

## Pteridophytes *sensu lato*

Pteridophytes *sensu lato* (ferns, fern allies, & lycopods) comprise the basal grade of vascular plants. Unlike the seedplants, pteridophytes s.l. are free-sporing, seedless and pollenless. The lycopods comprise the most phylogenetically distant clade of vascular plants and are characterized by vascular plant plesiomorphies of microphyllous leaves and dichotomous branching. The ferns & fern allies comprise a morphologically diverse clade marked by the vascular plant apomorphy of macrophyllous leaves except where these were secondarily reduced in the horsetails and whisk-ferns.

### **I. Families to Know on Sight (no keying allowed for lab quizzes or final)**

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#### **A. Lycopodiaceae** (lycopods, lycophytes, club-mosses) – p. 63

Diagnostic Summary of Extant Species: Stoloniferous or rhizomatous herbs with numerous spirally arranged microphylls and dichotomously branched stems; sporangia in terminal strobili or in the axils of leaves.

#### **B. Equisetaceae** (horsetails & scouring-rushes) – p. 73

Diagnostic Summary of Extant Species: Rhizomatous herbs with hollow, ribbed, silicaceous green stems; Leaves minute & inconspicuous, connate, in whorls at nodes; branches (if any) whorled or opposite; sporangia in terminal strobili on aerial stems.

#### **C. Polypodiaceae *sensu lato*** (ferns) – p. 78

Diagnostic Summary: Rhizomatous, locally acaulescent herbs (tree ferns in some tropical locales) with rosettes of pinnate to bipinnate (simple) leaves (“fronds”) with dichotomous venation; flowers and strobili lacking, sporangia borne in sori on the undersides of leaves or on specialized and highly modified fertile leaves.

### **II. Genera to Know (you can write your own key to genera and use on lab final)**

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#### **A. Equisetaceae** – p. 73

1. *Equisetum* (herbs)

6. *Asplenium* (herbs)

7. *Dennstaedtia* (herbs)

#### **B. Lycopodiaceae** – p. 63

2. *Diphasiastrum* (herbs)

8. *Dryopteris* (herbs)

3. *Huperzia* (herbs)

9. *Onoclea* (herbs)

4. *Lycopodium* (herbs)

10. *Polypodium* (herbs)

11. *Polystichum* (herbs)

12. *Pteridium* (herbs)

#### **C. Polypodiaceae s.l.** – p. 78

5. *Adiantum* (herbs)

### **III. Some Economic Botany**

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- Coal is responsible for 60% of the electricity generated in the US, and most coal is the fossilized remains of Carboniferous horsetails, lycopods, and ferns.
- Lycopodiaceae includes several species (e.g., *Lycopodium* spp.) used historically as a source of flammable spores used in flash powder and theatrical pyrotechnics.
- Polypodiaceae *sensu lato* are a source of numerous ferns in ornamental horticulture. Some have limited use for their edible fiddleheads (e.g., the ostrich fern, *Matteuccia struthiopteris*) but, since many or most are poisonous, one must be cautious when collecting and consuming such products.