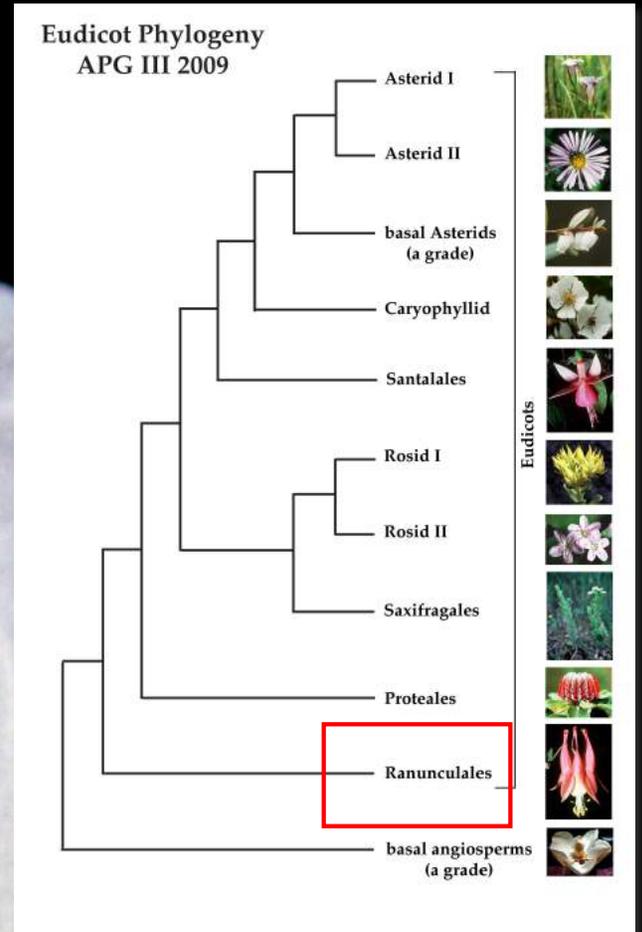


Early Diverging Eudicots



Berberidaceae - barberry family



- widespread in temperate regions of Northern hemisphere - *ArctoTertiary relict distribution*
- 3 native genera to Wisconsin + *Berberis*
- small shrubs (*Berberis*) or herbs (rest of family).

CA 3+3 CO 3+3 A 12-18 G 1
[monocarpic]



Berberis thunbergii
Japanese barberry

Berberidaceae - barberry family



Berberis thunbergii
Japanese barberry

Fruits = berry



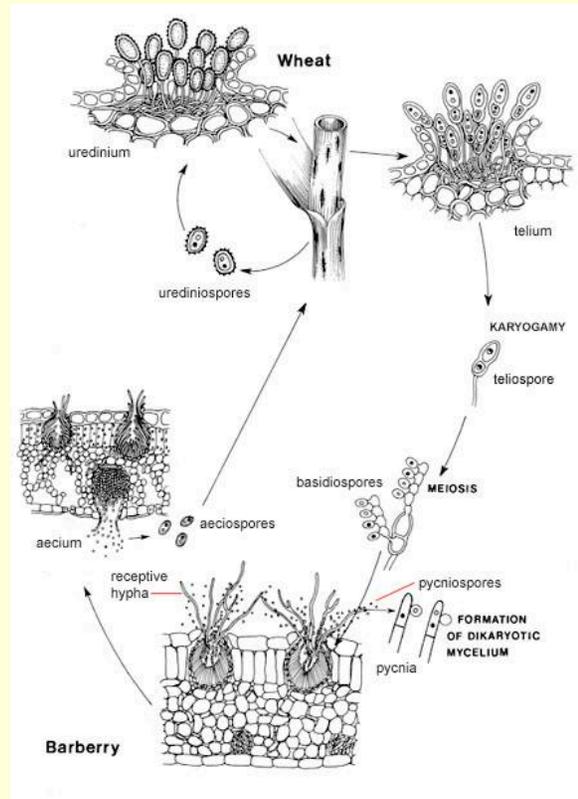
Berberis vulgaris
Common barberry

- alternate host of the stem rust of wheat
- programs to irradicate plant in midwest



