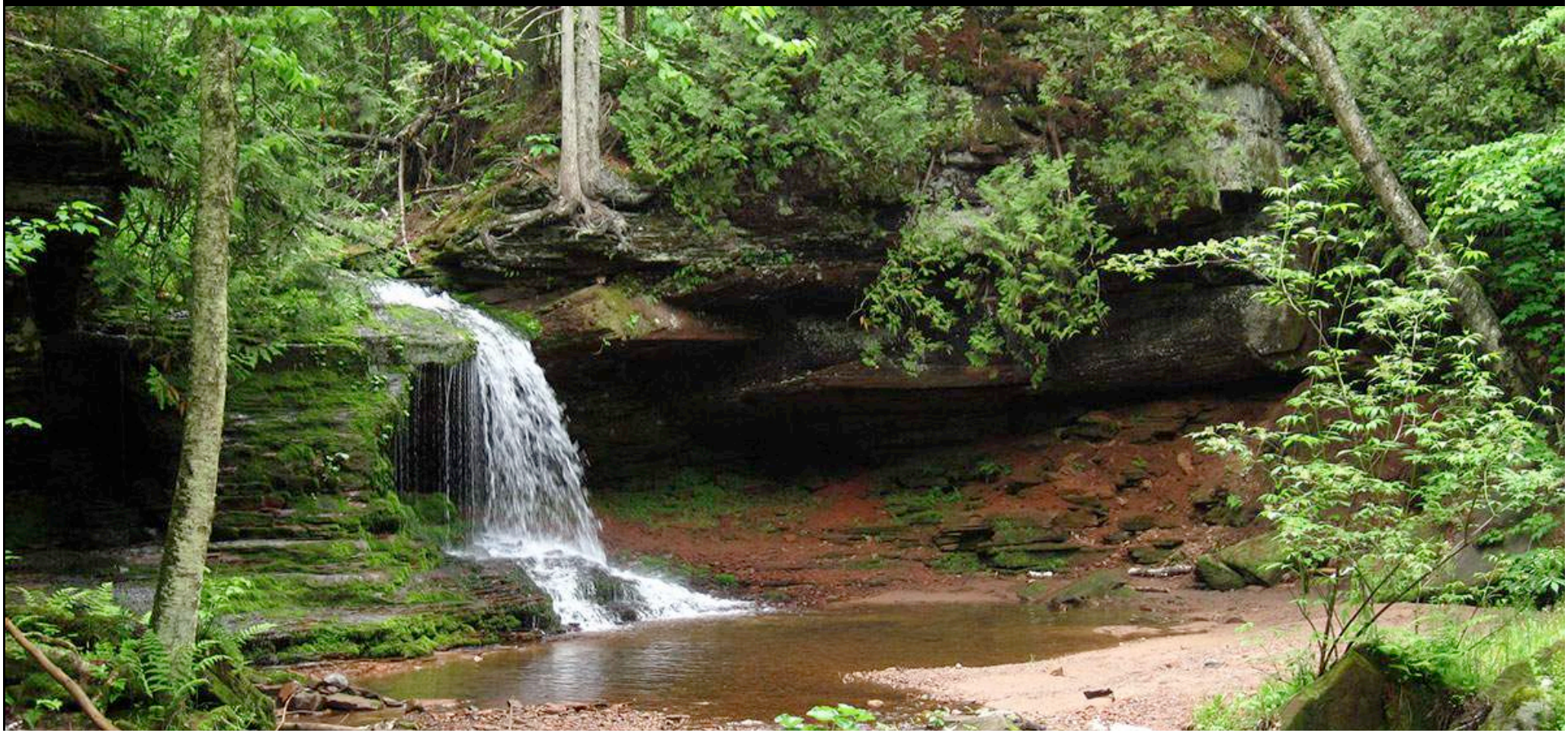
Botany 401
Vascular Flora of Wisconsin

- Pick up syllabus from one of the instructors
- http://courses.botany.wisc.edu/botany_401/class/Lecture.html



Botany 401
Vascular Flora of Wisconsin

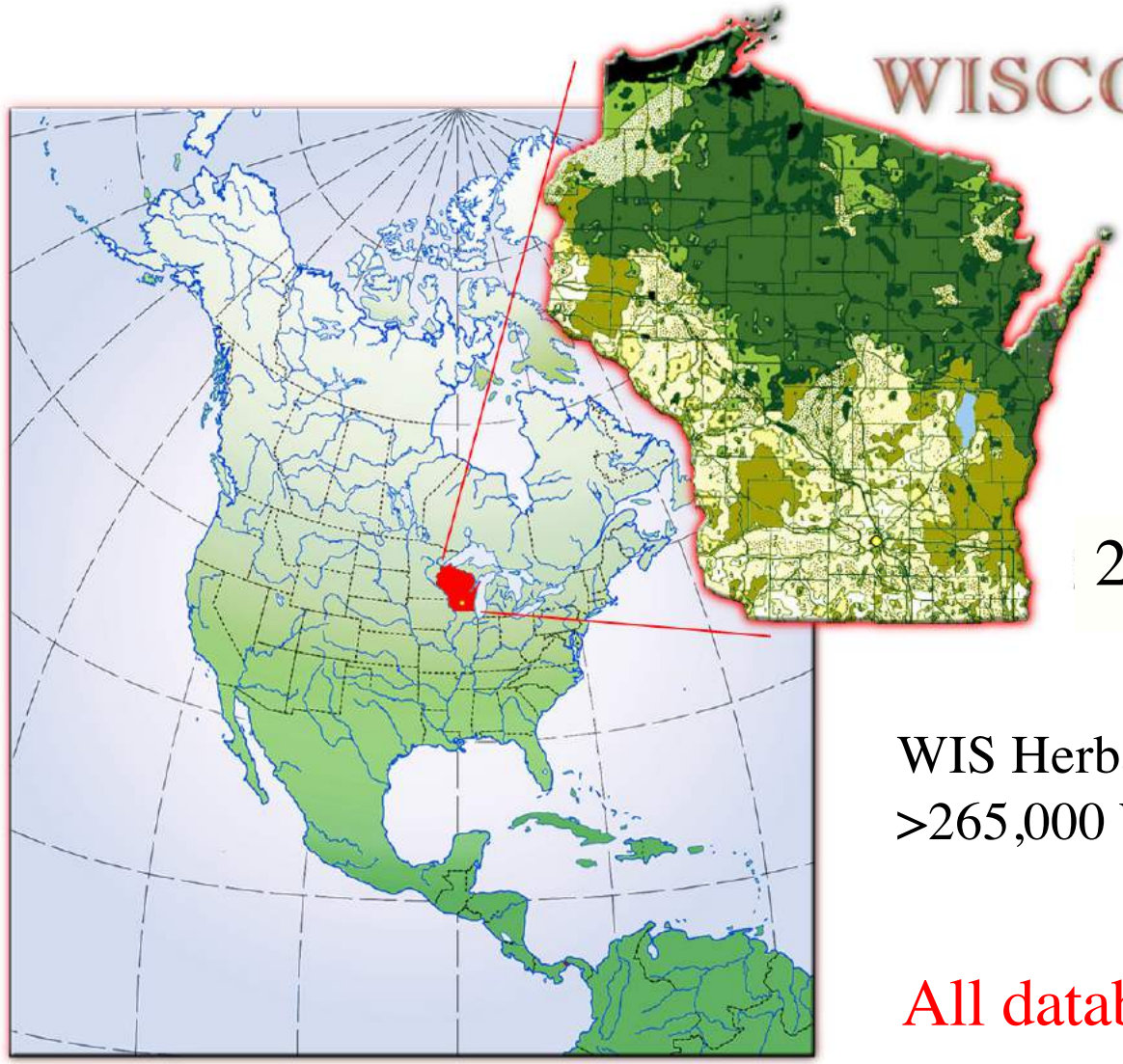
Objectives for the course

1. Become familiar with a local flora: species diversity, biogeographical patterns, rarity, natural history, and ethnobotany

