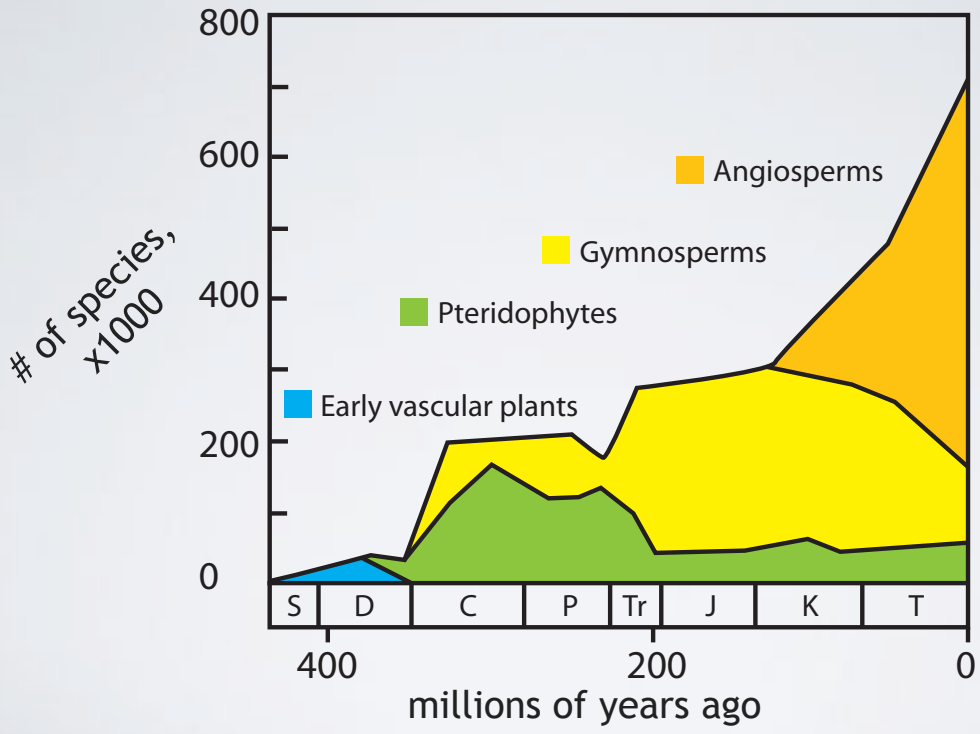
# Fern Biology & Natural History

Important points:

- Ferns are very diverse, both morphologically and in the habitats they occupy.
- Ferns are ancient - the first fossils are from ~380 million years ago.
- They are the sister group to the seed plants.
- The most important identifying characters are: the level of leaf division, shape of sori and presence/absence of indusium covering, and whether hairs and/or scales are present.
- Ferns do not have seeds, flowers, or fruits, but reproduce using spores which later germinate into gametophytes, which are sexual.