Berberidaceae - barberry family

- *Puccinia graminis*

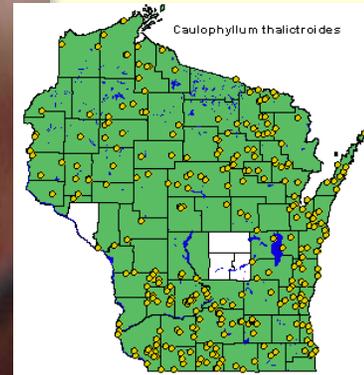


Berberis vulgaris
Common barberry



- alternate host of the stem rust of wheat
- programs to irradicate plant in midwest

Berberidaceae - barberry family



Caulophyllum thalictroides - Blue cohosh

- leaves 3X compound
- developing ovules break ovary wall so are naked seeds with fleshy blue seed coats
- medicinally important for North American native Americans

Berberidaceae - barberry family



Jeffersonia diphylla - twinleaf

- Special concern species in Wisconsin. One species in Eastern North America and one species in Eastern Asia.
- Only member of the family that is 4-merous rather than 3-merous



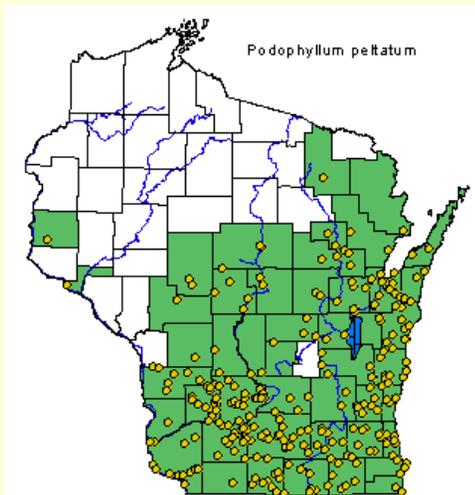
Berberidaceae - barberry family



Forms large colonies of deeply lobed, **peltate** leaves whose umbrella like aspect is emphasized as they emerge from the ground, slits in anthers



Podophyllum peltatum
May-apple



Berberidaceae - barberry family

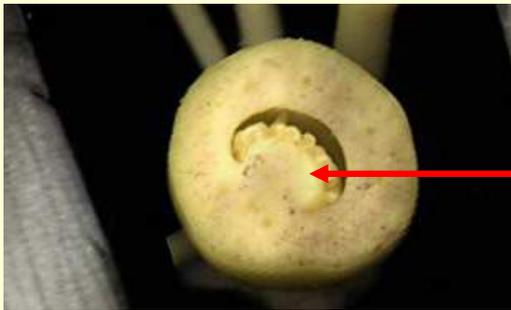


May-apple and other members of the family are attacked by the same family of rusts - Pucciniaceae.

Podophyllum peltatum
May-apple



Berberidaceae - barberry family



Monocarpic:
note marginal
placentation

- Solitary flowers only on stems with 2 leaves pistil is monocarpic
- develops into fleshy berry (“apple-like”)