2. Learn skills of identifying organisms, using keys and manuals – for use anywhere in the world

3. Take "ownership" of a forest site and learn the woody and herbaceous plants that exist there

Vascular Flora of Wisconsin



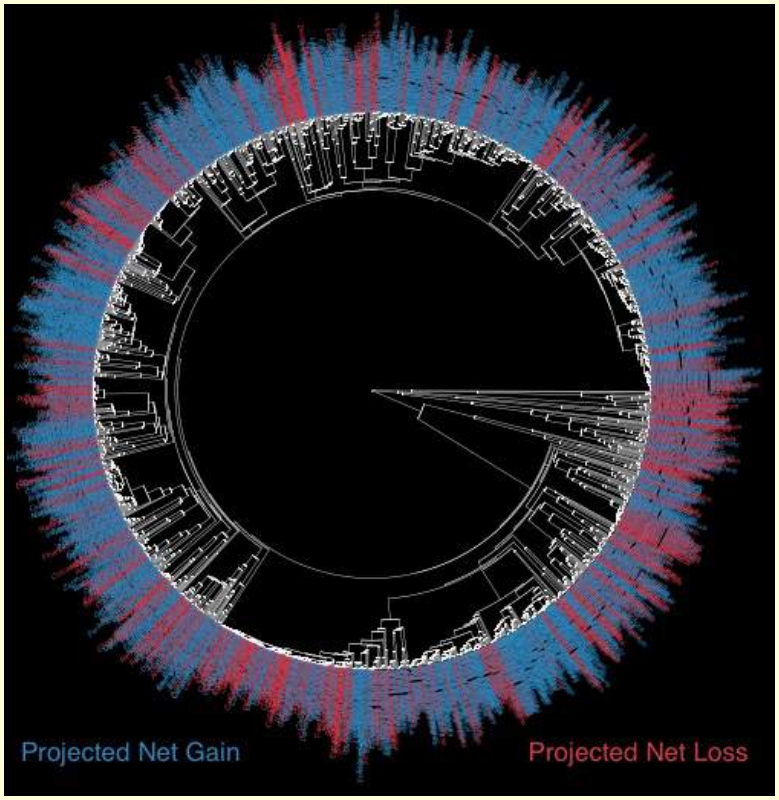
2,450 species —

WIS Herbarium
>265,000 Wisconsin specimens

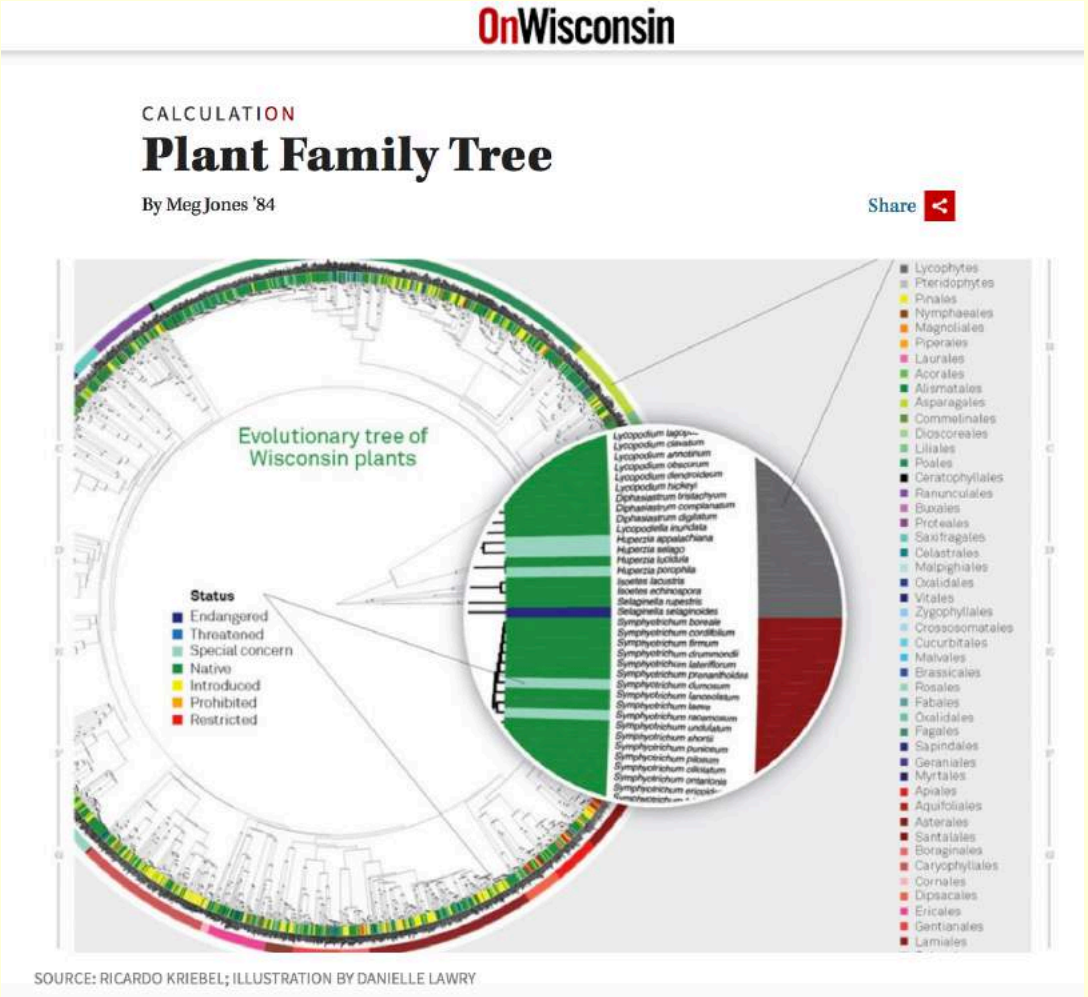
All databased and barcoded

Vascular Flora of Wisconsin

Projecting species niche models to 2070 under climate change model



Spalink et al. 2018 American Journal of Botany



DNA Barcode phylogenetic tree of Wisconsin vascular flora

Vascular Flora of Wisconsin

Information source: Wisconsin State Herbarium
herbarium.wisc.edu/

Arethusa bulbosa
Dragon's mouth orchid

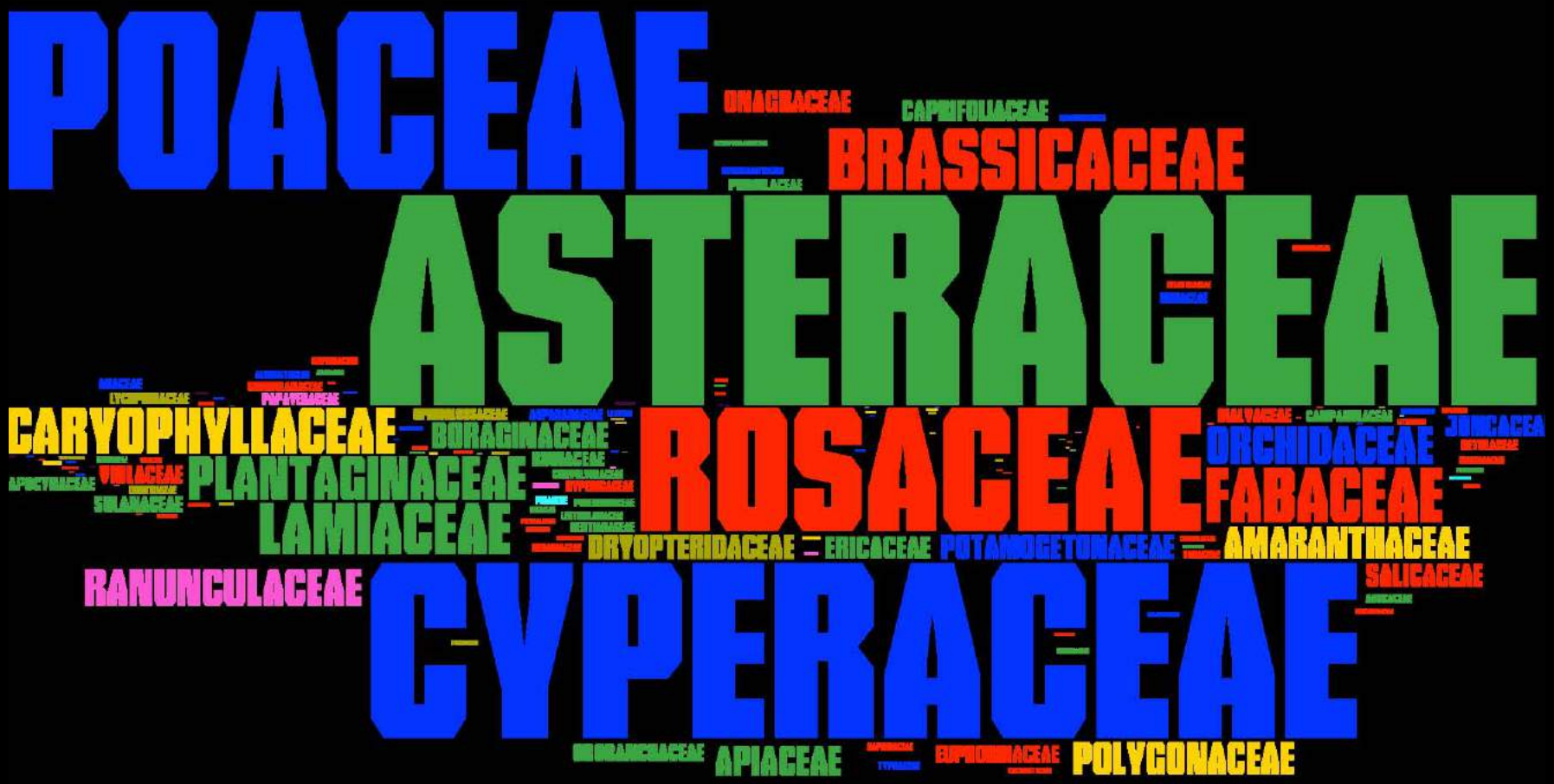
Native species = 1,659

Alliaria petiolata
Garlic mustard

Introduced species = 791

164 families 787 genera 2,450 species

A “Wordle”of plant families in Wisconsin and their size



Phyla of Land Plants

- Marchantiophyta – liverworts
- Bryophyta – mosses
- Anthoceratophyta - hornworts
- Lycopodiophyta - spike & club mosses
- Polypodiophyta – ferns & horsetails
- Pinophyta - gymnosperms
- Magnoliophyta - angiosperms, flowering plants

