

Diversity of Wisconsin Rosids

. . . mustards, mallows, maples . . .

**Brassicaceae - mustard family

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



Brassica spp.

mustard

broccoli

kale

**Brassicaceae - mustard family



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

CA 4 CO 4 A 4+2 G (2)

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



**Brassicaceae - mustard family

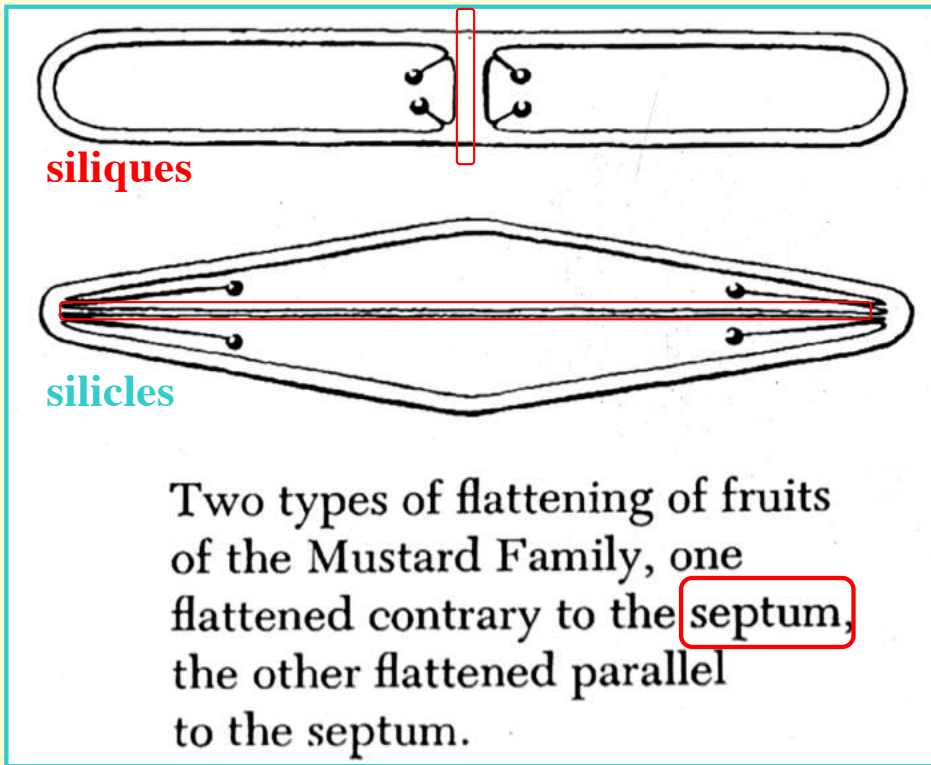
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- 2 fused carpels separated by thin membrane – **septum**
- Capsule that peels off the two outer carpel walls exposing the septum attached to the persistent **replum**

**Brassicaceae - mustard family

CA 4 CO 4 A 4+2 G (2)



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

**Brassicaceae - mustard family



Cardamine concatenata - cut leaf
toothwort

Common spring flowering woodland herbs

Cardamine douglasii - purple
spring cress

**Brassicaceae - mustard family



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



Arabis 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



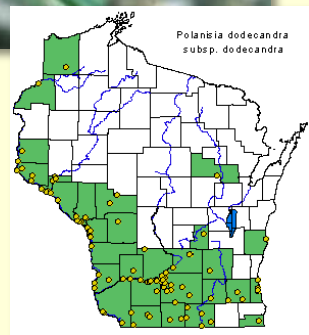
European invasive - biennial; at a Botany 401 final exam
site in Marquette County

Cleomaceae – spider plant family

CA 4 CO 4 A 6+ G (2)



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

Tropaeolum - 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



Malva

*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



Hibiscus

Napaea



CA 5 CO 5 A (∞) G (5- ∞)