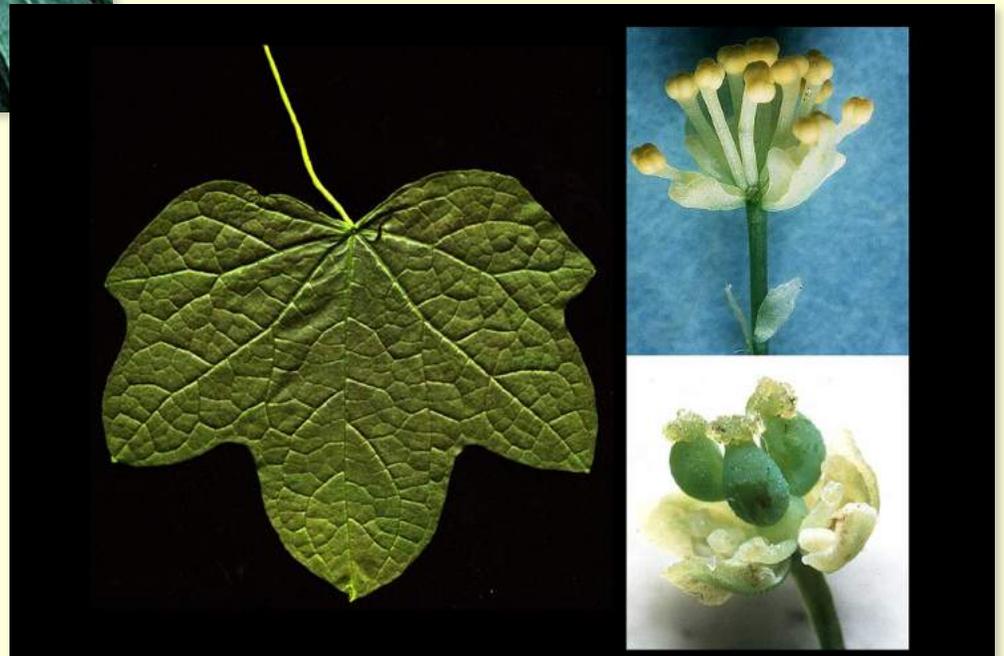
Menispermaceae - moonseed family



- Mainly tropical family, usually viney
- Leaves almost peltate, palmately veined and lobed
- Dioecious; separate carpels each produce one seeded **drupes** = fleshy with one bony seed

Menispermum canadense
moonseed

- Seed is curved, moon-shaped
- Poisonous fruit, mimics wild grapes



Papaveraceae - poppy family

- natives, garden plants and drug plants (opium/heroin)
- Herbaceous, alternate compound leaves with colored latex

CA 2 CO 4-12 A ∞ G (2- ∞)

Capsule = dehiscent syncarpic fruit



Papaver - poppy (cultivated)



Chelidonium - celadine (cultivated)

Papaveraceae - poppy family



Sanguinaria canadensis - bloodroot

Petals 8-12 with many stamens, red-orange sap abundant, used as ceremonial paint

Papaveraceae - poppy family



Spring ephemerals from below ground corms or rhizomes.
Disappear during late spring.

Dicentra cucullaria - Dutchman's breeches
(with *Asarum canadense* - wild ginger)



Papaveraceae - poppy family



Dicentra cucullaria - Dutchman's breeches

- Herb with watery juices.
- Leaves alternate, often pinnately compound.

- Zygomorphic or bilateral symmetry
- 2 sepals, 4 petals modified into sacs or spurs
- stamens united into 2 groups
- 2 fused carpels