non-vascular

vascular

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Marchantia - liverwort

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Bryum - moss

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Anthoceros - hornwort

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Huperzia - club moss

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Equisetum - horsetail

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Adiantum - fern

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Larix - larch

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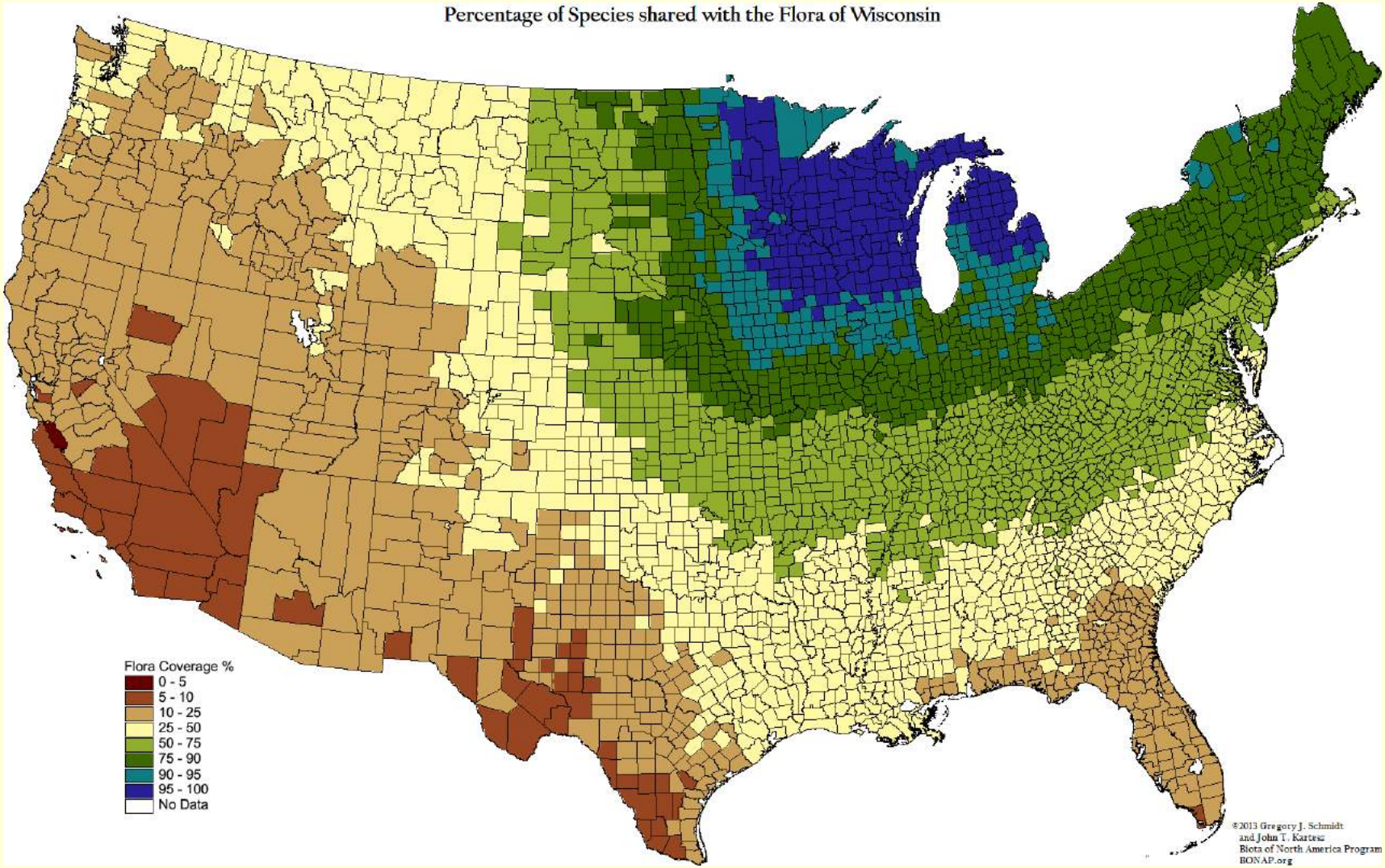
Cypripedium - orchid

Floristic elements and provinces

The flora of WI can be divided into a number of **elements**, each of which shares a common type of past and/or current geographical range.



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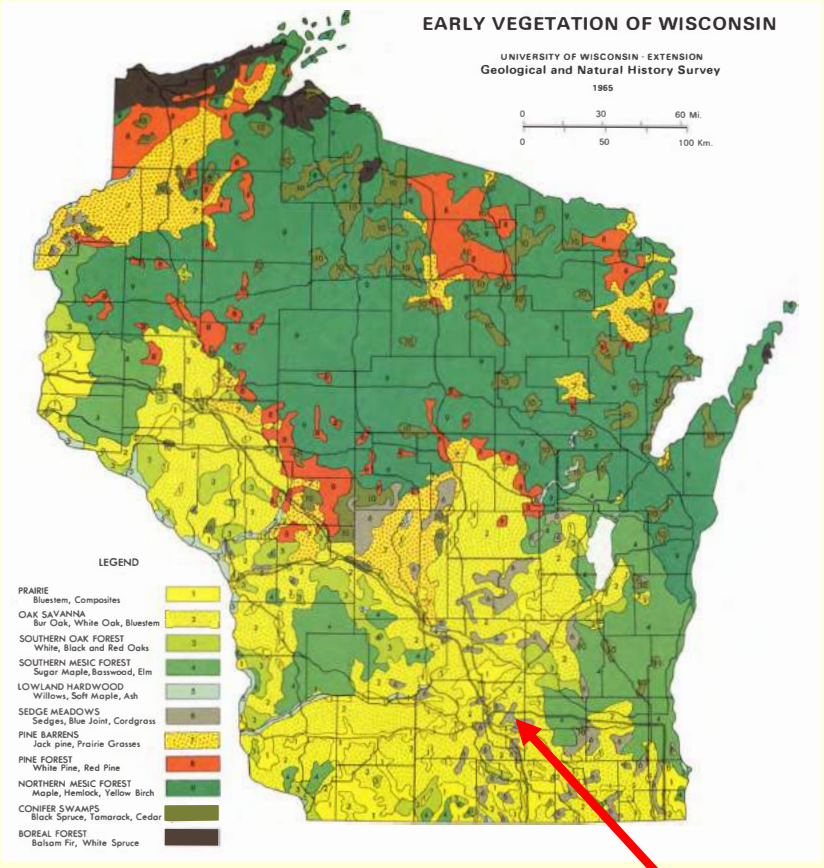

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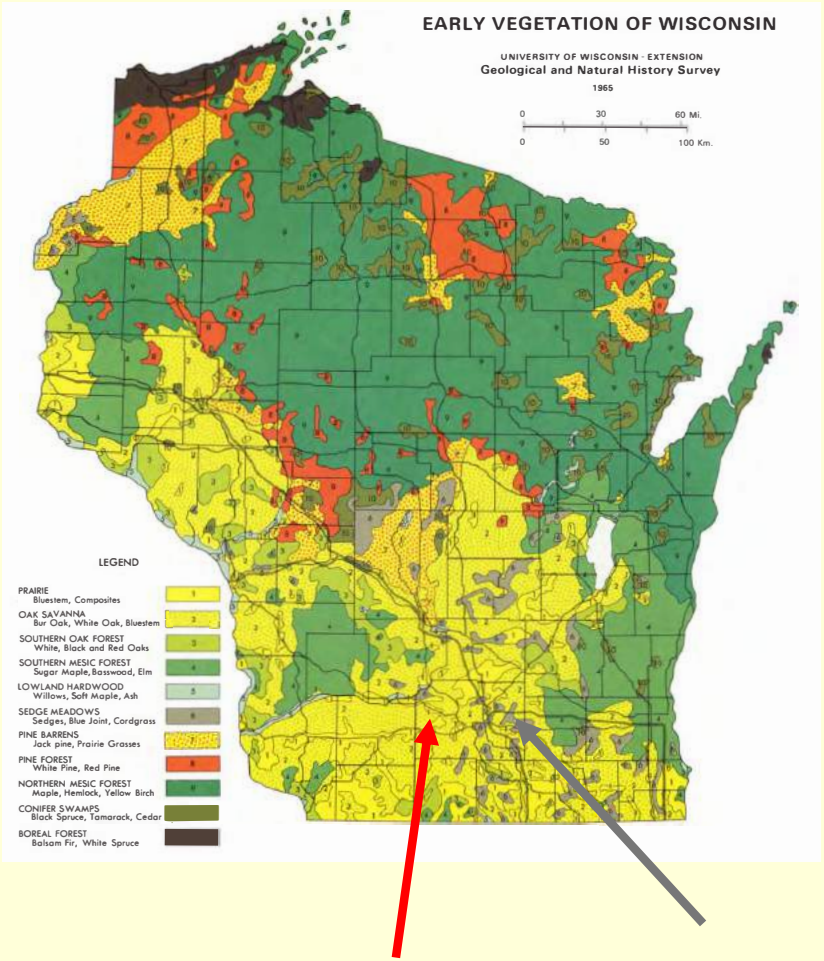

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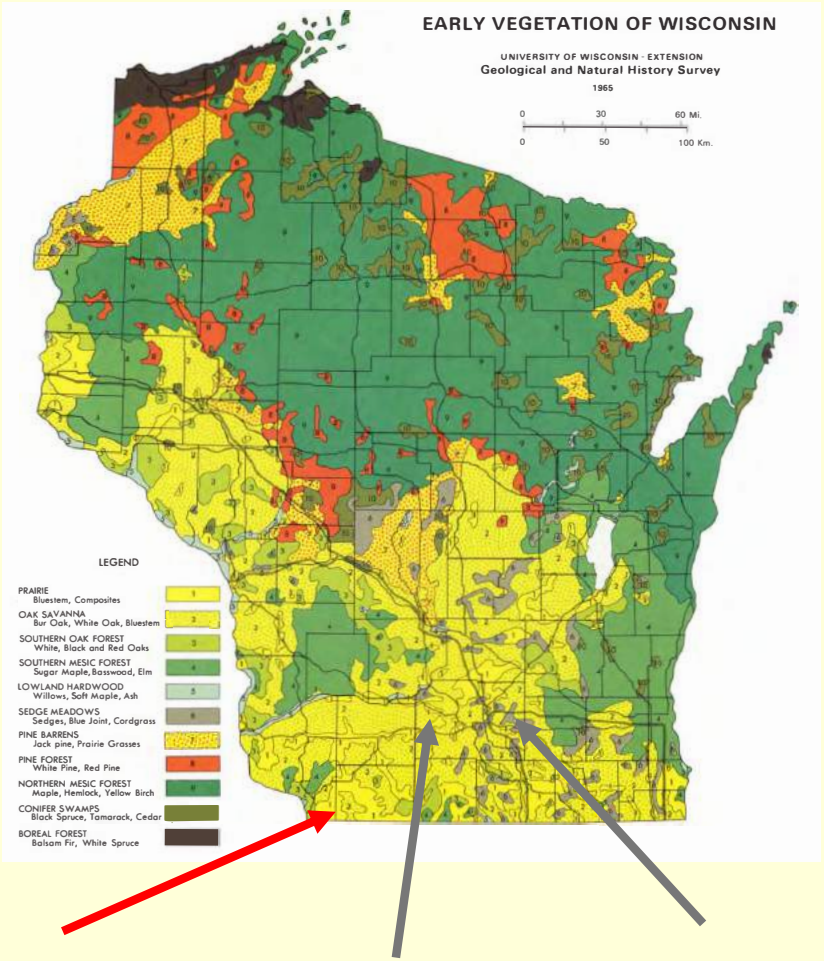