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

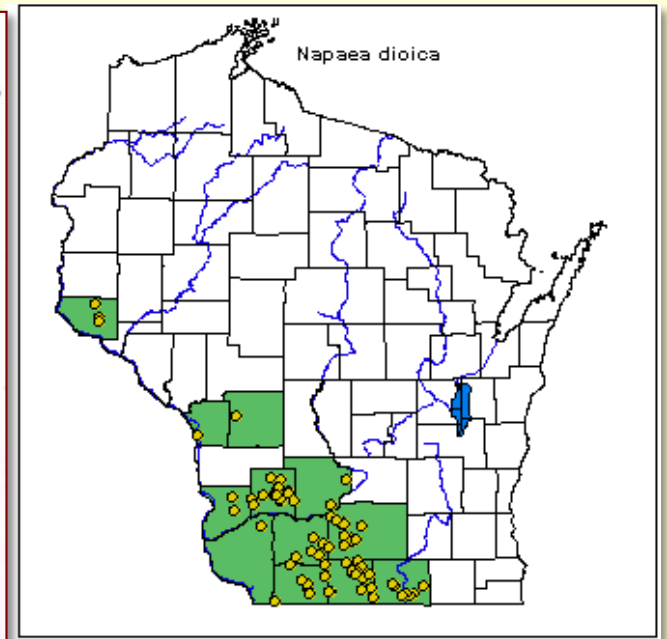
*Malvaceae - mallow family



Napaea dioica -
glade mallow

Special concern species

Perhaps only Midwestern endemic
genus



*Malvaceae - mallow family



Hibiscus laevis - rose mallow



Malva neglecta - mallow



Hibiscus trionum - flower of the hour

native and introduced species

*Malvaceae - mallow family

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



Widespread!



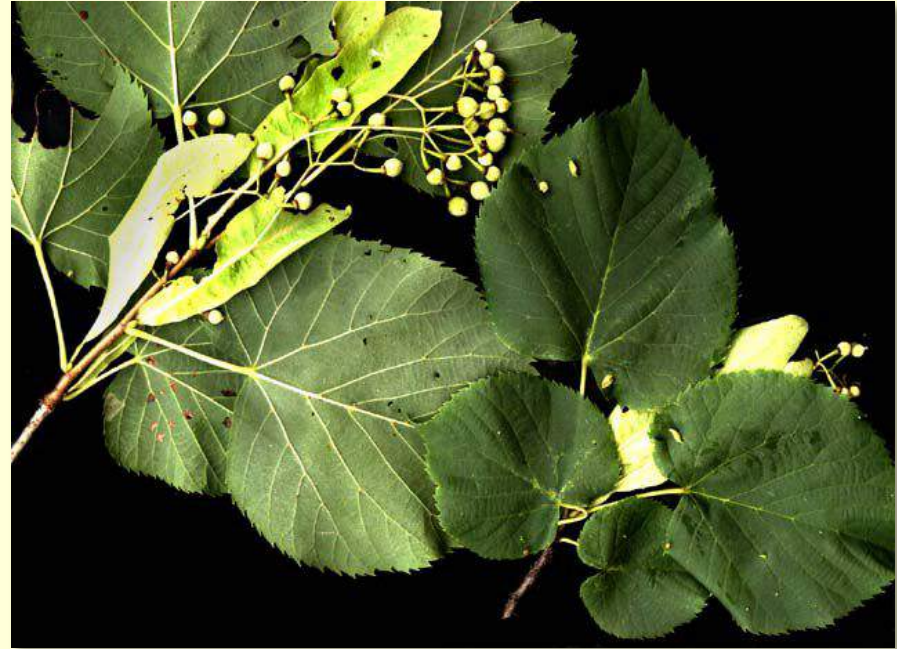
Tilia americana - basswood

*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

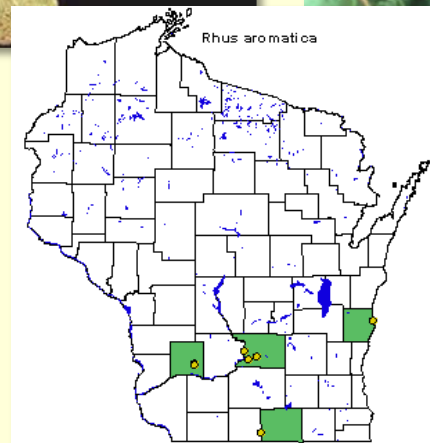


Rhus typhina - staghorn sumac

*Anacardiaceae - sumac family



Rhus aromatica - fragrant
sumac, squaw bush
Special concern species



*Anacardiaceae - sumac family



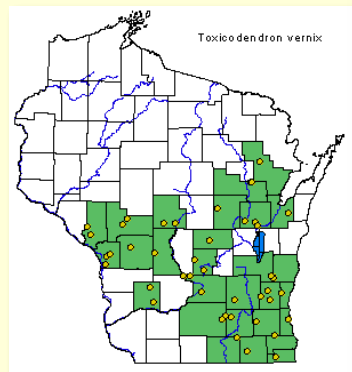
Toxicodendron radicans / rydbergii - poison ivy: variable in habit

