Diversity of Wisconsin Rosids

... mustards, mallows, maples...
**Brassicaceae - mustard family**

Large, complex family of mustard oil producing species (broccoli, brussel sprouts, cauliflower, kale, cabbage)
**Brassicaceae - mustard family**

- Flowers “cross-like” with 4 petals - “Cruciferae” or “cross-bearing”
- Common name is “cress”
- 6 stamens with 2 outer ones shorter

Wisconsin has 28 native or introduced genera - many are spring flowering

Herbs with alternate, often dissected leaves

*Cardamine concatenata - cut leaf toothwort*

*Cardamine pratensis - cuckoo flower*
**Brassicaceae - mustard family**

- 2 fused carpels separated by thin membrane – septum
- Capsule that peels off the two outer carpel walls exposing the septum attached to the persistent replum
**Brassicaceae - mustard family**

Fruits are called **siliques** or **silicles** based on how the fruit is flattened relative to the septum.

Two types of flattening of fruits of the Mustard Family, one flattened contrary to the septum, the other flattened parallel to the septum.

CA 4  CO 4  A 4+2  G (2)
**Brassicaceae - mustard family**

- Cardamine concatenata - cut leaf toothwort
- Cardamine douglasii - purple spring cress

Common spring flowering woodland herbs
**Brassicaceae - mustard family**

*Boechera laevigata* - smooth rock cress (old *Arabis*)

*Arabidopsis lyrata* - rock or sand cress (old *Arabis*)

Common spring flowering woodland herbs
**Brassicaceae - mustard family**

*Nasturtium officinale - water cress*

edible aquatic native with a mustard zing
**Brassicaceae - mustard family**

*Hesperis matronalis* - Dame’s rocket

*Barbarea vulgaris* - yellow rocket, winter cress

Introduced or spreading
**Brassicaceae - mustard family**

*Alliaria petiolata* - garlic mustard

European invasive - biennial; at a Botany 401 final exam site in Marquette County
Cleomaceae – spider plant family

Polanisia dodecandra - clammy weed

Related to the mustard family and with their own distinctive mustard oil compounds

Compound leaves common

Flowers similar to Brassicaceae but with more stamens
Trapaeolaceae - nasturtium family

Another mustard oil family

The South American garden nasturtium commonly grown in Wisconsin as an edible salad plant

*Trapaeolum* - garden nasturtium (with long floral spurs)
*Malvaceae - mallow family*

Important family that includes horticultural and economically important hibiscus, cotton, chocolate, cola, marsh mallow, okra

Some severe weed pests - velvet leaf, mallows

Mainly herbaceous in Wisconsin with palmate venation, lobing, or compounding leaves

![Hibiscus](image1)

![Malva](image2)
*Malvaceae - mallow family*

Important family that includes horticultural and economically important hibiscus, cotton, chocolate, cola, marsh mallow, okra

Some severe weed pests - velvet leaf, mallows

- Flowers 5 merous
- Stamens fused into staminal tube
- Pistil of many fused carpels
- Capsule fruit
*Malvaceae - mallow family

Special concern species

Perhaps only Midwestern endemic genus

*Napae dioica* - glade mallow
*Malvaceae - mallow family

Hibiscus laevis - rose mallow

Malva neglecta - mallow

native and introduced species

Hibiscus trionum - flower of the hour
Once considered its own family Tiliaceae

Basswood one of the most dominant of our mesic forest species - distinctive in multiple trunks and cordate leaves with palmate venation

*Tilia americana - basswood

Widespread!

*Malvaceae - mallow family
*Malvaceae - mallow family

Flowers born on leaf-like bracts
∞ stamens in bundles

“linden” tree from Europe (‘linn’ in Sweden) basis of Carolus Linnaeus’ name

*Tilia americana - basswood
*Anacardiaceae - sumac family*

Woody family with alternate, compound leaves and pungent, often nasty, volatiles

Flowers are small, congested, variously unisexual or perfect. One-seeded drupes (mango, pistachio, cashew).