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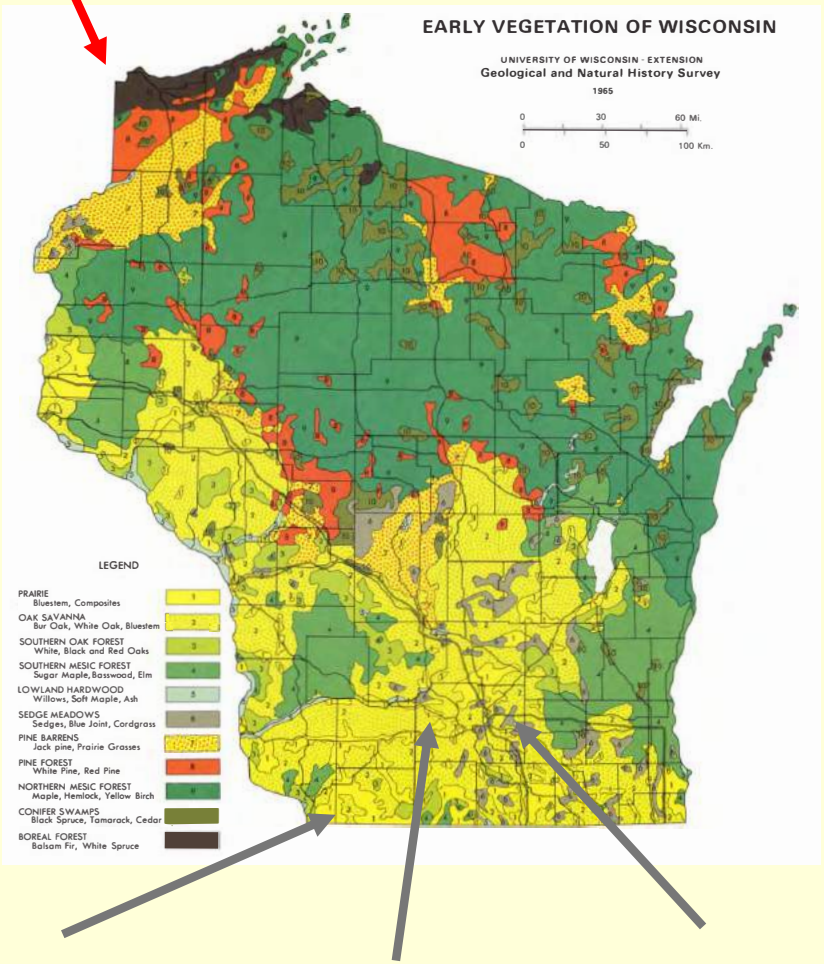

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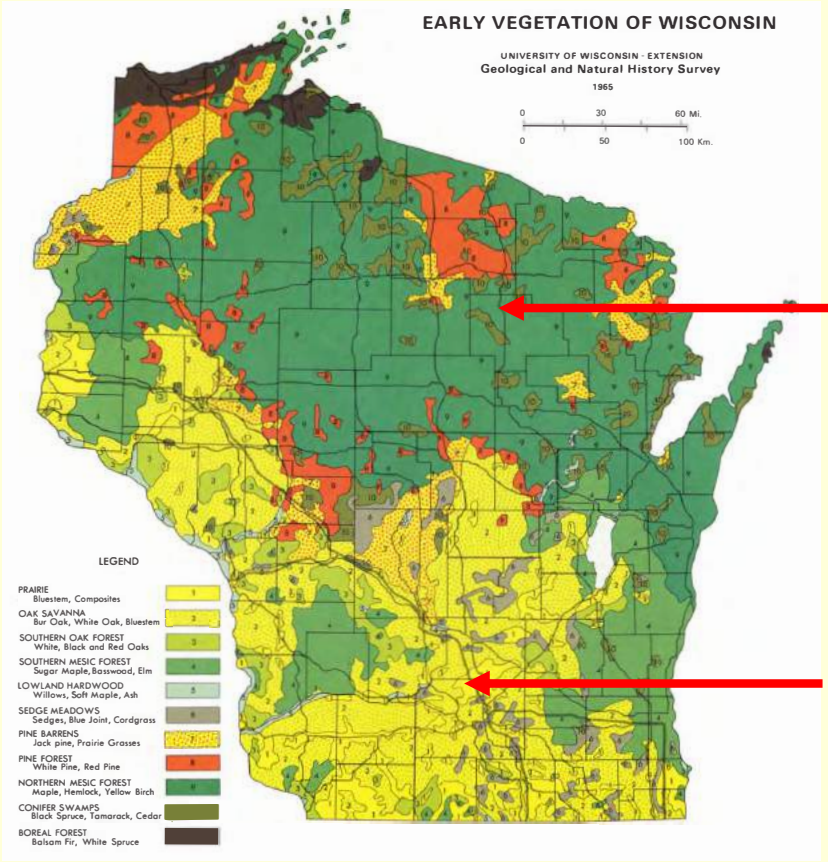
4. Boreal: species w/ranges from Alaska to Upper Great Lakes, many species circumboreal (with ranges in Eurasia) e.g. tamarack, white spruce, and balsam fir

Floristic elements and provinces

These floristic elements are not distributed uniformly throughout the state. There are 2 **floristic provinces**:



Northern Hardwoods - NE Wisconsin

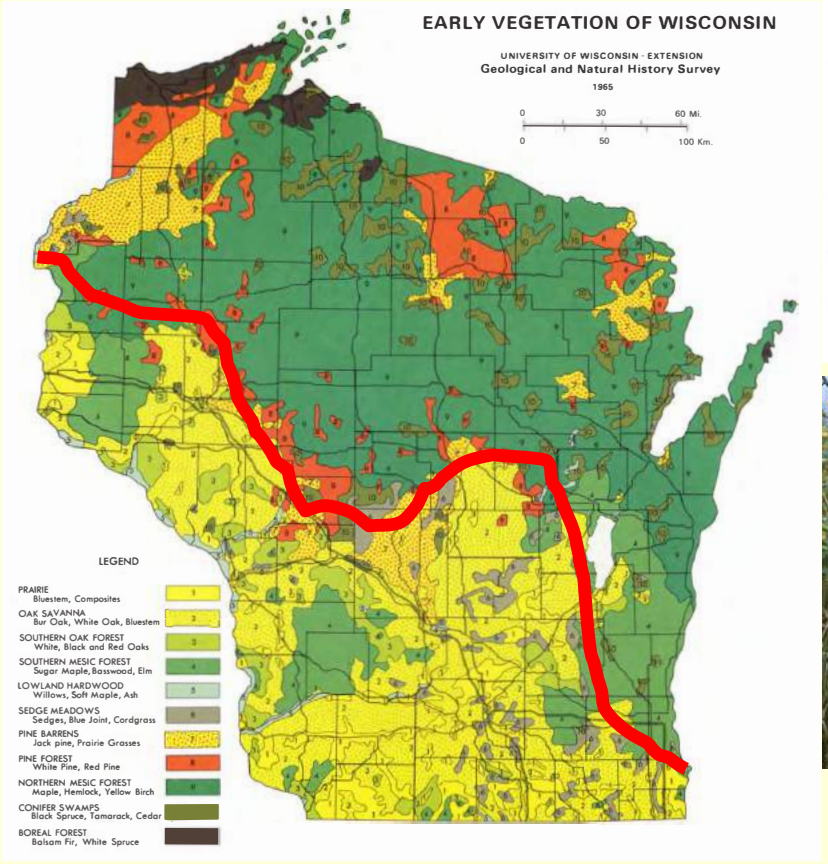
most Boreal elements, some Alleghenian elements

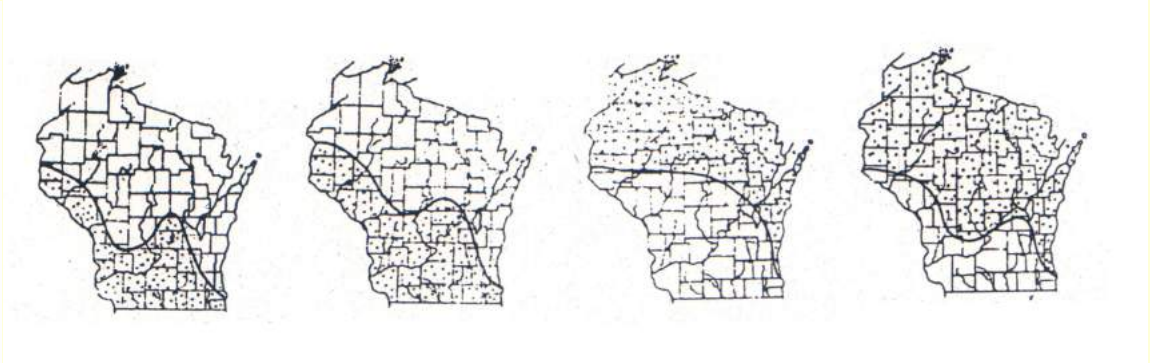
Prairie-Forest - SW Wisconsin

most Prairie & Ozarkian, some Alleghenian elements

Floristic elements and provinces

The 2 provinces are separated by a narrow band or zone: **tension zone** which is based on the upper and lower limits of the southwest and northeastern species, respectively.





