

Stratification refers to the vertical layering of a **habitat**; the arrangement of **vegetation** in layers.

It classifies the layers of vegetation largely according to the different heights to which their **plants** grow.

The individual layers are inhabited by different animal and plant **communities** (stratozones).

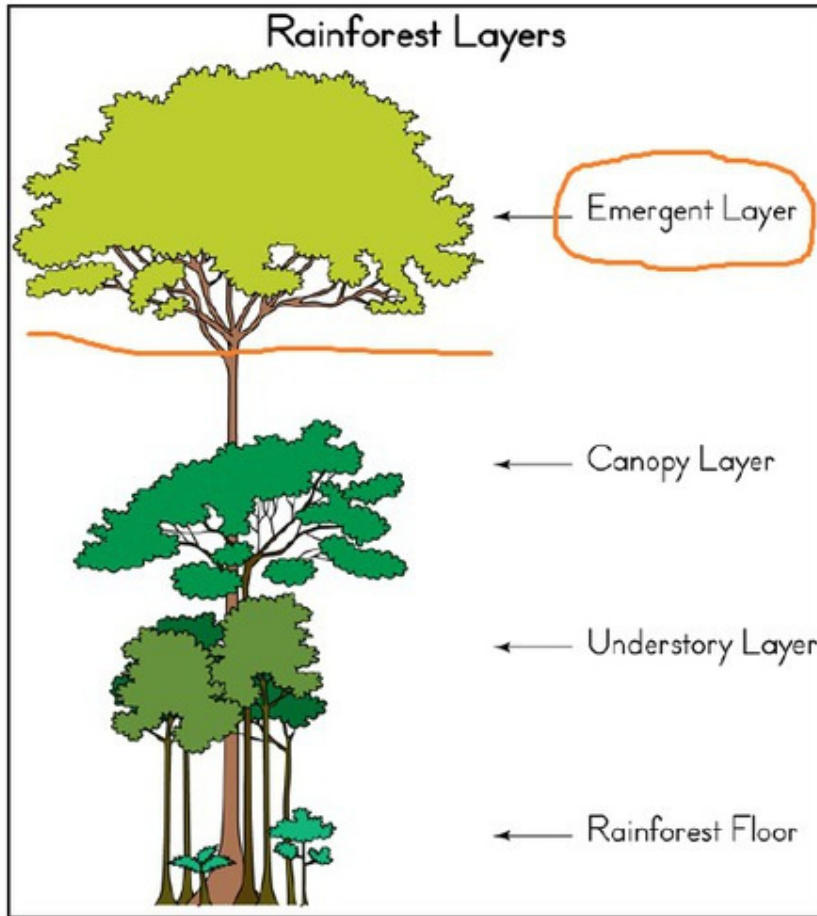
The following layers are generally distinguished: forest floor (root and moss layers), herb, shrub, understory and canopy layers.

These vegetation layers are primarily determined by the height of their individual plants, the different elements may however have a range of heights.

The actual layer is characterised by the height range in which the vast majority of **photosynthetic** organs (predominantly **leaves**) are found.

Taller species will have part of their shoot system in the underlying layers. In addition to the above-ground stratification there is also a “root layer”. In the broadest sense, the layering of **diaspores** in the soil may be counted as part of the vertical structure.

The plants of a layer, especially with regard to their way of life and correspondingly similar root distribution interact closely and compete strongly for space, light, water and nutrients.



VERTICAL STRATIFICATION

Tree layer

This layer of vegetation starts from a height of about 5 metres and comprises the top stratum, which consists of [phanerophytes](#). They can be about 45 metres high. The trees (and sometimes shrubs) are of various heights. One tree has its [crown](#) at the height of another's trunk. At the top the crowns of the different species of trees form a more or less closed canopy. This layer creates special ecological conditions in the underlying layers of [forests](#).

The density of the trees determines the amount of light inside the forest. The force of heavy rainfall is reduced by the canopy and the passage of rainwater is fed more slowly downwards.

The tree layer can be further subdivided into the upper tree layer or canopy and the lower tree layer or understory.

Canopy

The canopy usually refers to the highest layer of vegetation in a forest or woodland, made up of the crowns of its tallest trees. However, individual trees growing above the general layer of the canopy may form an [emergent layer](#).

Understory

The understory can refer to those trees above the shrub layer and below the canopy, but is often defined more broadly, including the shrub layer.