Fruit = **capsule** splitting into two parts

Papaveraceae - poppy family



Dicentra - Bleeding heart

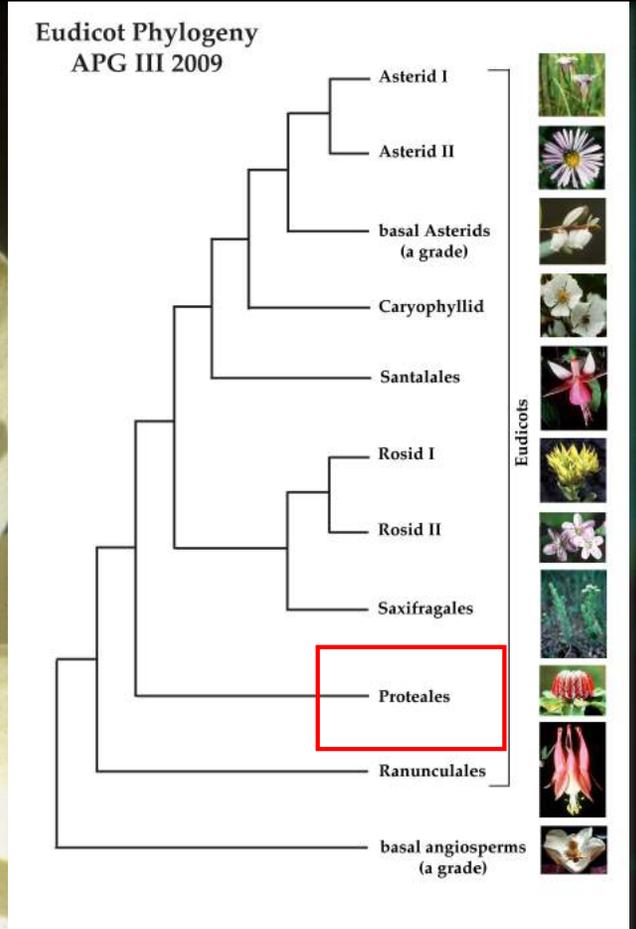


Dicentra canadensis - Squirrel corn

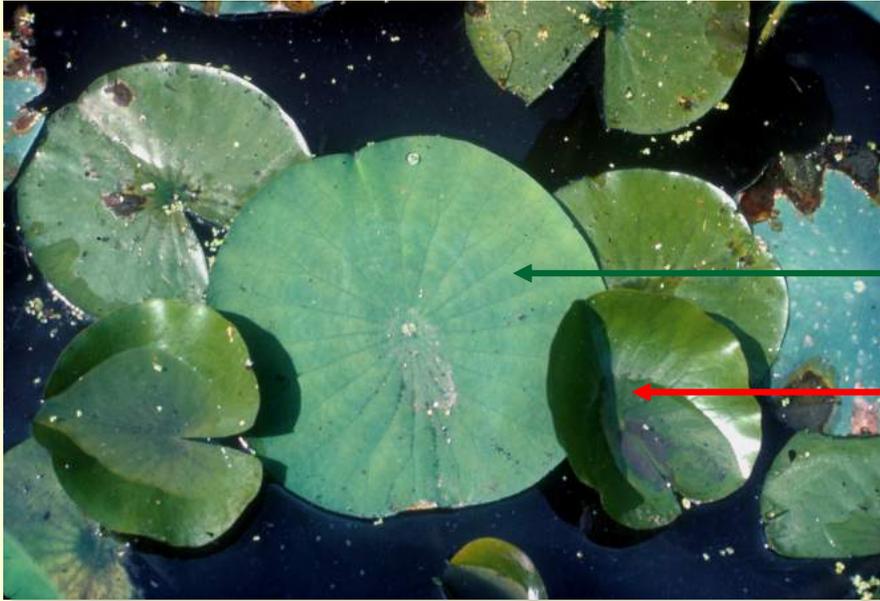


Corydalis sempervirens - pink corydalis

More Early Diverging Eudicots



Nelumbonaceae - lotus lily family



Family of one genus and two species - the second one in East Asia (sacred oriental lotus lily)

Nelumbo lutea - lotus lily

Nymphaea odorata - water lily

Previously considered closely related to water lilies of Nymphaeaceae — convergence in the aquatic plants!