Golden cassia

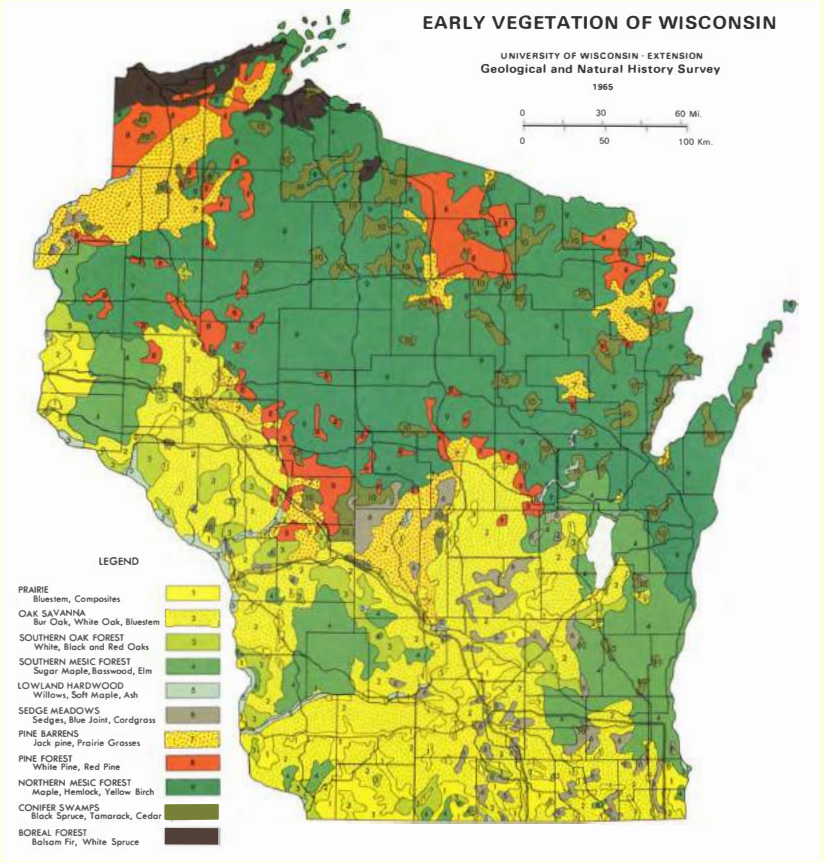
Wild indigo

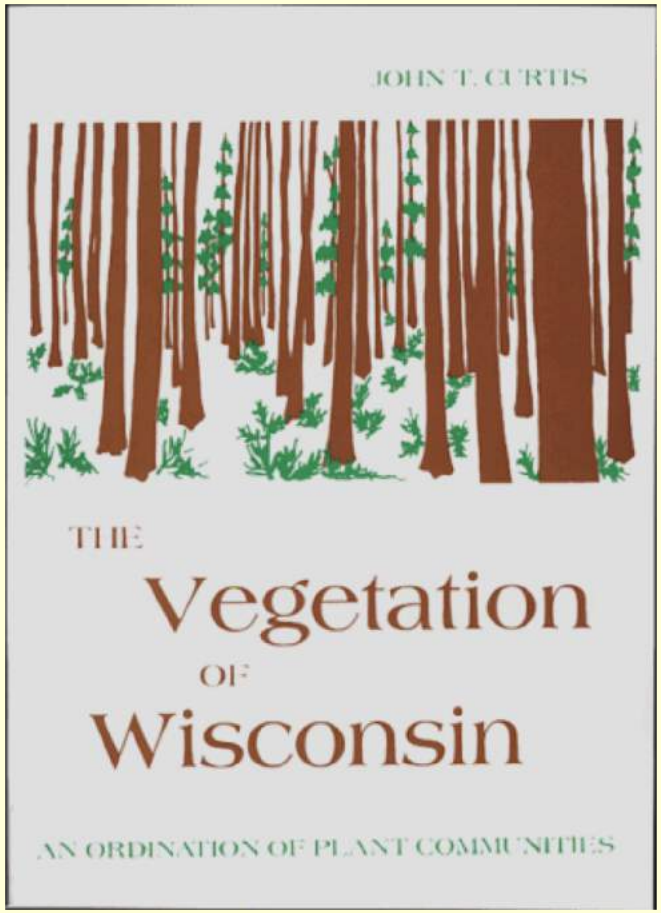
Ram's head ladyslipper

Stemless ladyslipper

Plant Communities

Within each province, there are ecological (not floristic) assemblages of species called **plant communities**. John Curtis in the *Vegetation of Wisconsin,* described about 35 communities. We will briefly look at a few of these:





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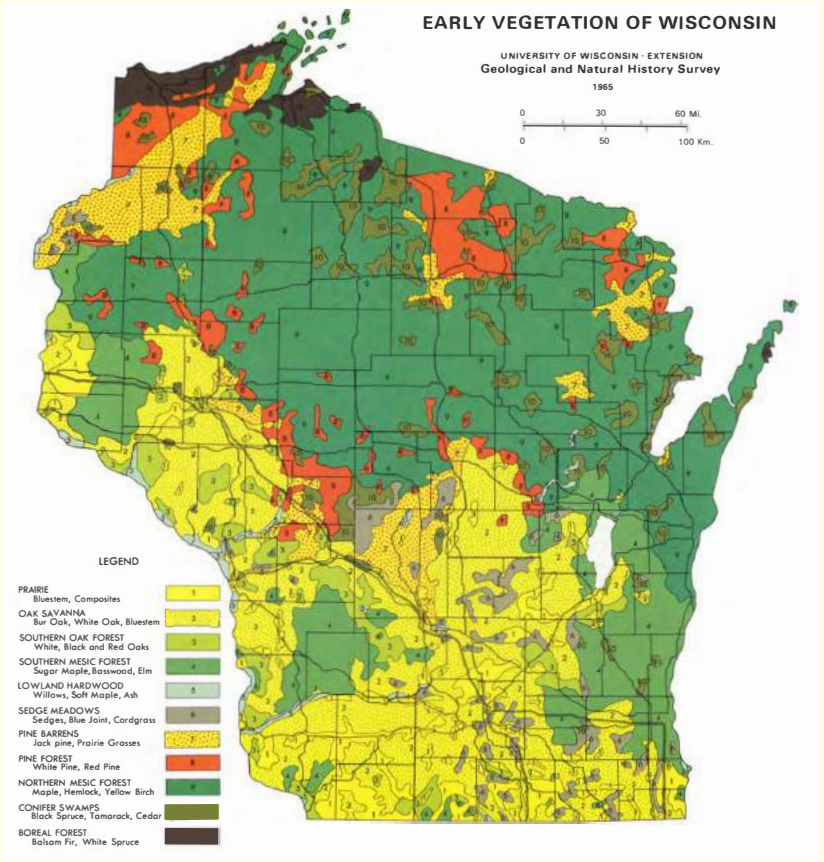

Fagus - American beech

1. Southern mesic hardwood: dominated by beech, sugar maple, and basswood.

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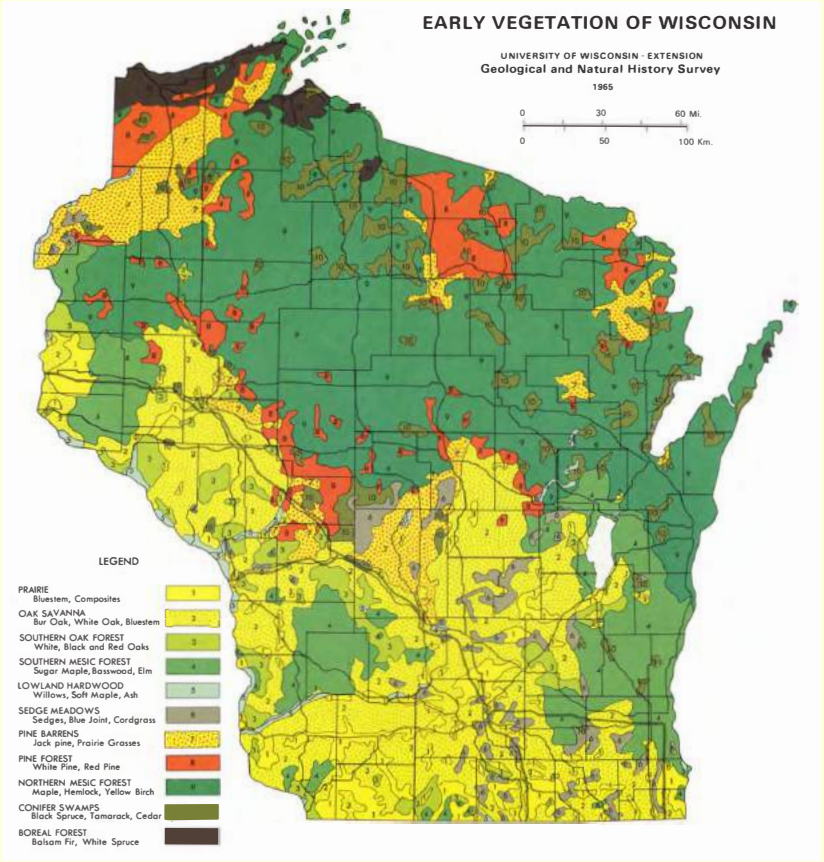

Acer saccharum - sugar maple

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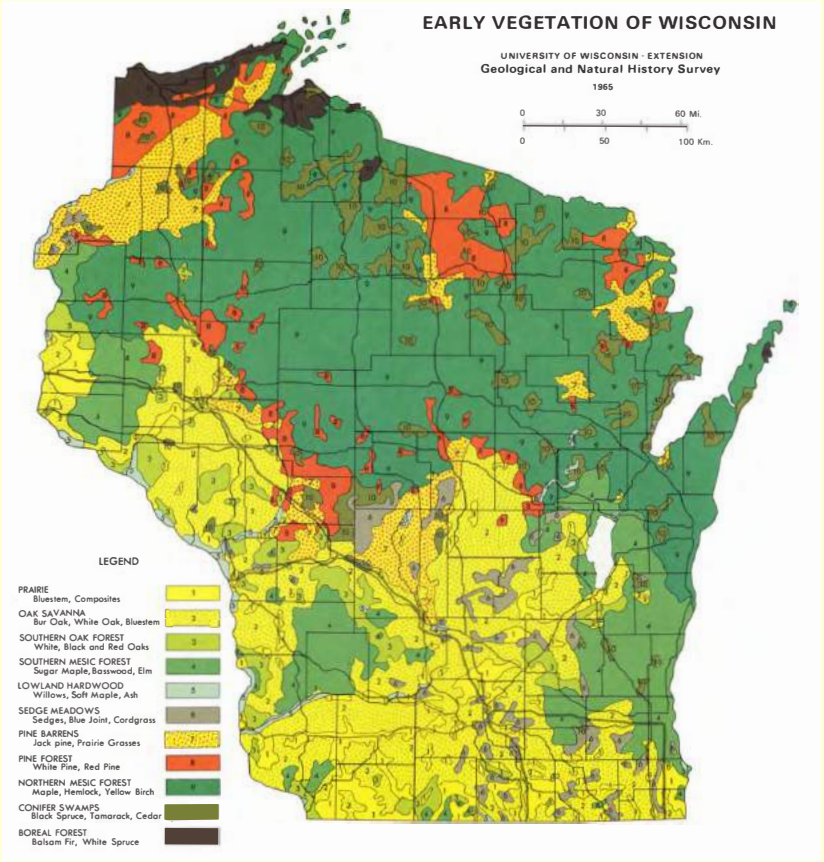