Shrub layer

The shrub layer is the stratum of vegetation within a habitat with heights of about 1.5 to 5 metres. This layer consists mostly of young trees and bushes, and it may be divided into the first and second shrub layers (low and high bushes). The shrub layer needs sun and little moisture, unlike the moss layer which requires a lot of water. The shrub layer only receives light filtered by the canopy, i.e. it is preferred by semi-shade or shade-loving plants that would not tolerate bright sunlight. Small to medium sized birds sometimes known as *bush nesters* are often found in the shrub layer where their nests are protected by foliage. European examples include blackbird, song thrush, robin or blackcap. In addition to shrubs, such as elder, hazel, hawthorn, raspberry and blackberry, clematis may also occur while, in other parts of the world, vines and [lianas](#) may form part of this stratum. At the edge of a [woodland](#) the shrub layer acts as a windbreak close to the trees and protects the soil from drying out.

Herb layer

This layer contains mostly non-woody vegetation, or [ground cover](#), growing in the forest with heights of up to about one and a half metres. The herb layer consists of various [herbaceous plants](#) ([therophytes](#), [geophytes](#), [cryptophytes](#), [hemicryptophytes](#)), dwarf shrubs ([chamaephytes](#)) as well as young shrubs or tree [seedlings](#). In forests, early [flowering plants](#) appear first before the canopy fills out. Thereafter, the amount of light available to plants is significantly reduced and only those that are suited to such conditions can thrive there. By contrast, [grassland](#) consists of only [moss](#) and herb layers. Sometimes, a shrub layer builds up in grasslands as part of a process of spontaneous [reforestation](#) ([ecological succession](#)).

Forest floor

The term *forest floor* can refer to the moss and root layers (see below), but often is defined more broadly, including also dead trees, herbaceous plants, mushrooms, and tree seedlings.

Moss layer

Growing on the surface of the forest floor is vegetation of up to about 0.15 metres in height in what is variously described as a moss, soil or [cryptogam](#) layer. The ground itself is covered by a layer of dead plant and animal material. In this layer and the underlying few centimetres of the [topsoil](#) live innumerable small soil organisms such as [bacteria](#), [fungi](#), [algae](#) and [microorganisms](#), which break down the dead organic substances and work them into the soil. In places the ground is covered by [lichens](#) and [mosses](#).

Root layer

Also known as the [rhizosphere](#), the underground area of a plant habitat is the root layer. It consists of the plants' roots and related elements such as [rhizomes](#), [bulbs](#) and [tubers](#).

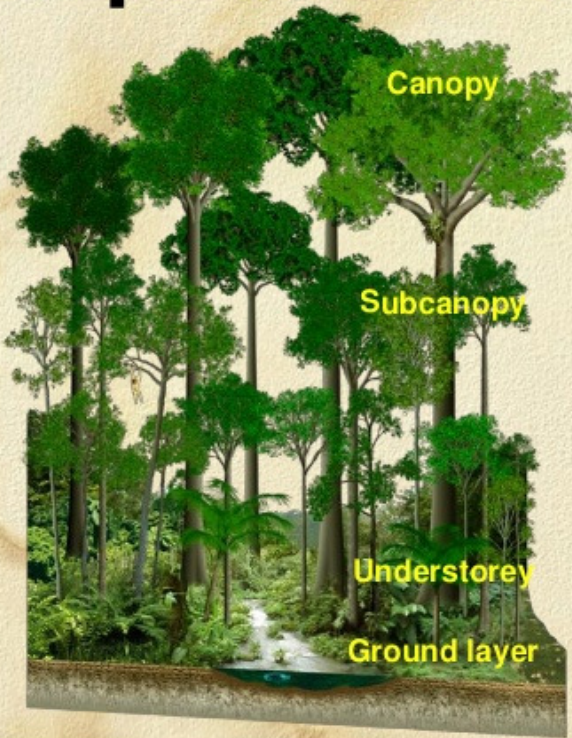
The stratification of a [plant community](#) is the result of long [selection](#) and [adaptation](#) processes.

Through the formation of different layers a given habitat is better utilized.

Strongly vertically stratified habitats are very stable [ecosystems](#). The opposite is not true, because several less stratified vegetation types, such as [reed beds](#), can be very stable.

The layers of a habitat are closely interrelated and at least partly interdependent. This is often the case as a result of the changes in microclimate of the top layers, the light factor being of particular importance.

Tropical Rainforest Structure



🧠 **Tropical rainforests** are complex and can be divided into four distinct **strata** representing zones of different vegetation.

🧠 The strata are:

- Canopy
- Subcanopy
- Understorey
- Ground layer.

🧠 In addition, **epiphytes** (perching plants) and **lianes** (climbing vines) occupy several strata in the forest.