

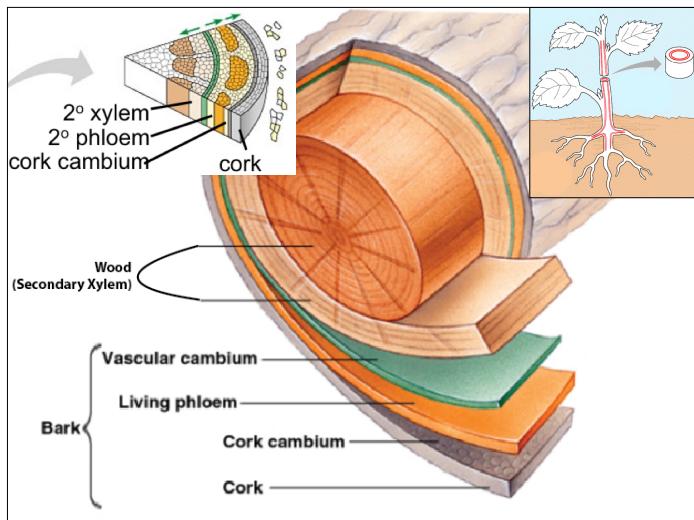
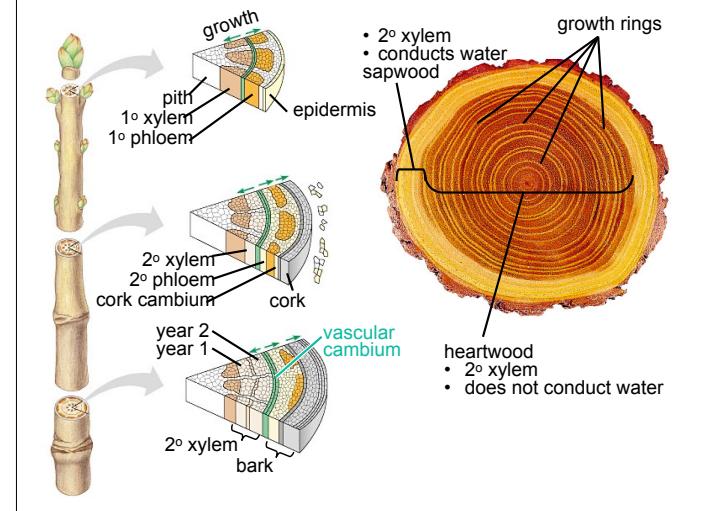
# Botany 121: General Botany



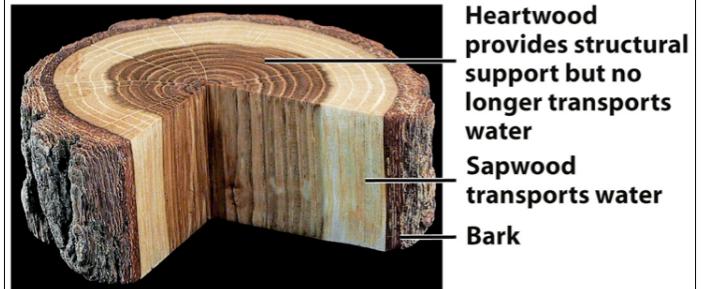
## Reading:

Mauseth, Chapter 18  
pages 487-500 and  
Plant Names Article  
(online)

## Lecture 6: Secondary Growth and Plant Names



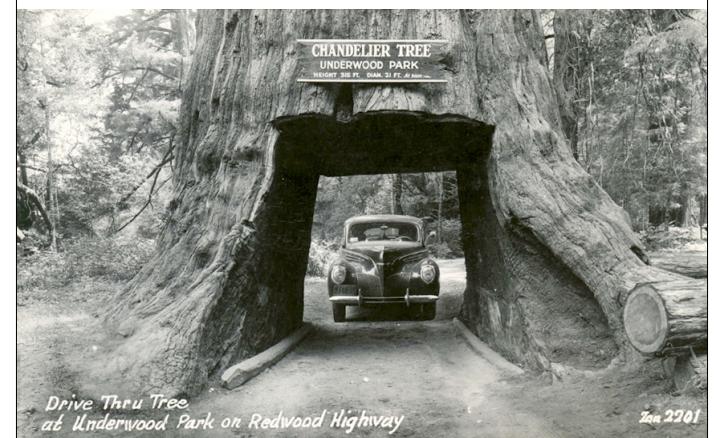
## Heartwood and sapwood have different functions.



