

Tree Taxonomy and Names



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What is taxonomy?



- The practice and science of classification
- Tree taxonomy – classifying trees botanically
- Usually classify by anatomy, especially flowers and fruit; sometimes vascular, etc.
- Often ecological similarities at family level and below

Why do it?

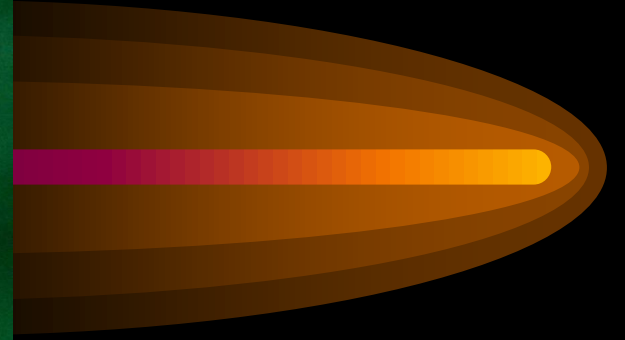


- Humans are classifiers
- Knowing tree taxonomy let's you predict...
 - what tree will look like
 - how big it will get
 - how it will react to environment
- The more precisely you can classify, the more precisely you can predict these things

Maple Example



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- ‘Rocky Mountain Glow’ canyon maple – so-so fall color, tree form



Taxonomic Levels – Canyon Maple



- Kingdom Plantae (Plants)
 - Division Magnoliophyta (Angiosperms; flowering plants)
 - Class Magnoliopsida (Dicotyledons)
 - Subclass Rosidae (many orders; showy flowers)
 - Order Sapindales (many families – citrus, cashew, etc.)
 - Family Aceraceae (2 genera – *Acer*, *Dipteronia*)
 - Genus *Acer* (120 species of maples)
 - Species *Acer grandidentatum* (canyon maple)
 - Variety ‘Rocky Mountain Glow’

Family

- Always end in “aceae” (pronounced ay-see-ee)
- Usually also a common name
- Not italicized
- Named for most typical genus
 - Aceraceae (*Acer* – maples)
 - Pinaceae (*Pinus* – pines; also *Abies*, *Picea*, *Larix*, etc.)
 - Fagaceae (*Fagus* – beeches; also *Quercus*, *Castanea*)
 - Cupressaceae (*Cupressus* – cypresses; also *Juniperus*, *Chamaecyparis*, *Thuja*, *Calocedrus*)

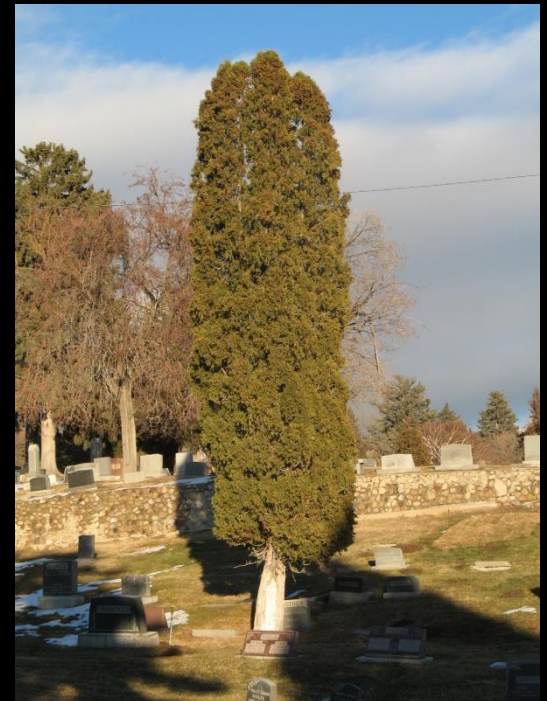
Family

- Sometimes significant ecologically, culturally
 - Most Oleaceae (*Olea*, *Fraxinus*, *Chionanthus*, *Syringa*, *Forsythia*) drought hardy, shade intolerant, borer-prone



Family

- Sometimes significant ecologically, culturally
 - Many Cupressaceae (*Cupressus*, *Juniperus*) drought hardy, shade intolerant, but not *Thuja*, *Chamaecyparis*



Genus

- “Genus” singular, “genera” plural
- Usually also a common name
- Always italicized and first letter capitalized
- Example: witch-hazel
genus is *Hamamelis*
(family Hamamelidaceae)



Genus

- More likely significant ecologically, culturally
 - Most oaks (*Quercus*) drought tolerant



Genus

- More likely significant ecologically, culturally
 - Most firs (*Abies*) shade tolerant, moisture-loving



Genus

- More likely significant ecologically, culturally
 - All willows (*Salix*) shade intolerant, need moisture, I&D prone



Species

- “Species” singular AND plural (no “specie”)
- Always combined with genus
 - “Mike” not useful unless combined with “Kuhns”
 - *virginiana* not useful unless used w/ *Pinus* or *Quercus*
- Always italicized or underlined
- Never capitalized
- Often end in “ii” (pronounced ee-eye)
 - *Quercus muehlenbergii*
- Very ecologically significant (all *Abies concolor* are tolerant of shade, but less so than *A. lasiocarpa*)