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

CA 4-5 CO 0 or 4-5 A 8

CA 4-5 CO 0 or 4-5 G (2)

- 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

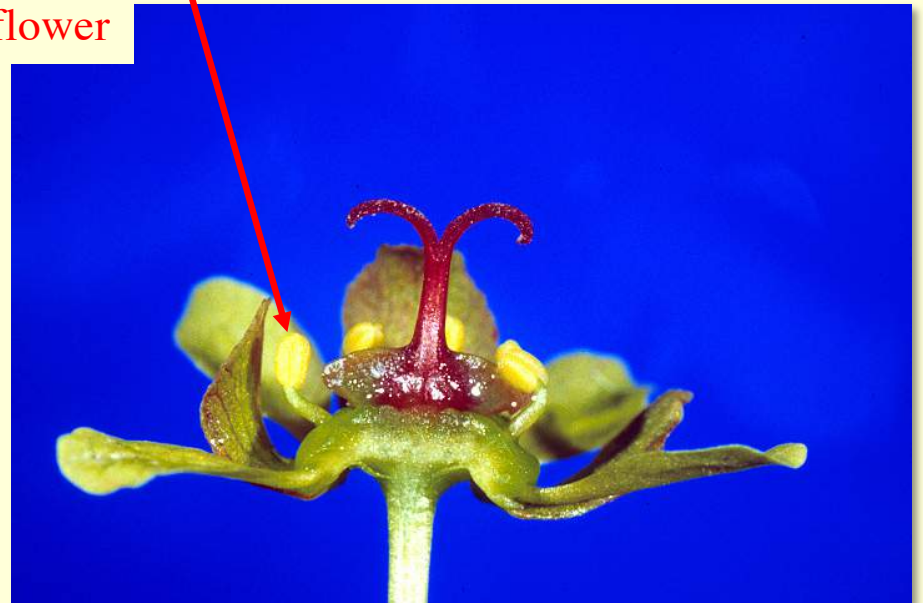
CA 4-5 CO 0 or 4-5 A 8

CA 4-5 CO 0 or 4-5 G (2)