## Heartwood can be removed without hurting the tree



## Heartwood can be removed without hurting the tree



## Coastal Redwood

- *Sequoia sempervirens*
- California's state tree
- Redwood lumber is the most commercially valuable softwood (gymnosperm wood)
- Coastal Redwoods are the tallest trees on Earth



## Costal Redwood *Sequoia sempervirens*

- 2,000+ years old
- Stump sprouting – fairy rings
- Thick bark
- Simple needle like leaves
- Taxonomy:  
Gymnosperm, conifer,  
Family: Cupressaceae  
(Junipers and Cypresses)
- *Trees Among Us* Page 16



## Coastal Redwood (*Sequoia sempervirens*)



## Coastal Redwood (*Sequoia sempervirens*)



## Distribution

- Originally covered ~2 million acres in California
- Generally live below 2500 feet
- Usually absent from the immediate shoreline
- Occupy the fog belt
- Precipitation: **fog drip**



## Why do we have plant names?

- Plant names allow us to communicate about plants that:
  - we use for food, clothing, shelter, medicine
  - we grow in our gardens, our yards, our orchards
  - we encounter in the wild—wildflowers, weeds, forest trees



Orange  
*Citrus sinensis*



Bird of Paradise  
*Strelitzia reginae*



California Redwood  
*Sequoia sempervirens*

## Advantages of Common Names

- Use begins in childhood
- Used by untrained laymen
- Generally easy to remember
- Usually in the local language



Orange  
(*Citrus sinensis*)

Mock Orange (*Philadelphus lewisii*)



## Disadvantages of Common Names

- Not standardized
- Vary regionally
- One plant - several different common names, even in the same language
- Many plants have no common names
- May be misleading
- Different plants share the same common name

Mock Orange (*Pittosporum undulatum*)



Mock Orange (*Maclura pomifera*)



## Cedars?

- More than 40 trees throughout the world bear the common name "cedar" but are not in the genus of the true cedars (*Cedrus*).
  - Incense cedar (*Calocedrus decurrens*)
  - Western red cedar (*Thuja plicata*)
  - Port Orford cedar (*Chamaecyparis lawsoniana*)
  - Japanese cedar (*Cryptomeria japonica*)
  - Red cedar (*Juniperus virginiana*)
  - Red cedar (*Toona ciliata*)
  - White cedar (*Melia azedarach*)
  - Salt cedar (*Tamarix ramosissima*)



## Advantages of Scientific Names

- Standardized by the International Code of Botanical Nomenclature
- No two plants share the same scientific name
- All known plants have a scientific name
- Uniform from region to region and from language to language
- Only one correct scientific name



*Cannabis sativa*

## Disadvantages of Scientific Names

- Often difficult to remember
- Written in Latin:
  - sometimes long
  - sometimes hard to spell
  - often hard to pronounce
- Not used by most people
- May change with new knowledge

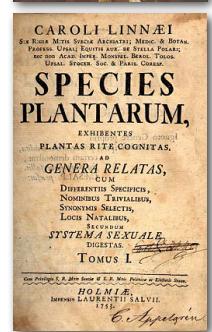


*Mesembryanthemum crystallinum*

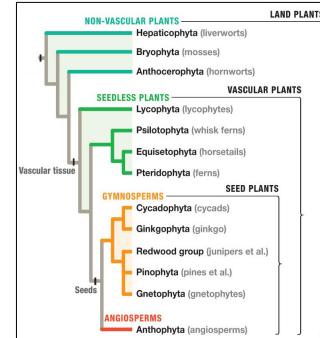
*Ornithostaphylos oppositifolia*  
*Acamptopappus sphaerocephalus*  
*Ornithogalum adseptentrionesvergentulum*