Trillium grandiflorum - showy trillium

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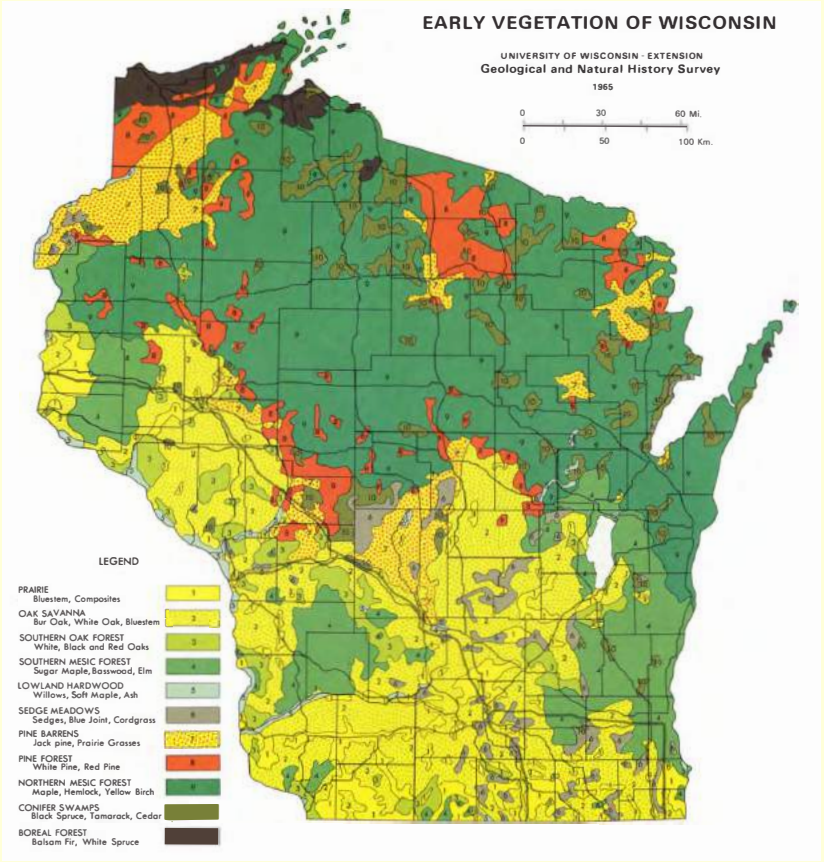

Dicentra cucullaria - Dutchman's breeches

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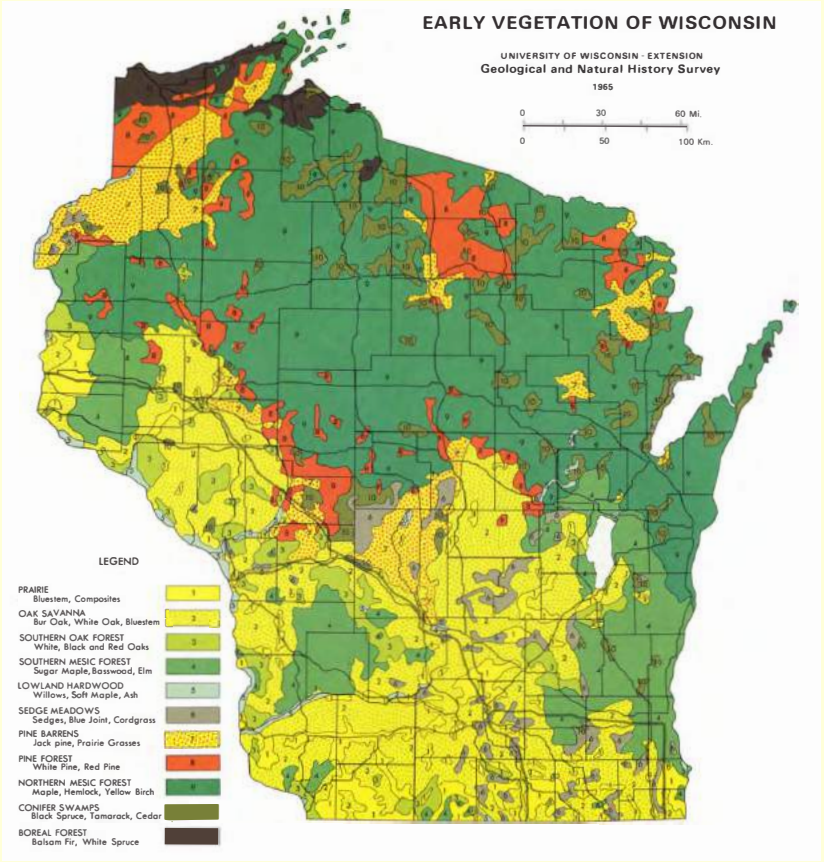

2. Southern xeric hardwood: oak and hickory dominated drier, more open forests

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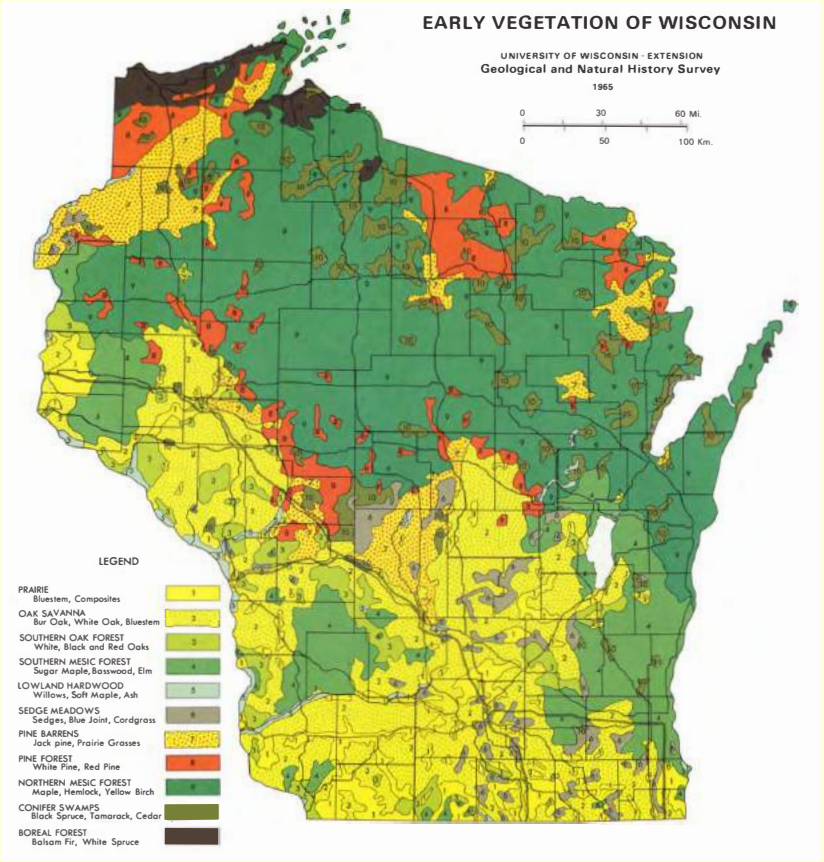

Quercus macrocarpa
Bur oak

Carya ovata
Shagbark hickory

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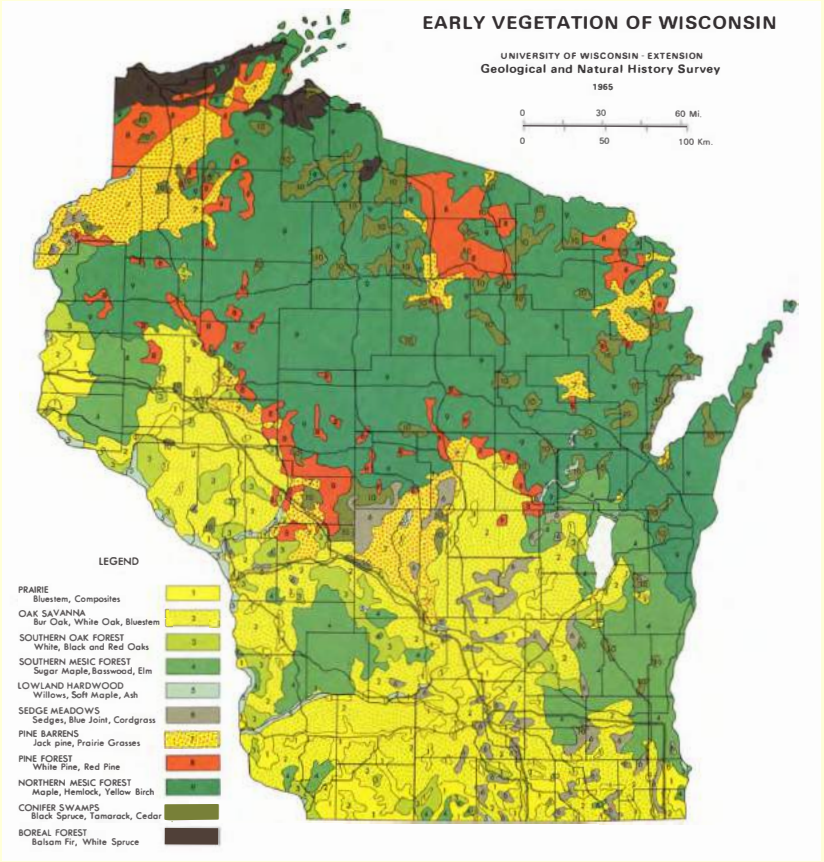