## Fern Evolution and Diversification



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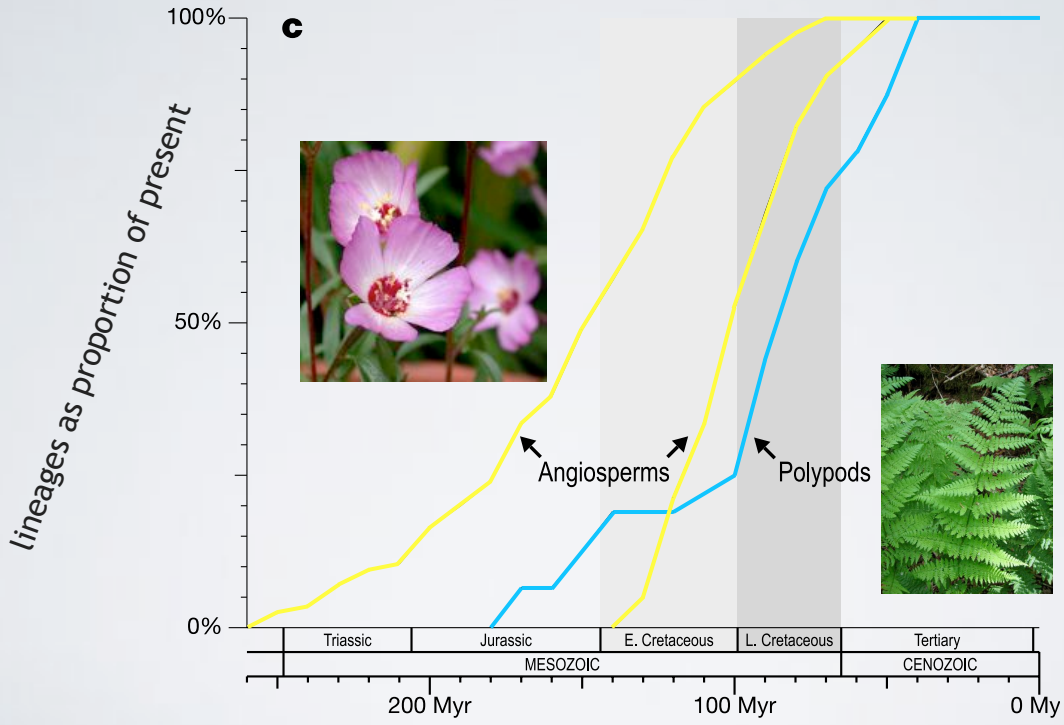
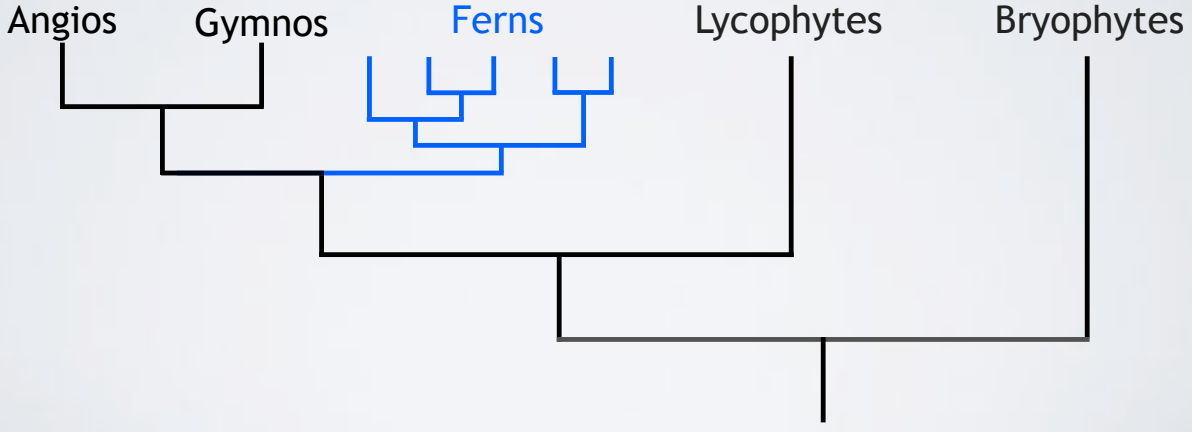
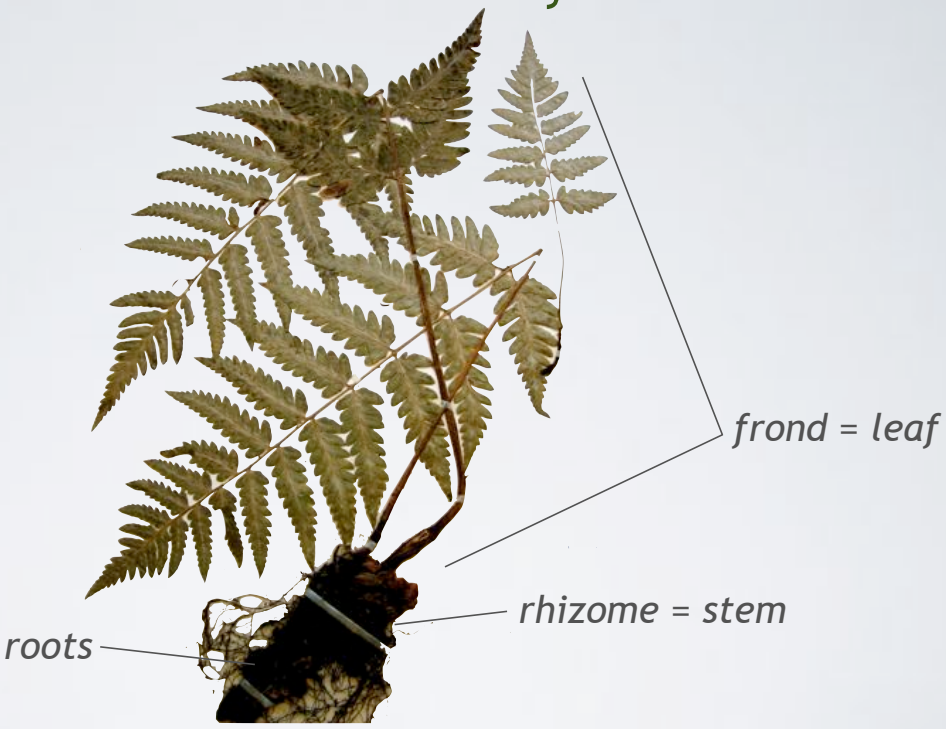



