Diversity of Wisconsin Rosids

... mustards, mallows, maples ...

-brassicaceae - mustard family

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

\*Cardamine concatenata - cut leaf toothwort
Wisconsin has 28 native or introduced genera - many are spring flowering
Herbs with alternate, often dissected leaves.

\*Cardamine pratensis - cuckoo flower

\*Brassicaceae - mustard family

Flowers "cross-like" with 4 petals
"Cruciferae" or "cross-bearing"
Common name is "cress"

6 stamens with 2 outer ones shorter

\*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.

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Cardamine concatenata - cut leaf toothwort

Cardamine douglasii - purple spring cress

**Brassicaceae - mustard family**

Arabidopsis lyrata - rock or sand cress (old Arabis)

Boechera laevigata - smooth rock 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

- *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**

- *Trapaeolum* - garden nasturtium (with long floral spurs)

Another mustard oil family

The South American garden nasturtium commonly grown in Wisconsin as an edible salad plant
*Malvaceae - mallow family

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

Some severe weed pests - velvet leaf, mallows

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

Hibiscus
Malva

Malvaceae - mallow family

Hibiscus trionum - flower of an hour

• Flowers 5 merous
• Stamens fused into staminal tube
• Pistil of many fused carpels
• Capsule fruit

Napaea dioica - glade mallow

Special concern species
Perhaps only Midwestern endemic genus

Napaea dioica - glade mallow

Hibiscus laevis - rose mallow
Malva neglecta - mallow

Native and introduced species

Hibiscus trionum - flower of the hour
Tilia americana - basswood

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.

*Malvaceae - mallow family

Widespread!

Tilia americana - basswood

Flowers born on leaf-like bracts in stamens in bundles

"linden" tree from Europe ("linn" in Sweden) basis of Carolus Linnaeus’ name

*Malvaceae - mallow family

"Jail tree"

Cistaceae - rockrose family

Crocanthemum - frostweed

Hudsonia - false heather

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

*Rhus typhina - staghorn sumac

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

*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.

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**Sapindaceae - maple family**

*Acer saccharum/nigrum* - Sugar/black maple

One of the most dominant mesic forest tree species throughout Wisconsin is the sugar maple; leaves smoothed lobed; flowers without petals.

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**Sapindaceae - maple family**

*Acer rubrum* - Red maple

Another dominant hydric-xeric forest tree species throughout Wisconsin and eastern North America is the red maple; leaves serrately lobed.

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**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.
Acer negundo - boxelder

Only dioecious species of maple and only one with compound leaves.
Trees are initially male only, as they age they switch to becoming female only.

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.

Acer pensylvanicum - striped maple, moosewood
A raceme of pendant flowers produce hanging samaras.

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.

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 is strongly (pungently) odorod.

**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)

*Simaroubaceae - tree-of-heaven*

*Ptelea trifoliata* - hop tree, wafer-ash

*Simaroubaceae - tree-of-heaven*
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Ptelea trifoliata (hop tree, wafer-ash)
Long used by Native Americans as important medicinal tree

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