Day 12 Plant Fossils Key

Fossil 7: ***Fagus sylvatica pliocenica***

URL: https://commons.wikimedia.org/wiki/File:Fagus_sylvatica_pliocenica_MHNT.PAL.VEG.2002.31.jpg;
Attribution: Muséum de Toulouse, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons

About Fagus sylvatica pliocenica:

- Approximate fossil time period: 3.6–2.58 MYA
- The leaf is ovate shaped with slightly crenate margins and parallel leaf veins.
- Climate was very wet and warm; sea levels were high.
- *Fagus sylvatica* is a European deciduous beech tree native to temperate forests in Europe, as well as temperate North America and Asia.
- Beech trees are angiosperms that flower and produce beechnuts.

Living *Fagus sylvatica pliocenica*

URL: https://commons.wikimedia.org/wiki/File:Fagus_sylvatica_leaf_001.jpg
Attribution: Willow, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons

Fossil 12: cycad (L) and fern (R)

URL: https://commons.wikimedia.org/wiki/File:Early_Cretaceous_Plant_Fossils.jpg
Attribution: Georgialh, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons

About cycads and ferns:

- Approximate fossil time period: 165–00.5 MYA
- Both the cycad (gymnosperm/vascular plant) and fern (vascular plant) have simple pinnate-arranged leaves.
- Cycad leaves are subulate shaped, thin, and taper upward to a point. Fern leaves appear ovate, more cylindrical, with a tapered end and flat base.
- At the beginning of this time period, the climate was warm and wet, with vast tropical areas. By the end of this time period, the climate began heating up and reached levels much warmer than present day. Sea levels were high.

Living cycad

URL: https://commons.wikimedia.org/wiki/File:Cycad_leaves_semicircle.jpg
Attribution: Ian Alexander, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons

Living fern

American royal fern (*Osmunda spectabilis) has leaves similar to the fossil fern.*
URL: https://commons.wikimedia.org/wiki/File:Osmunda_spectabilis_close_up.jpg
Attribution: Ushakaron, CC0, via Wikimedia Commons

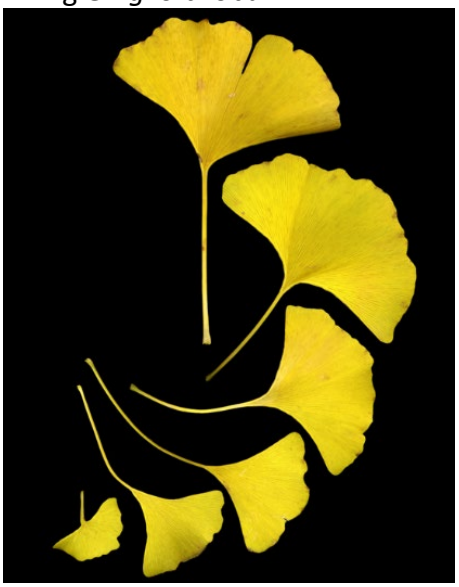
Fossil 20: ***Gingko biloba***

URL: https://commons.wikimedia.org/wiki/File:Ginkgo_biloba_MacAbee_BC.jpg
Attribution: User:SNP(upload to en:wikipedia) ; User:tangopaso (transfer to Commons), CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons

About Gingko biloba:

- Approximate fossil time period: 56–33.9 MYA
- Gingko biloba leaves are flabellate (fan shaped). Veins are dichotomous, forking into pairs from the base of the leaf.
- The climate during this time period ranges from the warmest to the coldest. Ice begins to form at the polar regions around 34 MYA.
- *Gingko biloba* is a gymnosperm

Living *Gingko biloba*



URL: https://commons.wikimedia.org/wiki/File:GinkgoLeaves.jpg
Attribution: Joe Schneid, Louisville, Kentucky, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons

Fossil 5: *Annularia stellate*

URL: https://commons.wikimedia.org/wiki/File:Annularia_Stellata.jpg
Attribution: Woudloper, Public domain, via Wikimedia Commons

About *Annularia stellate:*

- Approximate fossil time period: 310–280 MYA
- *Annularia stellate* leaves are arranged in whorls, similar to *Equisetum telmateia* (horsetails.)
- Three or more elongated spatulate leaves arranged in whorls radiate out from a central point, such as a stem.
- Leaves have one single vein.
- The climate was warm, with swampy land and dense forests.
- *Annularia stellate* is an extinct vascular horsetail plant.

Living horsetail plant

URL: https://commons.wikimedia.org/wiki/File:Equisetopsida.jpg
Attribution: Rror, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons

Fossil 1: ***Dillhoffia cachensis***

URL: https://commons.wikimedia.org/wiki/File:Dillhoffia_cachensis_SR_92-17-20_1.jpg
Attribution: Kevmin, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Common

About Dillhoffia cachensis:

- Approximate fossil time period: 49.5 MYA
- The fossil shows two funnel-shaped sepals (calyces): a smaller, more complete one on the upper left, and a larger, fragmented one. The darkened areas are fruit: the longer one is from *Dillhoffia,* and the others are stray fruits. There are no petals present.
- Climate around this time period saw a decline in global temperatures, from a very warm to a cooler Earth.
- *Dillhoffia* is an extinct flowering plant (angiosperm).

Funnel-shaped sepals on a live tomato plant

https://commons.wikimedia.org/wiki/File:Tomato_fruit_and_flowers_at_day_52.jpg
Dennis Brown, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons

Fossil 17: Stromatolites

URL: https://commons.wikimedia.org/wiki/File:Stromatolites_hoyt_mcr1.JPG
Attribution: https://upload.wikimedia.org/wikipedia/commons/d/d7/Stromatolites_hoyt_mcr1.JPG

About Stromatolites:

- Approximate fossil time period: 541–485 MYA
- Fossils are made up of vertically stacked (layered), circular stromatolites.
- At this time, Earth's climate was generally cold, becoming warmer towards the end of the time period when sea levels rose due to melting glaciers. Land was bare; no plants.
- Microscopic cyanobacteria (blue-green algae) formed the stromatolites.

Living stromatolites

URL: https://commons.wikimedia.org/wiki/File:Stromatolites_in_Sharkbay.jpg
Attribution: Paul Harrison, CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons

Fossil 26: Lycopod

URL: https://commons.wikimedia.org/wiki/File:Lycopod_axis.jpg
Attribution: Kennethgass, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons

About lycopods:

- Approximate fossil time period: 410–360 MYA
- Fossil shows branching stems and simple leaves called microphylls. Leaves are small and elliptic, arranged in spirals or whorls. Some appear scalelike.
- Much of the land during this fossil time period was under shallow seas, and the climate was warm.
- This is a branch from a tree-sized lycopod. Lycopods (club mosses), along with horsetails and ferns, are relatives of the earliest vascular plants.
- Living lycopods are small, but they once grew into huge, now-extinct trees.

Living lycopod

URL: https://commons.wikimedia.org/wiki/File:Lycopodium_plant.jpg
Attribution: Eric Guinther, CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>, via Wikimedia Commons