# Land Plant Lineages



## Basic Fern Anatomy

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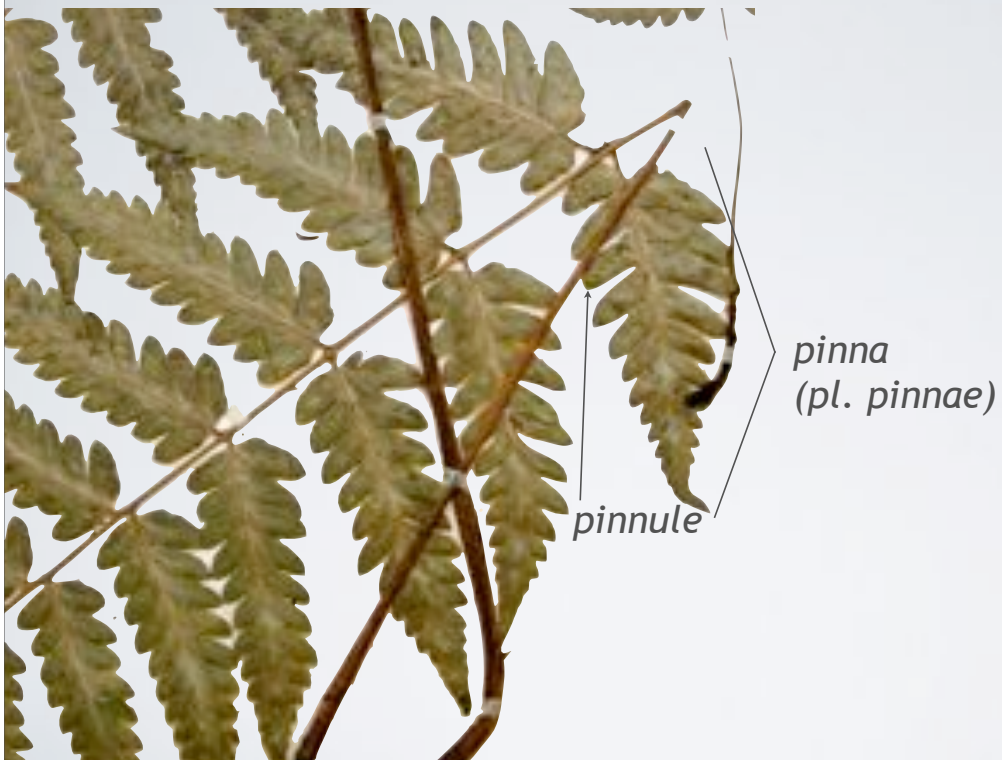

# Basic Fern Anatomy


# Leaf Divisions in Ferns

Entire

Once pinnate

Twice pinnate

Twice pinnate-pinnatified

*Onoclea sensibilis* • Sensitive Fern

*Osmundastrum cinnamomea* • Cinnamon Fern

*Osmunda claytoniana* • Interrupted Fern


*Equisetum* sp. • Horsetails


*Adiantum pedatum* • Maidenhair Fern

*Athyrium filix-femina* • Lady Fern

*Matteuccia struthiopteris* • Ostrich Fern

*Pteridium aquilinum* • Bracken Fern

*Polystichum acrostichoides* • Christmas Fern