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



Female flower



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



**Sapindaceae - maple family

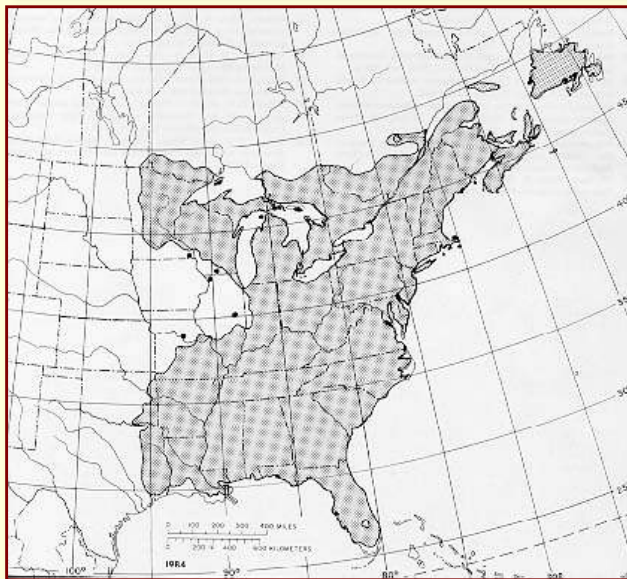


Acer saccharum/nigrum
Sugar/black maple

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



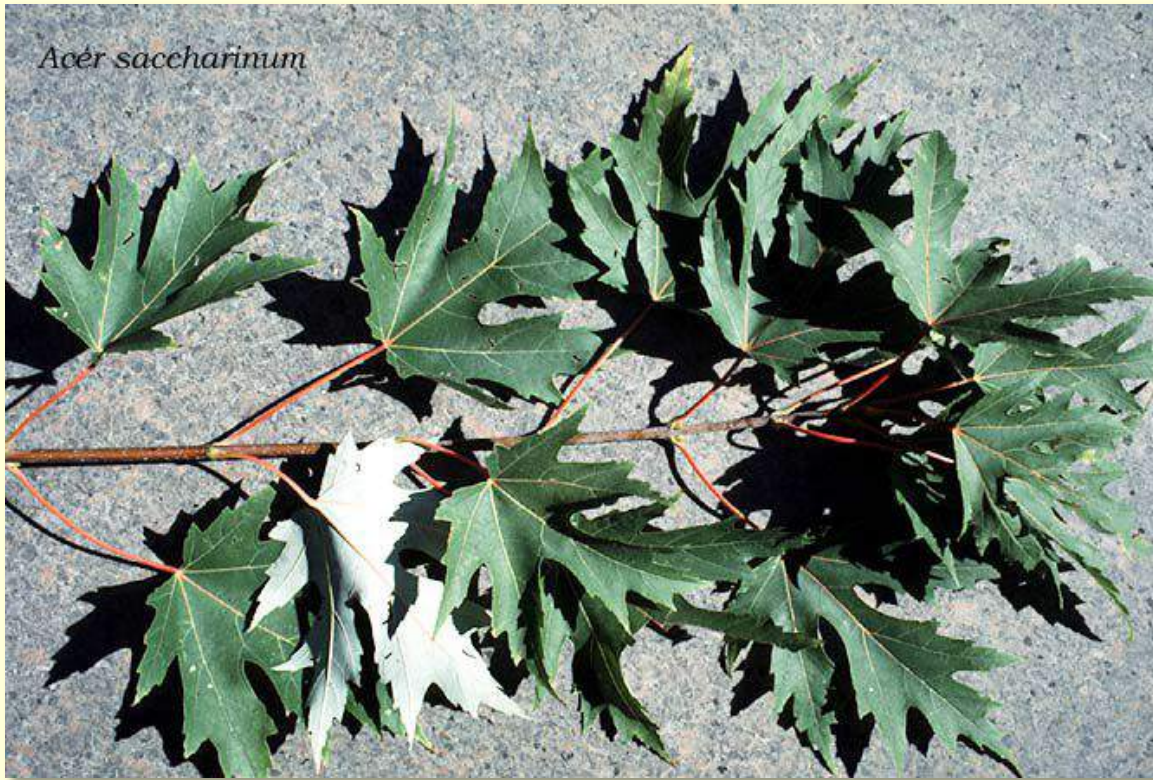
**Sapindaceae - maple family



Acer rubrum
Red maple

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

**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



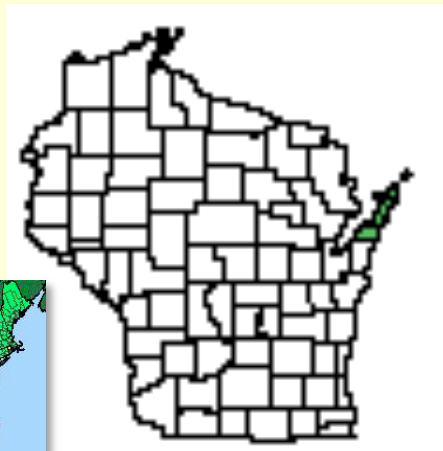
Acer negundo - boxelder

Only dioecious maple
and only one with
compound leaves

Males occupy harsher
environments, females