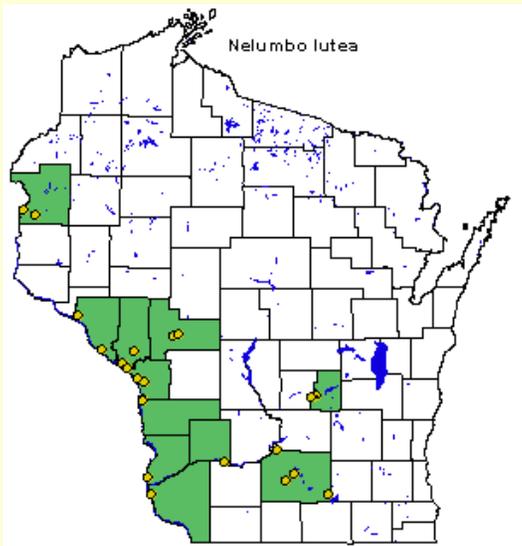


- Habit is an aquatic, floating or emergent leaved, perennial herb.
- Leaves are simple, **peltate**.
- Inflorescence is a solitary flower.

Nelumbonaceae - lotus lily family



Nelumbo lutea

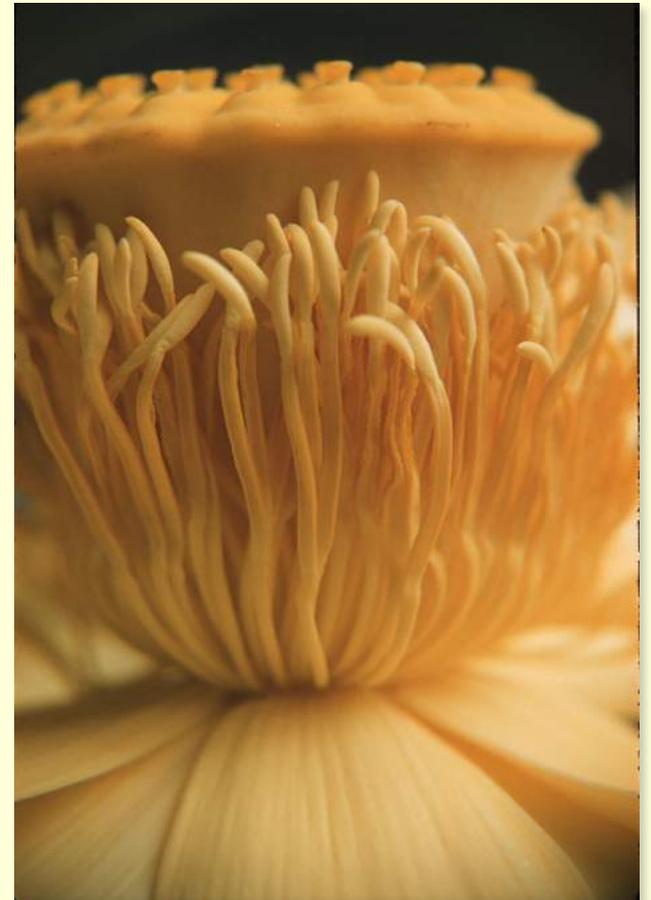


Stamens numerous and **filamentous** - with filament and anther vs. **laminar** stamens in water lilies

Restricted south of tension zone

$P \infty \quad A \infty \quad \underline{G} (\infty)$

Spiralled perianth of many parts with little distinction between sepals and petals- **tepals**



Nelumbonaceae - lotus lily family

$P \infty$ $A \infty$ $\underline{G} (\infty)$

Separate, superior one-seeded carpels but held in the cavities of the obconical receptacle



Nelumbo lutea



Nelumbonaceae - lotus lily family



$P \infty$ $A \infty$ $\underline{G} (\infty)$

The “fruit” of the lotus lily is a woody receptacle cone with a nut-like seed laying loose in each cavity.