*Rhus glabra - smooth sumac
*Rhus* are our 4 non-poisonous species
*Anacardiaceae - sumac family

Rhus typhina - staghorn sumac
*Anacardiaceae - sumac family

*Rhus aromatica* - fragrant sumac, squaw bush
Special concern species
*Anacardiaceae - sumac family

Toxicodendron radicans / rydbergii - poison ivy: variable in habit
Toxicodendron includes our 3 poisonous species
Anacardiaceae - sumac family

Toxicodendron vernix - poison sumac
Multi-stemmed shrub in wetlands
**Sapindaceae - maple family**

- Trees – now include old families Aceraceae and Hippocastanaceae
- Includes 2 important species of our forest - sugar maple and red maple
- Simple, palmately lobed, veined or palmately compound leaves that are opposite in arrangement

*Acer saccharum* - sugar maple

*Acer rubrum* - red maple
**Sapindaceae - maple family**

- Unisexual flowers by abortion
- Perianth often 5 merous in our species, but petals lacking in sugar and silver maples and boxelder.
- Nectariferous **disk** is often present in the whorl associated with stamens

*Acer platanoides* - Norway maple
Introduced ornamental
**Sapindaceae - maple family**

- Superior pistil composed of 2 carpels and 2 extended styles
- Note reduced and probably non-functional stamens

*Acer platanoides* - Norway maple

Introduced ornamental
**Sapindaceae - maple family**

*Acer platanoides* - Norway maple

Fruit is a **schizocarp** - each carpel separates into a one seeded mericarp

Fruit is also a **samara** - winged achenes; the shape, size, and angle of the wings are important characters separating different species of maple
One of the most dominant mesic forest tree species throughout Wisconsin is the sugar maple; leaves smoothed lobed; flowers without petals

*Acer saccharum/nigrum*
Sugar/black maple
Another dominant hydric-xeric forest tree species throughout Wisconsin and eastern North America is the red maple; leaves serrately lobed.
**Sapindaceae - maple family**

*Acer saccharinum* - silver maple

Silver maple is characteristic of wet conditions, fast growing, and with whitish underside to leaves; like sugar maple has no petals
**Sapindaceae - maple family**

*Acer negundo* - boxelder

Only dioecious maple and only one with compound leaves

Males occupy harsher environments, females usually moister sites
**Sapindaceae - maple family**

*Acer pensylvanicum*
Striped maple, moosewood

Distinctively barked and leaved eastern boreal species only occurring in Door Co., but throughout the region north of the tension zone in Michigan.
**Sapindaceae - maple family**

*Acer pensylvanicum*
Striped maple, moosewood

A raceme of pendant flowers produce hanging samaras
**Sapindaceae - maple family**

*Acer spicatum* - mountain maple

Small maple with coarsely toothed teeth like red maple but with erect inflorescence
**Sapindaceae - maple family**

The horsechestnuts are now included in Sapindaceae along with the maples

Leaves are palmately compound and opposite

No native species in Wisconsin, but the Ohio buckeye is often planted
**Sapindaceae - maple family

*Aesculus glabra* - Ohio buckeye
**Sapindaceae - maple family**

Outside Birge Hall is the European species, *Aesculus hippocastanum* (horse chestnut)
Simaroubaceae - tree-of-heaven

Tropical family of alternate, pinnately-compound leaved trees. The tree-of-heaven is originally from Asia, widely planted, and somewhat naturalized.

Like most members of the family, the tree has a strong (pungent) odor.

*Ailanthus altissima* - tree of heaven
Rutaceae - citrus family

Largely alternate, compound leaved family (except oranges and relatives) with 2 genera in Wisconsin

Family is well known for its volatile compounds that the leaves emit

*Ptelea trifoliata* (hop tree, wafer-ash)
Rutaceae - citrus family

Largely alternate, compound leaved family (except oranges and relatives) with 2 genera in Wisconsin

Family is well known for its volatile compounds that the leaves emit

_Ptelea trifoliata_ (hop tree, wafer-ash)
Long used by Native Americans as important medicinal tree
Rutaceae - citrus family

Zanthoxylum americanum
Prickly-ash

Native clonal and spiny armed shrub with pinnately compound leaves; flowers reduced

Potentially invasive shrub in drier habitats

Szechuan pepper is from two Asian species of *Zanthoxylum*