strict sense

Agalinis, Gerardia, or Stenandrium?



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You searched on: Genus = Gerardia and Ranks = gen and Hybrids only = false, searching all records

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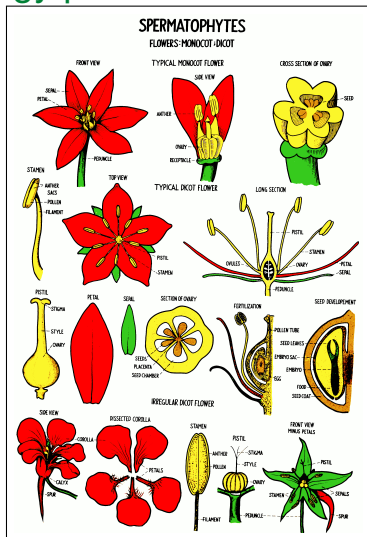
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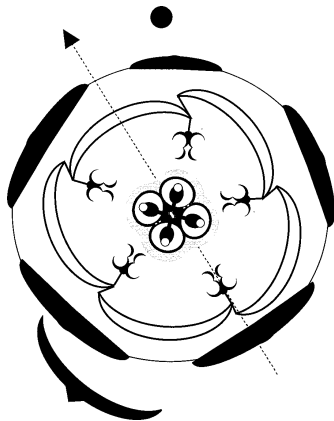
(1) typification; (2) priority with the exception of conservation

Flower morphology poster



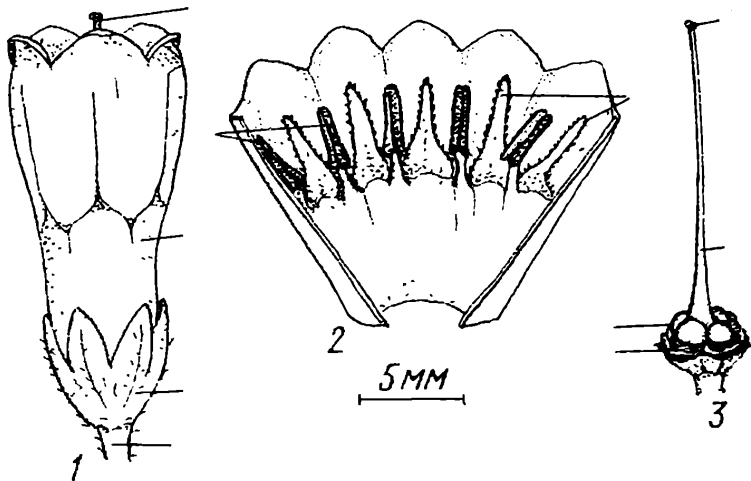
- ▶ $\approx 2,000$ species, cosmopolitan
- ▶ Smell and large herbs, with rough hairy alternate leaves
- ▶ Flowers in cymes; bell or funnel-shaped, symmetric, 5-merous
- ▶ Pistil with two carpels which are secondary divided (similarity to Labiatae)
- ▶ Fruit schizocarp with 4 nutlets

Boraginaceae flower



$$*K_{(5)}[C_{(5)}A_5]\underline{G_{(2 \times 2)}}$$

Flower of *Symphytum* (Boraginaceae)



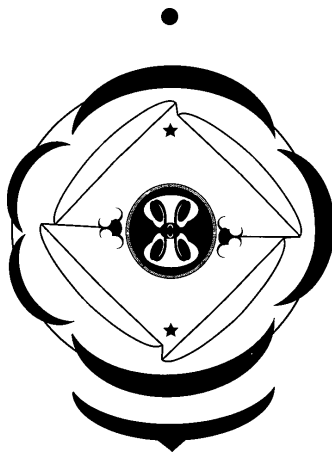
Representatives of Boraginaceae

Often includes some close groups like “Hydrophyllaceae”,
waterleaf family

- ▶ *Lithospermum*—puccoon
- ▶ *Cynoglossum*—hound's tongue
- ▶ *Cryptantha*—cryptantha
- ▶ *Hydrophyllum*—waterleaf

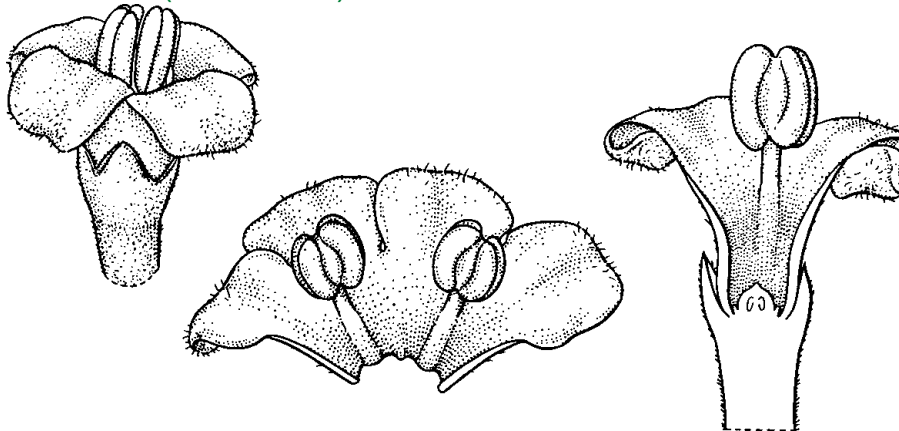
- ▶ \approx 600 species, mostly Eurasian
- ▶ Trees or shrubs, with opposite leaves without stipules
- ▶ Flowers in raceme-like inflorescences; 2-merous, symmetric; with two stamens; sometimes reduced (ashes)
- ▶ Pistil with two carpels
- ▶ Fruit capsule

