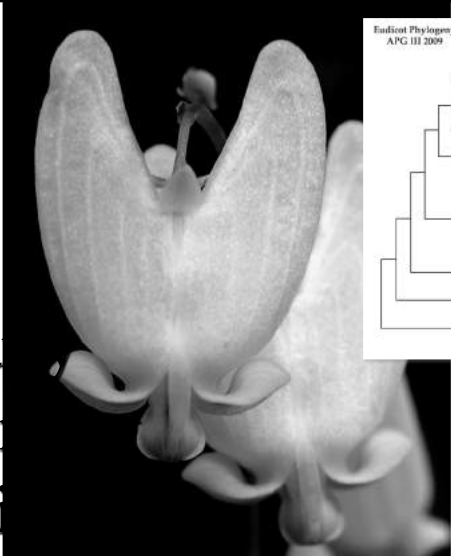
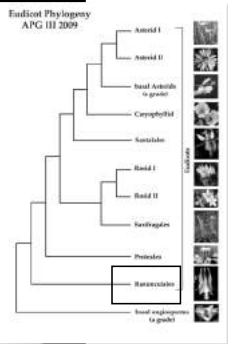



Ea
Dive
Eud


1

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



2

Berberidaceae - barberry family



Berberis thunbergii
Japanese barberry

Fruits = berry

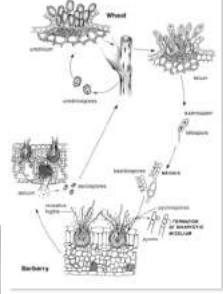
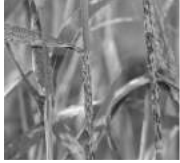
Berberis vulgaris
Common barberry

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

3


Berberidaceae - barberry family

• *Puccinia graminis*




Berberis vulgaris
Common barberry

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




4

Berberidaceae - barberry family




Cautophyllum 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

5

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


6


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






7

Berberidaceae - barberry family





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

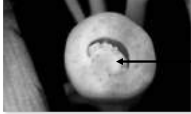
Podophyllum peltatum
May-apple



8

Berberidaceae - barberry family




Monocarpic:
note marginal
placentation

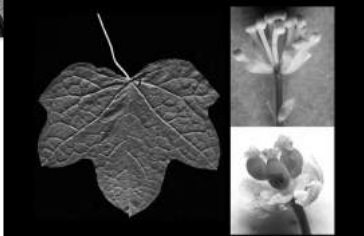
- Solitary flowers only on stems with 2 leaves; pistil is monocarpic
- develops into fleshy berry ("apple-like")

9

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

10


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)

11

Papaveraceae - poppy family




Sanguinaria canadensis - bloodroot

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


12

Papaveraceae - poppy family




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


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



13

Papaveraceae - poppy family





Dicentra cucullaria - Dutchman's breeches


- 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


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

14


Papaveraceae - poppy family



Dicentra - Bleeding heart




Dicentra canadensis - Squirrel corn

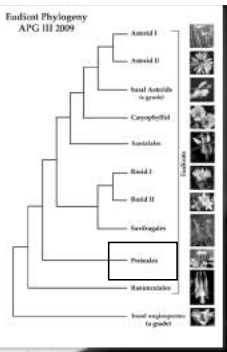


Corydalis sempervirens - pink corydalis

15

More Early Diverging Eudicots





Evolutionary Phylogeny
APG III 2009

16

Nelumbonaceae - lotus lily family

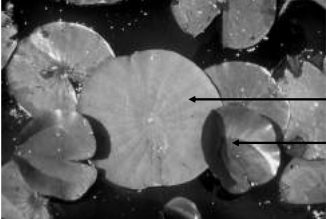

Family of one genus and two species - the second one in East Asia (sacred oriental lotus lily)

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.



17

Nelumbonaceae - lotus lily family

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


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

Nelumbo lutea

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

Restricted south of tension zone




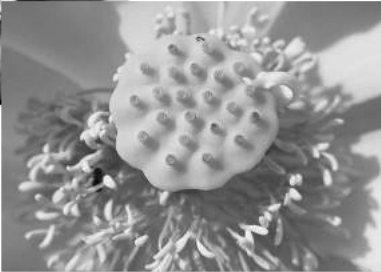
18

Nelumbonaceae - lotus lily family

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

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

Nelumbo lutea

19



Nelumbonaceae - lotus lily family

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

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

Seeds & starchy rhizome eaten by Native Americans.

Nelumbo lutea

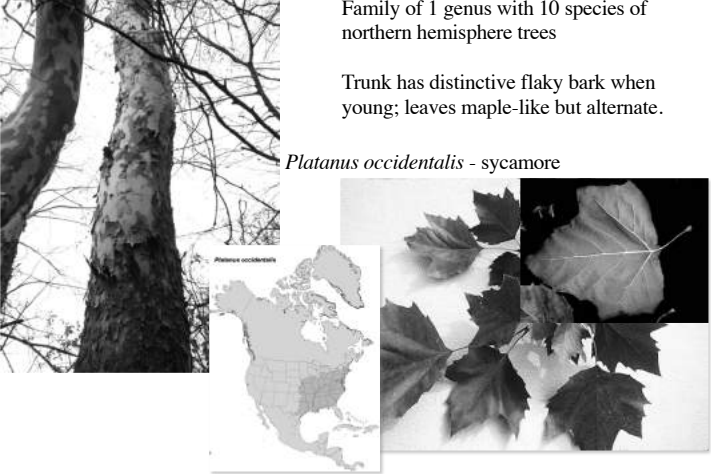
20

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





21

Platanaceae - sycamore family

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

Platanus occidentalis sycamore





one-seeded achenes with basal tuft of hairs.

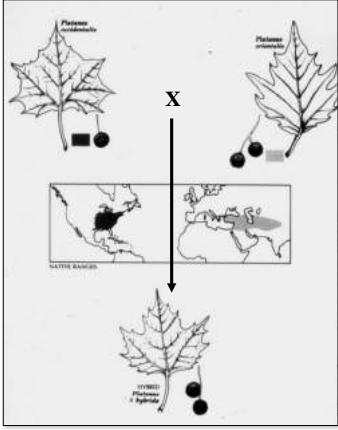
ants are known to be effective seed dispersers in several species.

22

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



23