usually moister sites

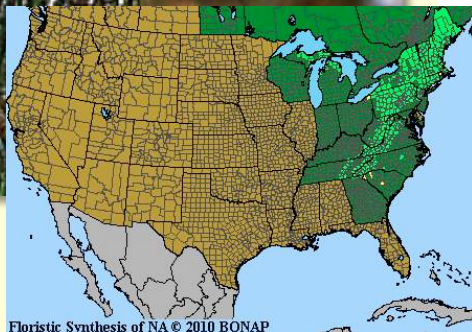


**Sapindaceae - maple family

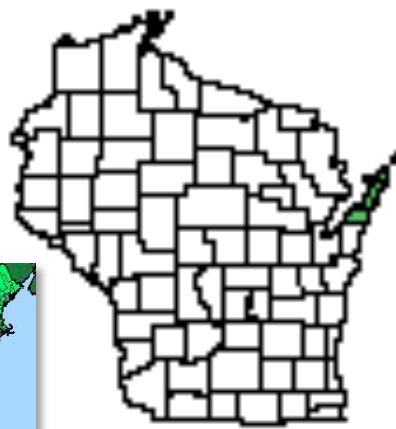


Acer pensylvanicum
Striped maple, moosewood

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

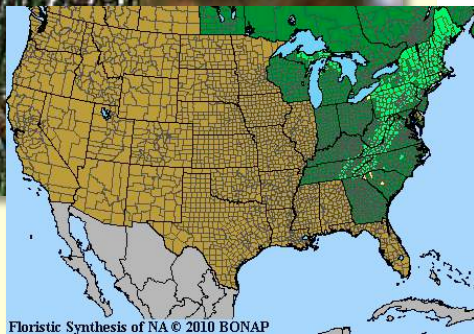


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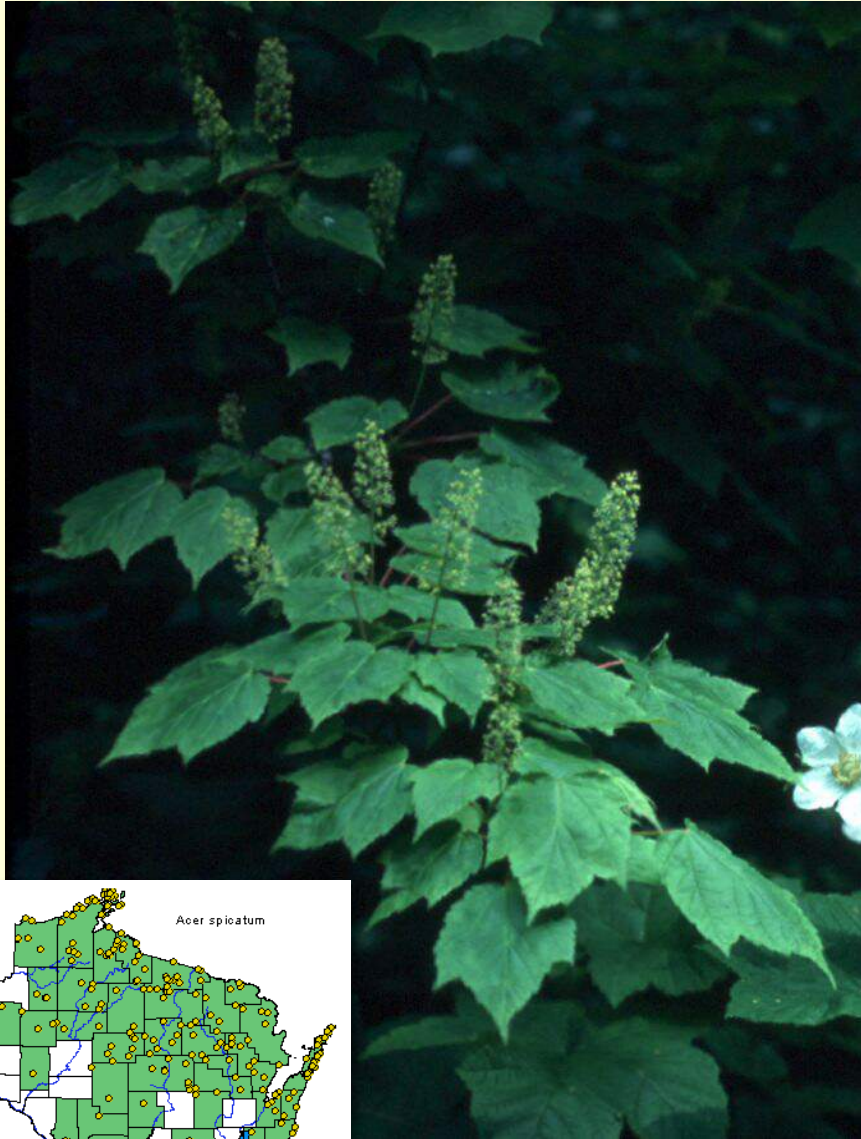


Acer pensylvanicum
Striped maple, moosewood

A raceme of pendant flowers
produce hanging samaras

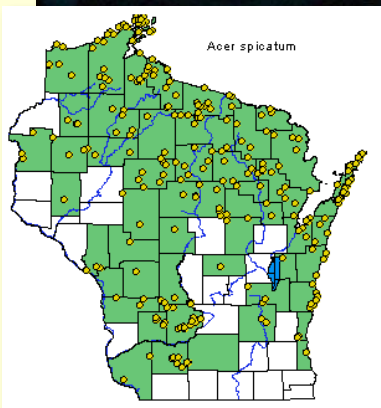


**Sapindaceae - maple family



Acer spicatum - mountain maple

Small maple with coarsely toothed teeth like red maple but with erect inflorescence



