DENDROLOGY WOOD ANATOMY LAB III

I. The first part of this exercise will acquaint you with fundamental anatomical features of gymnosperm wood. The numbers in (parentheses) following each feature below refers to the slide number in the box labeled Gymnosperm Wood Demos. The numbers in [brackets] refer to the specimen numbers in the wood identification collection. You will find the on-line help in the Gymnosperm Wood component of the MUDES of use during this exercise.

PLEASE RETURN ALL SLIDES TO THEIR APPROPRIATE SLOTS AND BOXES WHEN YOU ARE DONE VIEWING THEM.

Specific objectives for you to strive to master include: a) What section (transverse X, radial longitudinal R, or tangential longitudinal T) is best to use in assessing a particular character state? Hints are provided via abbreviations in the outline below. b) What are the features associated with each character that will permit you to classify the state of that character?

GENERAL FEATURES

Spring to summer wood transition in growth rings

Abrupt Spring - Summer wood transition. Hard Pines (2) X [29]
Gradual Spring - Summer wood transition. Picea (7) X [25]

Other general features are best determined by inspection of solid wood samples and application of common sense.

Heartwood colored Juniperus Wood Block [22]
Distinct odor Juniperus Wood Block [22]
Distinct taste Taxodium Wood Block [24]
Greasy Taxodium Wood Block [24]

LONGITUDINAL TRACHEIDS

Pits > 1 seriate, opposite Pseudotsuga (14) R [27]
Spirals in earlywood Pseudotsuga (14) RT [27]
Notched pit borders Sequoia (9) R [23]
Pits with tori extensions Tsuga (12) R

LONGITUDINAL PARENCHYMA

Parenchyma present Chamaecyparis (8) XRT Juniperus [22]
Parenchyma abundant Chamaecyparis (8) XRT Juniperus [22]
Parenchyma end-walls nodular Taxodium (10) T [24]

RAY TRACHEIDS

Smooth Ray Tracheids Larix (4) R [26]
Minute Dentate Ray Tracheids Picea (7) R [25]
Average Dentate Ray Tracheids Pinus resinosa (11) R
Reticulate Dentate Ray Tracheids Pinus echinata (2) R [29]

RAY PARENCHYMA

Horizontal Walls

Thin Taxodium (10) R [24]
Unpitted Taxodium (10) R [24]
Well pitted Picea (7) R [25]

Other features

Wall corners thickened Sequoia (9) T [23]
End walls nodular Pseudotsuga (14) R [27]
> 30 cells high Sequoia,Taxodium (9,10) T [23,24]
Crystals present Abies (15) R

CROSS-FIELD PITS

1-3 Pinoid Soft pines (1) R [28]
1-6 Pinoid Hard pines (16) R [29]
Piceoid Picea (7) R [25]
Cupressoid Chaemaecyparis (8) R [22]
Taxodioid Taxodium (10) R [24]

RESIN DUCTS

Vertical Pinus (1) XRT [28]
Horizontal Pinus, Pseudotsuga (1,14) XRT [28,27]
Thick epithelial cell walls Pseudotsuga (14) XRT [27]

Number of epithelial cells / horizontal canal

5-6 Pseudotsuga (14) T [27]
7-12 Larix (4) T [26]

II. Keying woods

Use the Gymnosperm Wood Component of the MUDES to identify specimens [22] through [29] in the wood identification collection.

ULTIMATE OBJECTIVE: YOU WILL BE ABLE TO IDENTIFY 8 GENERA OF SOFT (GYMNOSPERM) WOOD EITHER BY SIGHT OR BY MICROSCOPIC IDENTIFICATION BY THE END OF THIS LABORATORY EXERCISE.

PLEASE RETURN ALL SLIDES TO THEIR APPROPRIATE SLOTS AND BOXES WHEN YOU ARE DONE VIEWING THEM.