Prunus virginianum
Choke cherry

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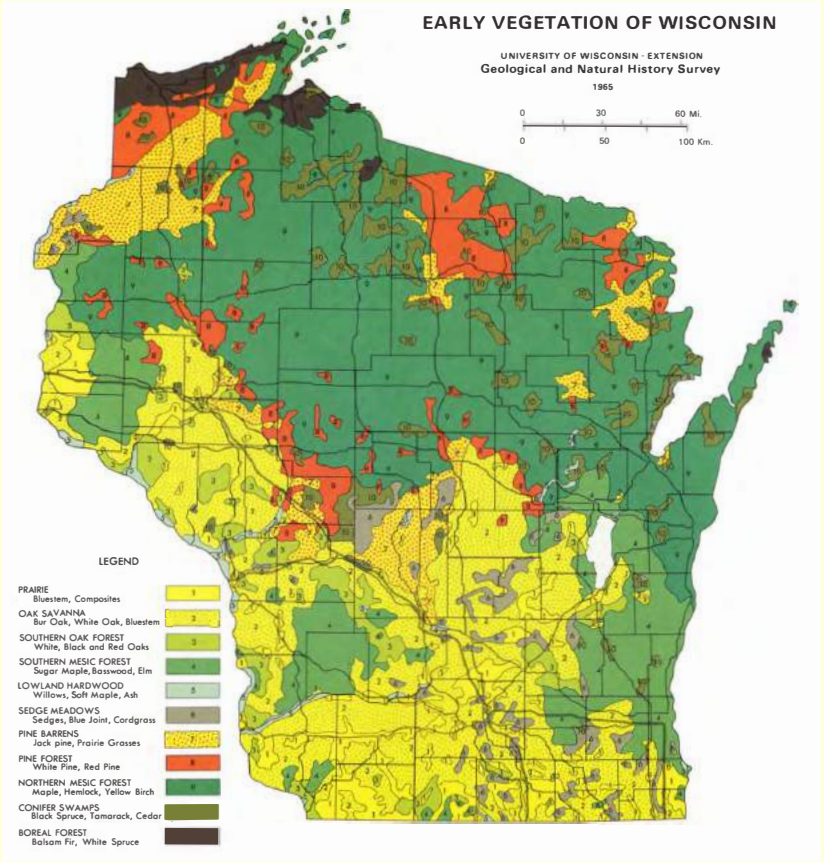

Corylus
American hazelnut

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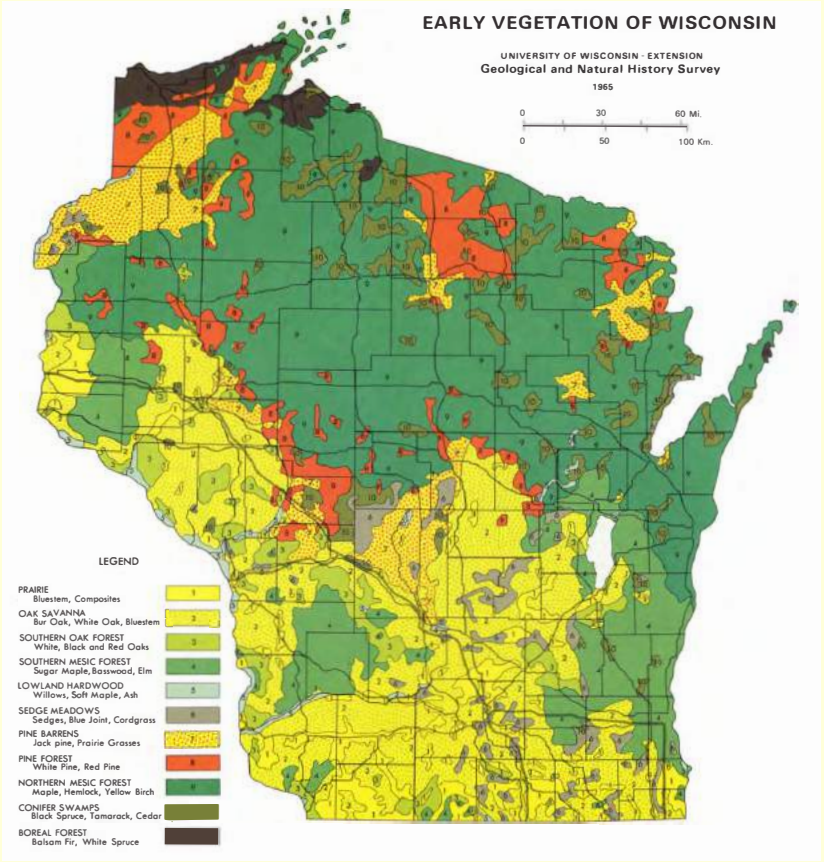

Geranium
Wild geranium

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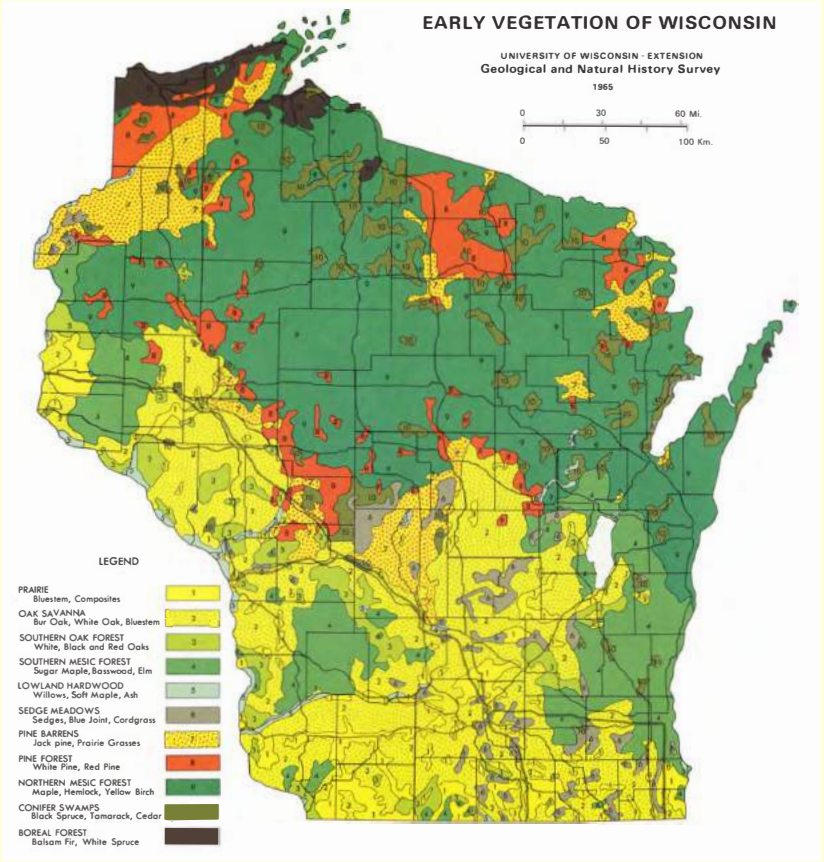

Monotropa
Indian pipe

Pyrola
Shin leaf

3. Northern xeric hardwood: acidic nature of oak and conifer forests supports a range of unusual growth forms involving fungal associates

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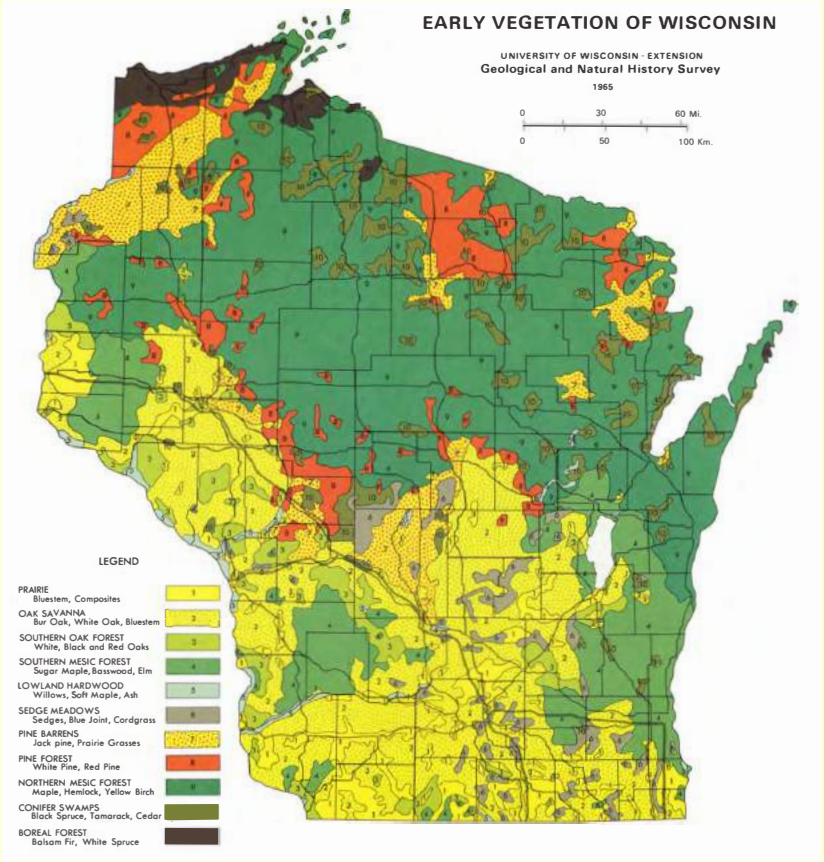

4. Prairie: non-tree communities dominated by grasses, legumes, and composites; range from dry to wet

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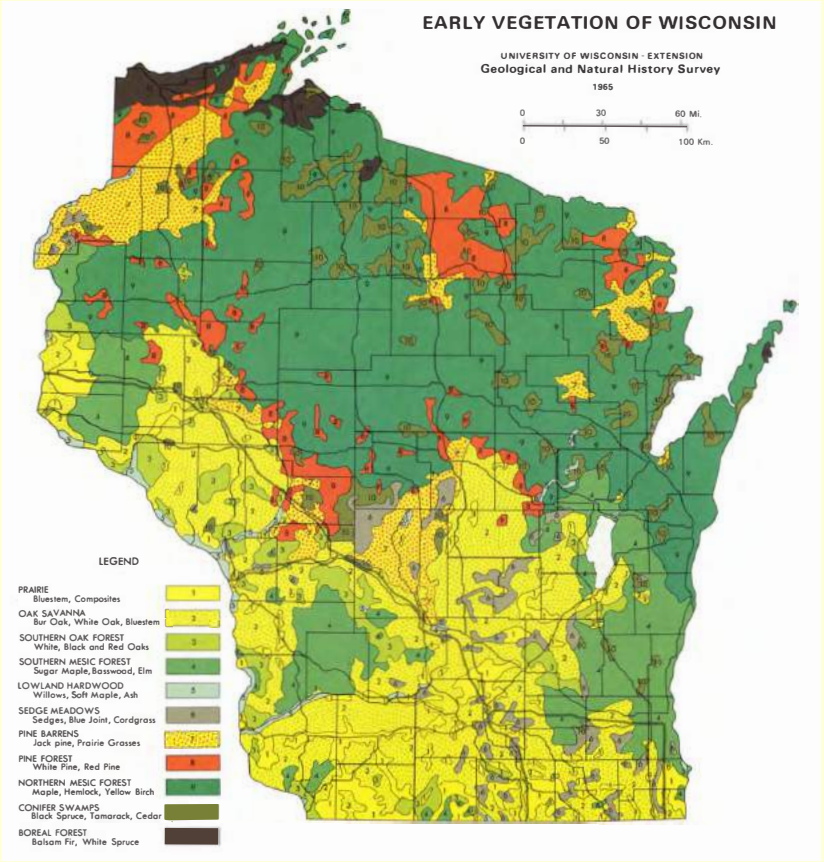

