

# BioDiversity - Goals

## 1. Inventory earth's biota:

Worldwide: 1.6 million species have been described and named

Wisconsin: 32,000+ spp., and in terms of vascular plants 2,450 spp.

## 2. Identify and name species

## 3. Classify or place the species in groups

Plantae	Kingdom
Magnoliophyta	Phylum
Magnoliopsida	Class
Sapindales	Order
Rutaceae	Family
<i>Ptelea</i>	Genus
<i>Ptelea trifoliata</i>	Species

↑

Hierarchical classification



*Ptelea trifoliata* L.  
Wafer-ash

# Nomenclature - Using Names

Nomenclature = a system of naming

## Common names

What are their advantages?

- colorful and easy to remember
- for most, only means of communication about earth's diversity



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What are their disadvantages?

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*Ptelea trifoliata* L.

Wafer-ash

Stinking-ash

Hop-tree

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Garden pansy  
200+ other names!

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Fireweed  
*Epilobium*  
(Onagraceae)



Fireweed  
*Erechtites*  
(Asteraceae)

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Wafer-ash  
Stinking-ash  
Hop-tree

(not related to ashes or hops)

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Sweet-fern

(not a fern!)

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Hyphens often used with non-relationship of two terms



Red oak  
(type of oak)



Poison sumac  
(type of sumac)



Poison-oak  
(type of sumac, not oak)



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What are their disadvantages?

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- One name can be given to unrelated plants
- Names can be confusing or misleading
- Many plants have no common names



*Carex crawfordii*

?

Crawford's sedge

# Nomenclature - Using Names

## Scientific names

International Code of Nomenclature (for plants, algae, fungi):

*the major goal of nomenclature is to provide **one** correct scientific name for each species*



*Carex crawfordii* Fernald

# Nomenclature - Using Names

## Scientific names

**Species** names: **binomial** system which was first consistently used by Carolus Linneaus

**Genus** name: *Carex* [noun]

**Specific epithet:** *crawfordii* [adjective]

**Species** name: *Carex crawfordii*

**Authority:** Fernald - the name of the person who came up with the name for this species

**Scientific name** is the genus + specific epithet + authority



*Carex crawfordii* Fernald

# Nomenclature - Using Names

## Scientific names - general rules

- *Italics* or underlined for species name
- Generic name **must always** be capitalized
- Species epithet **may always** be lower case
- Species epithet should **never** be used alone



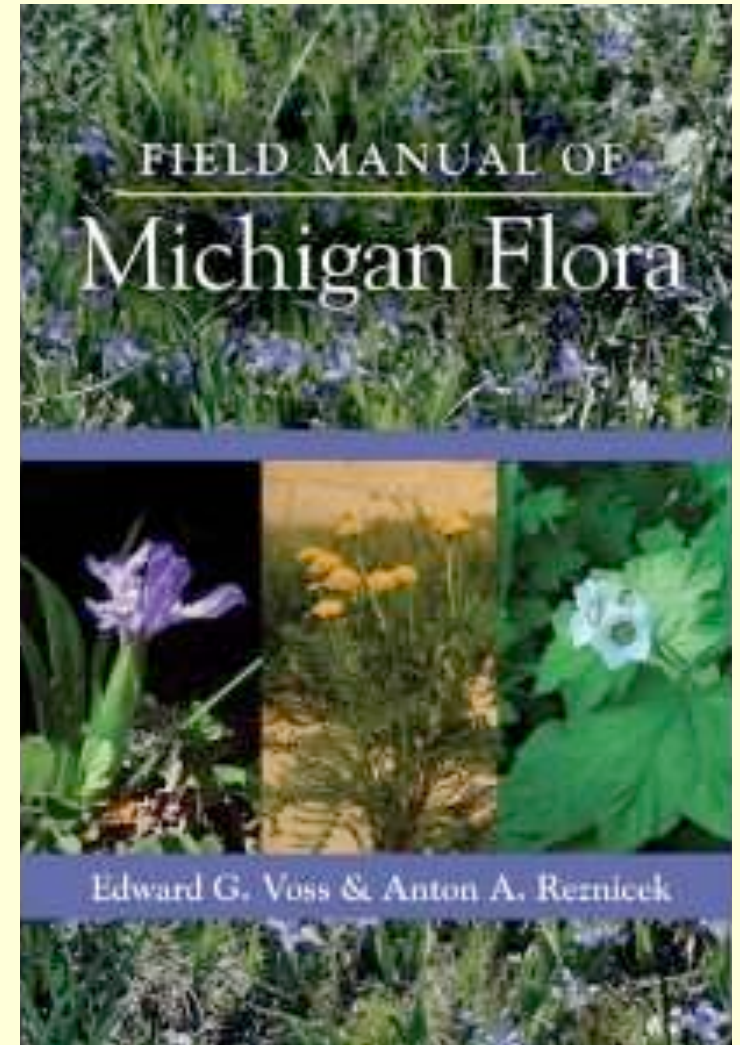
*Carex crawfordii* Fernald

# Nomenclature - Using Names

## Scientific names - name changes

- Unfortunately very common
- Gives rise to duplicate names - **synonyms** - for the same plant
- MANY plants you will encounter in this course have synonyms

*Field Manual of Michigan Flora*



# Nomenclature - Using Names

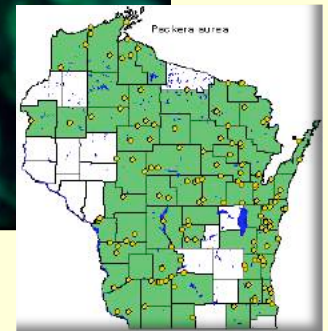
## Scientific names - name changes – an example

The golden ragwort was named by Linnaeus:  
*Senecio aureus* L.

Switched to the genus *Packera* by Löve & Löve:  
*Packera aurea* (L.) Löve & Löve

Note 4 things:

1. The name in parenthesis - Linnaeus - is the author of the specific epithet
2. Löve and Löve are the authors of the binomial
3. The gender has changed
4. *Senecio aureus* is now a **synonym** for *Packera aurea*: check out the [Wisconsin State Herbarium](#) to see how it is listed



*Senecio aureus* L.

*Packera aurea* (L.) Löve & Löve