## Development of the Binomial System of Naming Plants

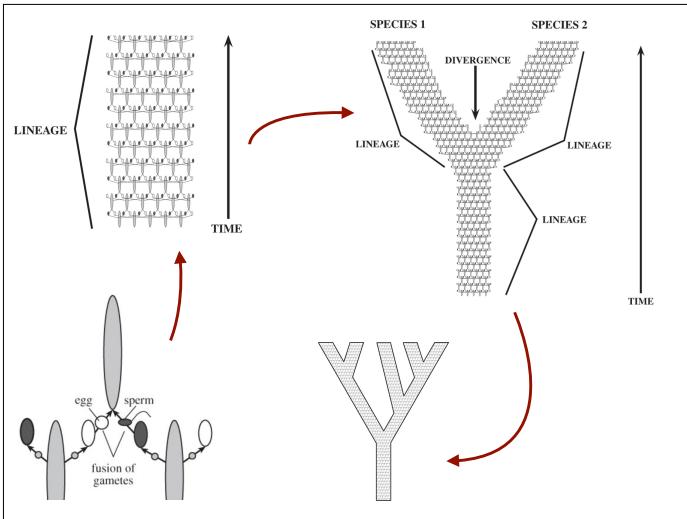
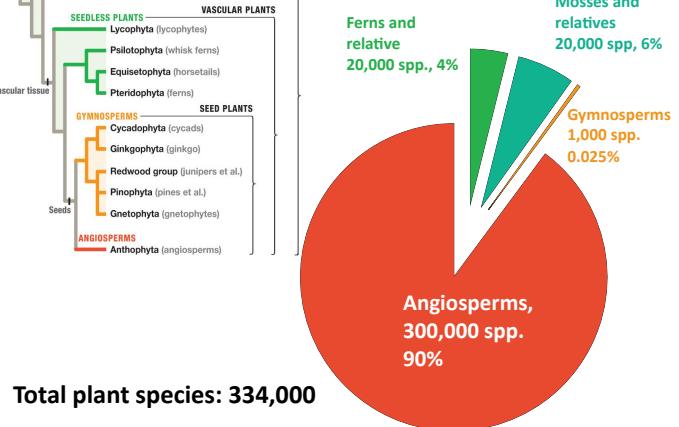
- Carl Linnaeus (1707–1778) - Established Binomial System
- Published *Species Plantarum*, 1753
- Changed the Latin phrases to reflect relationships and placed one to many species in a **genus**
- Abbreviated names to two parts (binomials)



**Genus = group of species w/ shared ancestry and characteristics**

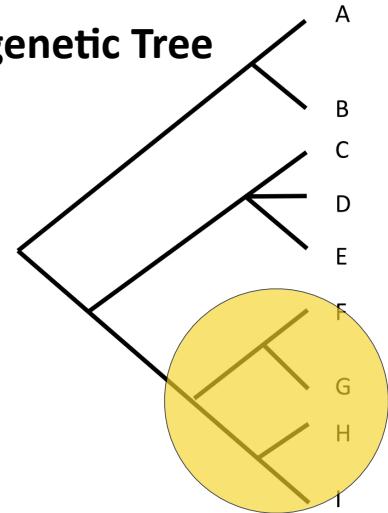


## Plant Diversity



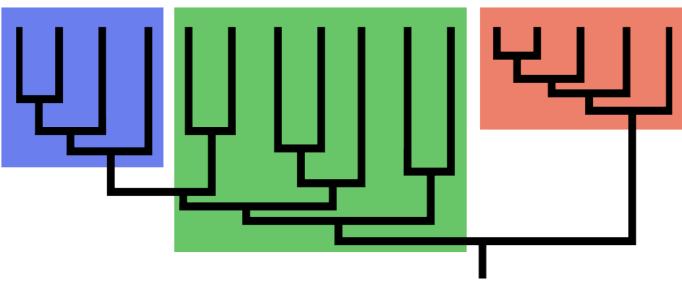
## Phylogenetic Tree

- Best understanding of evolutionary relationships
- The tips are taxa
- Nodes are the common ancestor
- Lines represent time
- Names can be given for **monophyletic** groups



## Monophyletic

- A common ancestor and all of its descendants



## Scientific Names

- The name of a species is a two-word Latin name (a binomial)
- The first word is the name of the genus (plural = genera) to which the plant is assigned
- The second is the specific epithet
- Example — *Ginkgo biloba*





## *Ginkgo biloba*

- Native to Asia, now only known in cultivation
- A “living fossil”
- Dioecious, large tree

