

PLANT ANATOMY Lecture 21 - Wood and Summary of Primary and Secondary Stem Growth

- I. Study of wood - dendrochronology (focus on xylem)**
 - A. The annual rings as affected by environment**
 - 1. One cycle of large & small secondary xylem = 1 year
 - a) Large tracheary elements during spring (early) growth
 - b) Small tracheary elements during summer (late) growth
 - 2. Extent of growth is indicative of environment
- II. Types of wood**
 - A. Softwood (very few fibers) - limited to gymnosperms**
 - 1. Usually soft, although some species like cypress actually have very hard wood
 - 2. Usually has only tracheids
 - 3. Usually only has uniserate rays
 - B. Hardwood (many fibers) - limited to dicotyledonous angiosperms**
 - 1. Usually hard, although some species like balsawood actually have very soft wood
 - 2. Has sapwood and heartwood
 - a) Sapwood: new xylem and some of the new phloem lasts up to 10 years
 - b) Heartwood: old xylem gets tyloses, lignin, polyphenolics to prevent decay
 - 3. Has tracheids and vessels
 - a) Vessel structure can be used to identify some wood
 - 1) If vessels are uniform in size throughout the growth period, the wood is said to be diffuse porous (*Acer, Cornus, Halesia, Magnolia, Populus, Salix*)
 - 2) If vessels are large in early spring and get smaller in the summer, the wood is said to be ring porous (*Carya, Cercis, Fraxinus, Maclura, Sassafras, Quercus*)
 - 4. Has multiserate rays
- III. Summary of primary and secondary stem growth**

