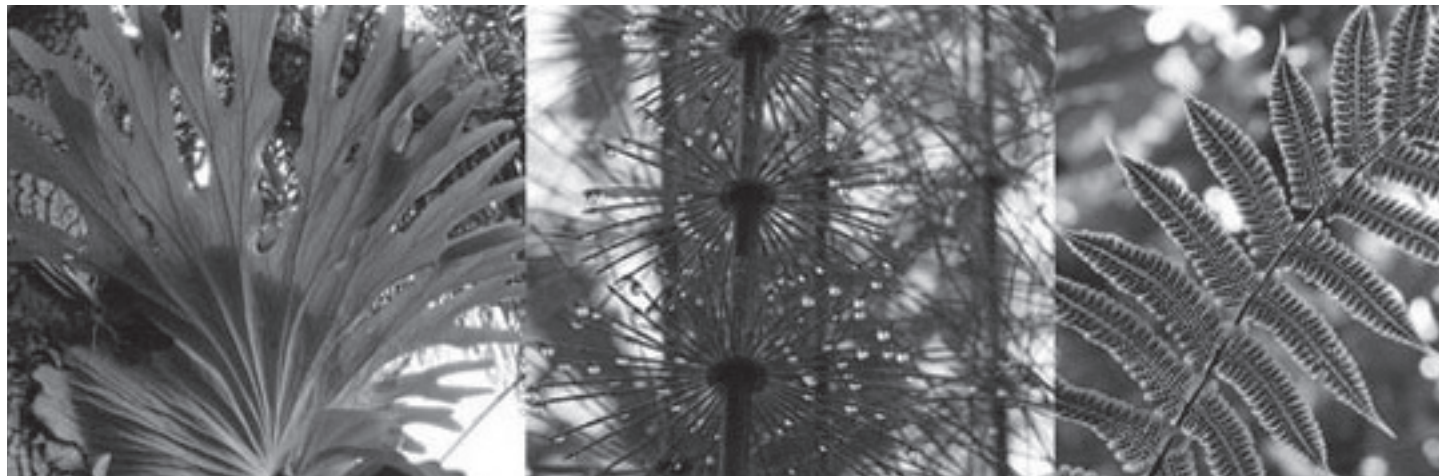


## Ferns (*Pteridophytes*)



### ¿What are they?

The ferns and horsetails (*Pteridophytes*) are vascular plants which produce no flowers or seeds, but reproduce via spores. They are sometimes considered to be an "inferior" vascular plant. Their vascular tissues (*xylem and phloem*) are arranged in bundles that conduct water, food and minerals. While many have stems and roots, for others the stem consists of creeping rhizomes with adventitious roots (Jones, 1987).

This group is one of the oldest of the current day vascular plants, since its earliest records date from the Devonian Period of the Paleozoic Era and its heyday was in the late Mesozoic (Cretaceous period).

In this Division are grouped ferns (*Class: Polypodiopsida*, *Class: Marattiopsida*), the clubmosses, Isoetes and selaginella (*Class: Lycopodiopsida*), the psilotum (*Class: Psilotopsida*) and equisetum or horsetail (*Class: Equisetopsida*).

### ¿How many are there?

Currently there are an estimated **10,000** species worldwide, concentrated in tropical areas with diverse environments (Mickel and Smith, 2004). Mexico has one of the most diverse fern floras of the world and one of the widest

10,000  
species in the  
world  
  
1,008  
species in  
Mexico

latitudinally, being composed of approximately **124** genera and **1,008** species and 16 infraspecies. Of the total number of species, **186** are endemic (Mickel and Smith, 2004).

The Mexican fern flora is more than just a combination of species of the western United States and Central America: it is a complex taxonomic mix that includes genera whose centre of origin is in Mexico. It is also noteworthy that the genera with the highest percentage of endemism in Mexico live in seasonally dry environments.

### Where do they live?

In general they are found in moist, shady areas, although there are species adapted to a wide range of habitats such as tropical, cloud, and dry temperate forests and various dry environments. Among the ferns, there are terrestrial, rupicolous, epiphytic, aquatic and arboreal species. The horsetails, club mosses and selaginellas generally require high humidity to survive.

## Ferns (*Pteridophytes*)



### ¿How are they?

The ferns and horsetails have widely varying forms including prostrate, erect, climbing, epiphytic and aquatic. The ferns can be distinguished by the division of their fronds (pinnate, bipinnate). The horsetails are evergreen shrubs with segmented stems that resemble those of reeds. Twigs emerge from each segment like spokes on a bicycle wheel. The club mosses and selaginellas are small creeping plants.

### How do they live?

The ferns and related plants have two life cycle stages: the sporophyte and gametophyte. The sporophyte is the stage we commonly recognize as a fern.

It has large fronds (primitive leaves) that may be pinnate, bipinnate, tri- or tetra-pinnate (by the number of divisions). Some of the fronds have sori, which are the structures where spores are produced. These spores are wind dispersed and give rise to the second stage: the gametophyte, which is

poorly known due to its small size of less than 2 cm. This tiny heart-shaped plant, known as a "prothallus", has female (archegonia) and male (anterioridios) sex organs on its lower structure, and is the stage in which sexual reproduction occurs. How do we use them?

They are cultivated primarily as ornamental plants. In many places ferns are sold to decorate houses. Tree ferns have been heavily impacted because their trunks, known as "maquique", have been utilized as a substrate for orchids.

### How can you help?

Several species of tree fern (*Cyathea costaricensis*, *Nephelea Mexicana*, *Dicksonia regalis*, *D. schiediei*), sword fern (*Nephrolepis cordifolia*) and selaginella (*Selaginella porphyspora*) are considered in Danger of Extinction and various ferns, club mosses and psilotums are Threatened. Do not buy ornamental plants if you do not know their legal origin. Do not buy maquique.