Latin or Scientific Names, Binomials

- 2 part name – Genus + species
 - Together called Latin name or binomial, or just species
 - *Pseudotsuga menziesii*
- Latin for consistency
- One agreed-on name for each species
- Latin from features, geography, discoverers, etc.
 - pseudo = false
 - tsuga = hemlock genus
 - Archibald Menzies first described the species

Author or Citation

- Sometimes person(s) who most recently named the species are cited afterward
- Can get quite complicated
- *Pseudotsuga menziesii* (Mirb.) Franco
 - Mirbel named the species; Franco revised the classification into varieties

Cultivars, Varieties

- Latin (may be italicized, but should not) or English name in single quotes after species
- May have cv. or var. in front of it (*Populus tremula* cv. 'Erecta')
- Subdivides species (also are varieties, sub-species, etc.)
- Cultivar defined as “cultivated variety”
 - Cultivated true to form (grafted, etc.)

Acer saccharum
'Columnare' –
Sugar Maple



Catalpa binonooides
'Nana' –
Southern
Catalpa



Thuja plicata 'Zebrina'

—

Western Redcedar



Chamaecyparis pisifera
'Golden Mop' –
Sawara Falsecypress



Common Cultivar Names

- Color – Alba, Aurea, Glauca, Nigrum, Rubra
- Shape – Columnare, Globosum, Pendula, Pyramidalis, Stricta
- Size – Nana
- Other – Filifera, Variegata, Oculus-draconis

Pinus densiflora 'Oculus-draconis'
Japanese red pine 'Dragon's Eye'



Hybrids

A decorative graphic consisting of a horizontal bar with a color gradient from dark blue on the left to bright yellow on the right. To the right of the bar is a large, stylized comet or oval shape with a brown-to-yellow gradient, pointing towards the right.

- Genetic crosses between two species
- Usually in same genus
- Indicated by X
- Human-made or natural hybrids

Hybrid Examples – Interspecific

silver maple
(*Acer saccharinum*)



red maple
(*Acer rubrum*)



Acer X freemannii 'Autumn Blaze'

Hybrid Examples – Interspecific



Oriental sycamore
(*Platanus orientalis*)



American sycamore
(*Platanus occidentalis*)



London planetree (*Platanus X acerifolia*)

Hybrid Examples – Interspecific

lily magnolia
(*Magnolia liliiflora*)

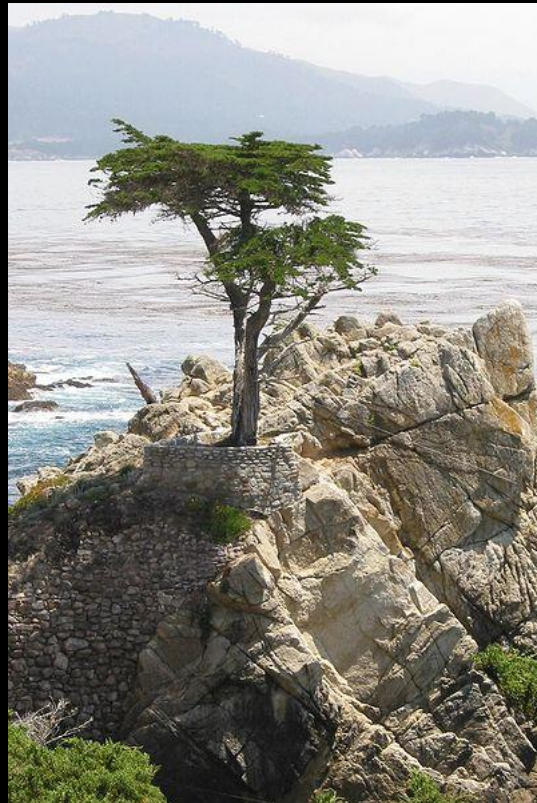


Yulan magnolia
(*Magnolia denudata*)



saucer magnolia (*Magnolia X soulangiana*)

Hybrid Examples – Intergeneric



Monterey cypress
(*Cupressus macrocarpa*)



Nootka cypress
(*Chamaecyparis nootkatensis*)



Leyland cypress
(X *Cupressocyparis leylandii*)

Common Names



- Many names for one species
 - *Pseudotsuga menziesii* called Douglas-fir, Douglas fir, red fir, red pine
- One name can refer to more than one species
 - Red pine used for *P. menziesii* & *Pinus resinosa*
- Vary regionally; confusing
- Examples: pine, boxelder, redcedar, red maple

Common Names



- If hyphenated or run together...
 - Often indicates misleading common names
 - Douglas-fir, boxelder, mountain-ash, etc.

Communication and Professionalism



- Latin names can sound uppity, academic, snobbish but...
 - ...knowing and appropriately using them is useful for clear communication; part of professionalism
- Mechanics don't say "hand me that whatchamacallit wrench so I can take off this thingey" (not good mechanics)

References



- USU Extension Forestry
 - <https://forestry.usu.edu/>
- USU Tree Browser
 - www.treebrowser.org
- Dendrology at Virginia Tech
 - <https://dendro.cnre.vt.edu/dendrology/>
- Plants Database
 - plants.usda.gov/index.html

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