Nelumbo lutea



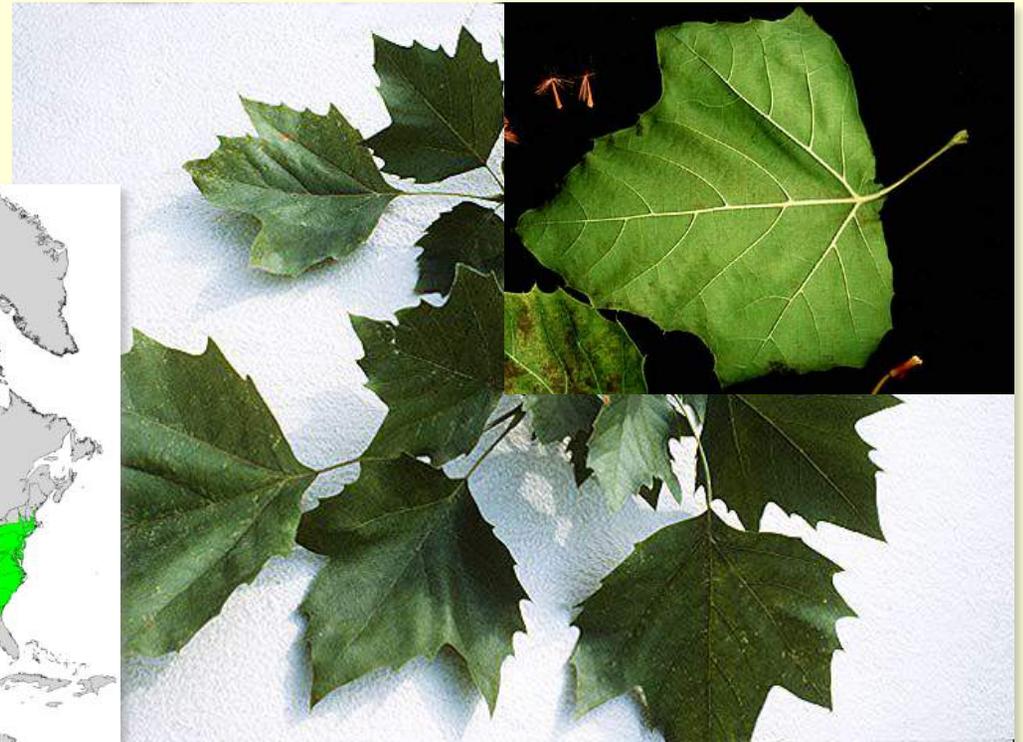
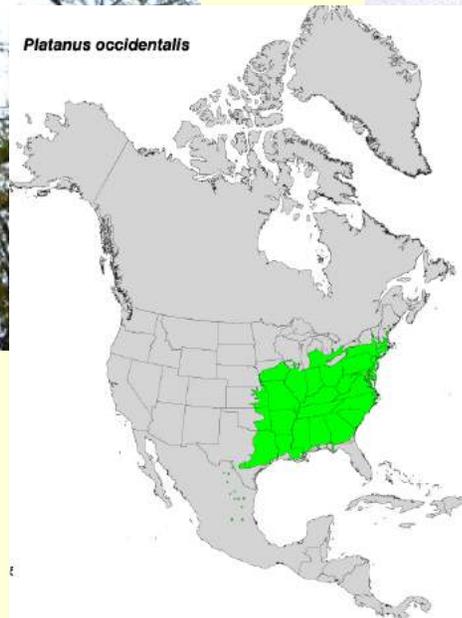
Seeds & starchy rhizome eaten by Native Americans.

Platanaceae - sycamore family

Family of 1 genus with 10 species of northern hemisphere trees

Trunk has distinctive flaky bark when young; leaves maple-like but alternate.

Platanus occidentalis - sycamore



Platanaceae - sycamore family



Platanus occidentalis sycamore

- Trees **monoecious**
- spherical clusters of numerous unisexual male or female reduced flowers
- **wind pollinated**
- **Apocarpic** with 3-5 pistils per flower.

one-seeded **achenes** with basal tuft of hairs.

ants are known to be effective seed dispersers in several species.



Platanaceae - sycamore family



The European **plane tree** is a hybrid between the eastern North American and central Asian sycamores - *Platanus x acerifolia* - and is more tolerant to urbanization