Oleaceae flower



$$*K_{(4v5)}[C_{(4)}A_2]\underline{G_{(2)}}$$

Osmanthus (Oleaceae) flower



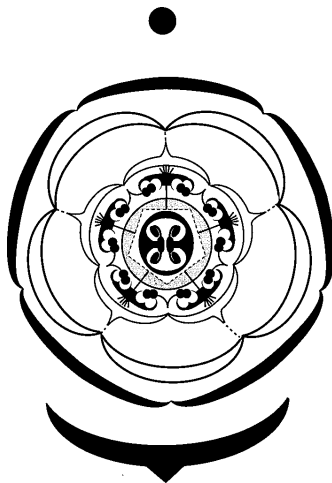
Ash (*Fraxinus*) flowers develop anthers with lots of pollen, and prominent stigmas to receive pollen from a wind. All other parts of ash flowers are reduced.

- ▶ *Syringa*—lilac
- ▶ *Ligustrum*—privet
- ▶ *Fraxinus*—ash, *F. penssylvanica* is the most common tree in prairie coolies

Description of Apocynaceae

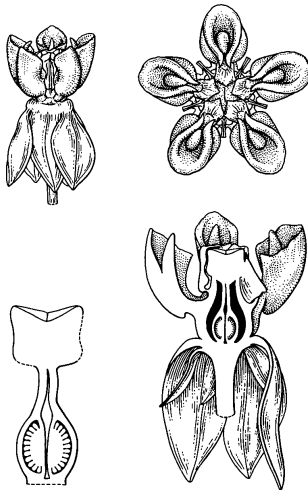
- ▶ $\approx 4,000$ species, mostly tropical
- ▶ Herbs, vines and trees with opposite leaves
- ▶ Flowers in short inflorescences; 5-merous; sometimes with crown-like stamens and *pollinia* (like orchids)
- ▶ Pistil with two secondary separated carpels
- ▶ Fruit is a follicle

Apocynaceae flower



$$*K_{(5)}[C_{(5)}A_{(5)}]\underline{G_2}$$

Asclepias (Apocynaceae) flower



Representatives of Apocynaceae

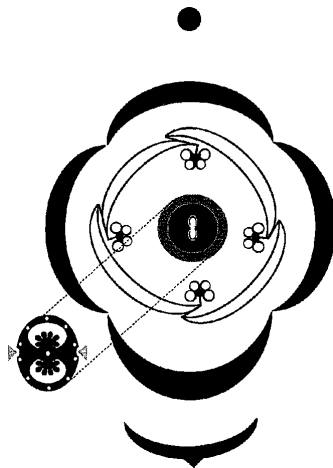
This family is now united with *Asclepiadaceae* (milkweed family)

- ▶ *Apocynum*—dogbane
- ▶ *Asclepias*—milkweed

Description of Rubiaceae

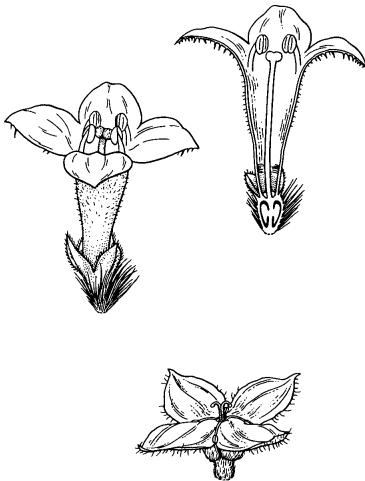
- ▶ $\approx 6,500$ species—one of the largest angiosperm families
- ▶ Mostly tropical
- ▶ Trees, shrubs and sometimes (in North Dakota)—herbs
- ▶ Leaves opposite (sometimes whorled), almost linear, with stipules; stems slender
- ▶ Flowers in dense inflorescences; 4-merous (our genera), with short petal tube
- ▶ Pistil with two carpels, ovary inferior
- ▶ Fruit is often a schizocarp with two nutlets

Rubiaceae flower



$$*K_4[C_4A_4]G_{(2)}$$

Diodia and *Galium* (Rubiaceae) flowers



Representatives of Rubiaceae

- ▶ *Coffea*—coffee tree
- ▶ *Cinchona*—quinine tree
- ▶ *Galium*—bedstraw

Final question (2 points)

Write a flower formula for any family from today's lecture

- Boraginaceae, Oleaceae, Apocynaceae and Rubiaceae are different ways to construct a sympetalous flower.

For Further Reading



O. A.Stevens.

Handbook of North Dakota plants. 3rd edition.

NDSU, 1963.

Oleaceae—Rubiaceae. P. 224–261.