Andropogon
Bluestem

Baptisia
Wild indigo

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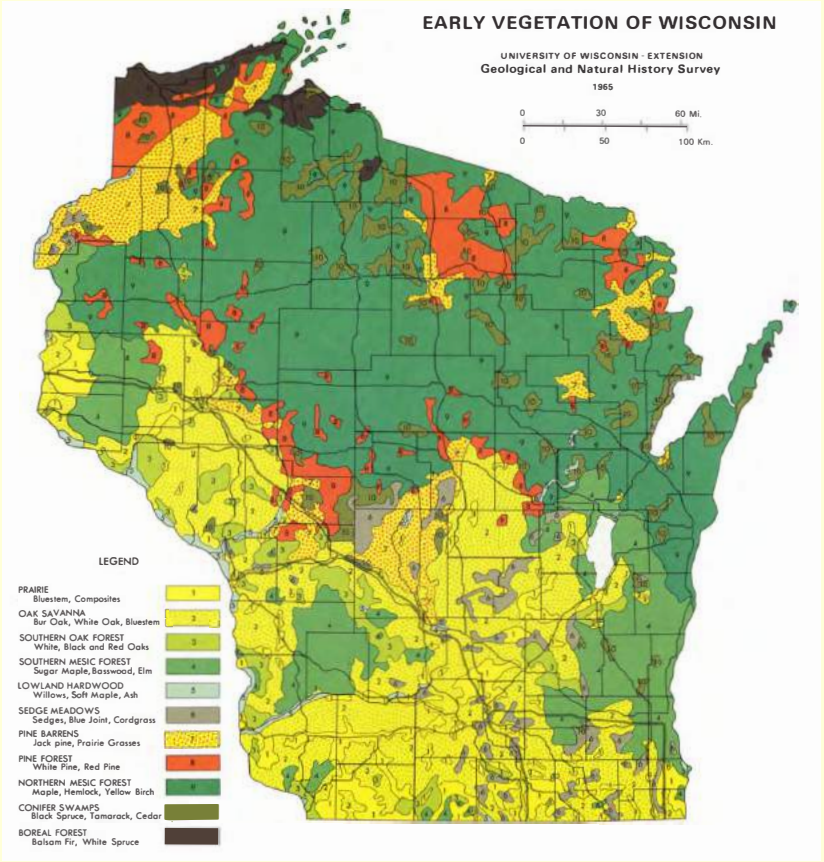

Ratibida
Coneflower

Liatris
Blazing star

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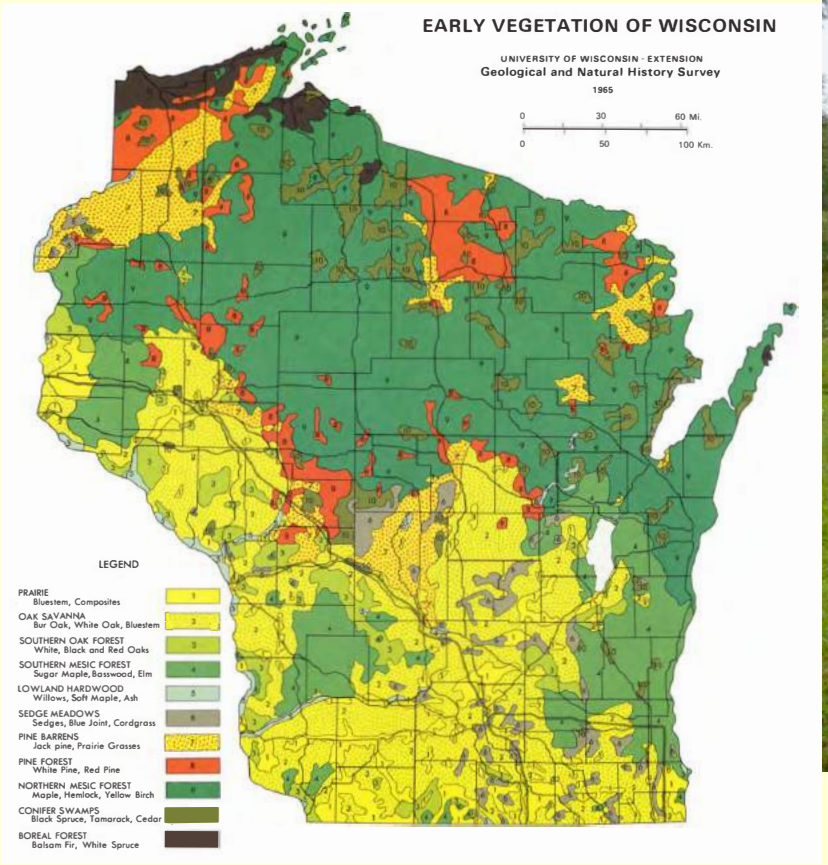

5. Fen: alkaline peat lands associated with ground water; dominated by forbs and sedges

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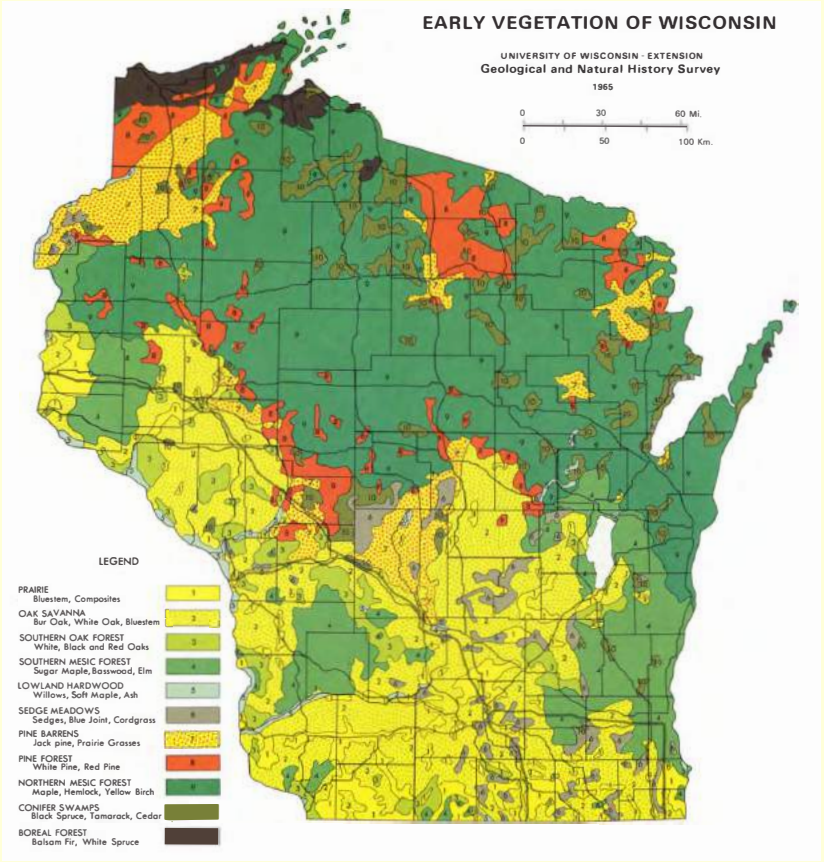

Dasiphora
Shrubby cinquefoil

Gentianopsis
Fringed gentian

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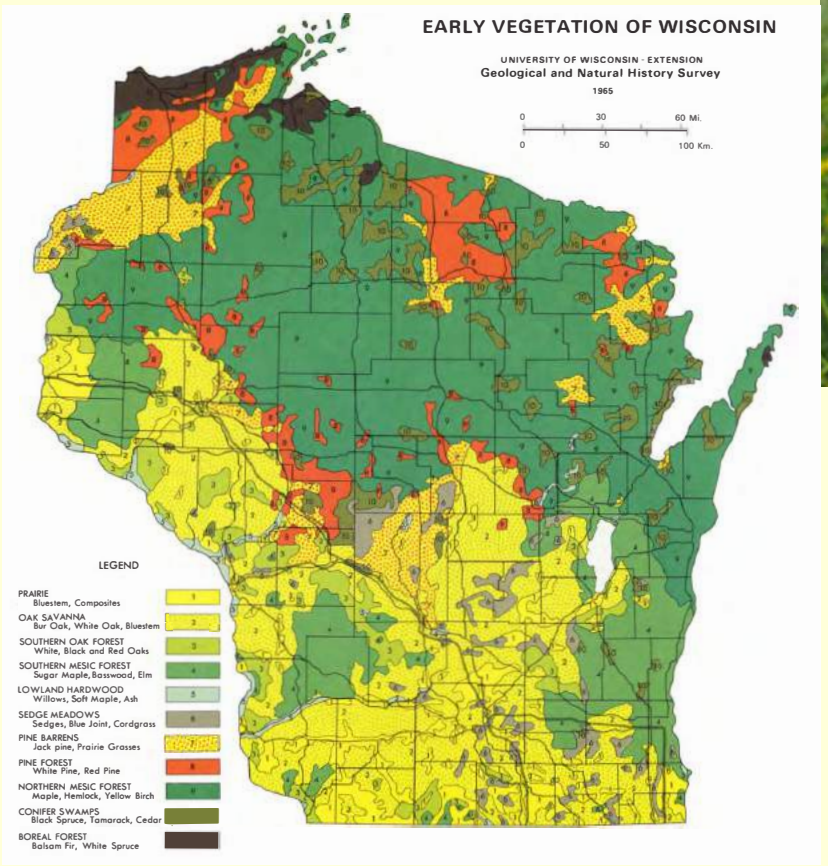

Solidago
Goldenrod

Cypripedium
White ladyslipper

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