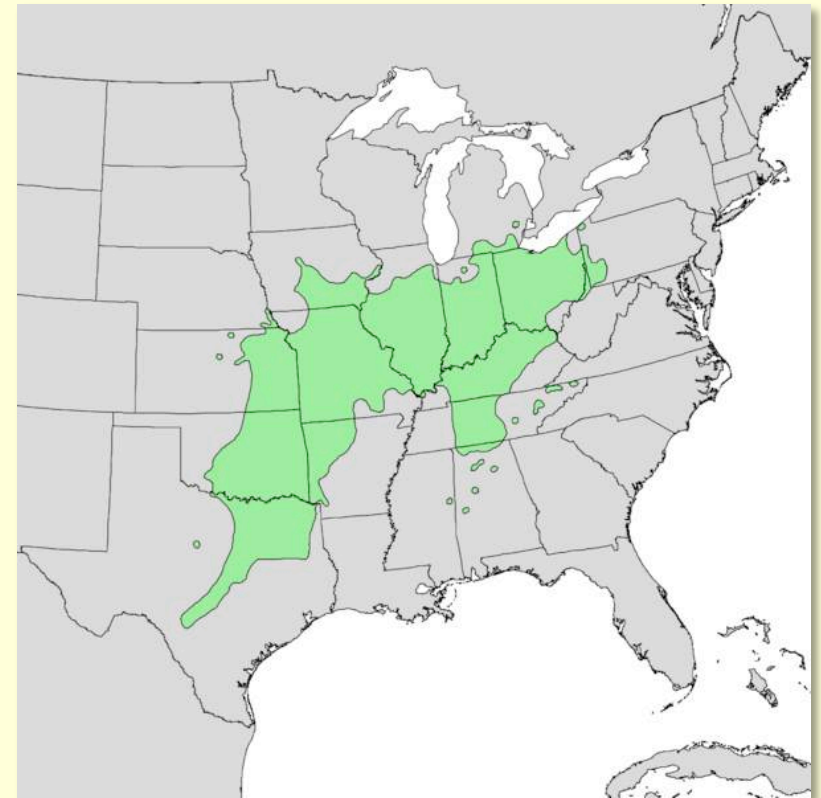
**Sapindaceae - maple family



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



Aesculus glabra - Ohio buckeye



**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

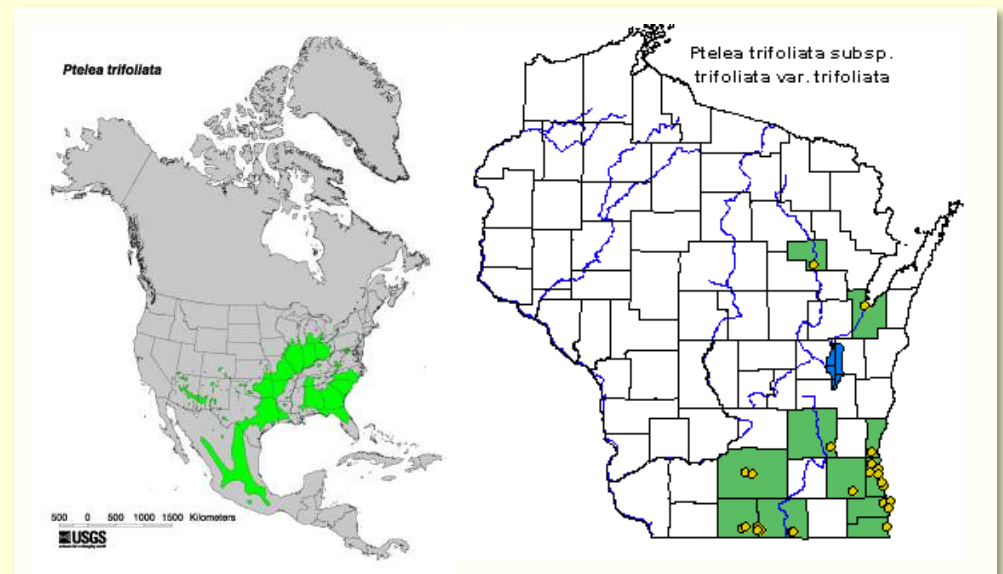


Largely alternate, compound leaved family (except oranges and relatives) with 2 genera in Wisconsin

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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*

