

HYDROSERE

Hydrosere

- **Hydrosere, also called hydrarch involves the ecological succession in the newly formed pond or lake.**

Stages of Hydrosere

Phytoplankton Stage



Rooted Submerged Stage



Rooted Floating Stage



Reed-Swamp Stage



Sedge Meadow Stage

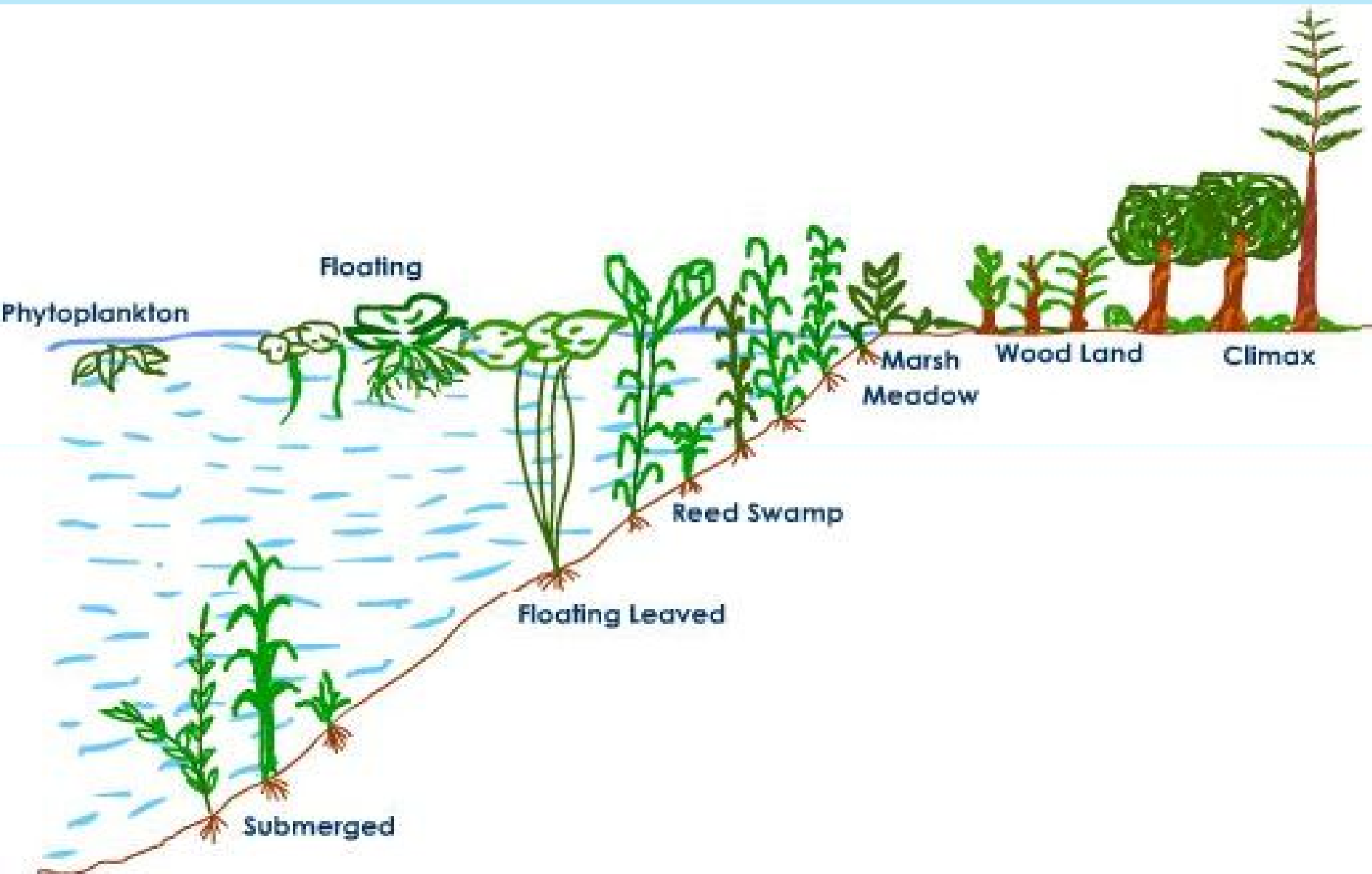


Woodland Stage



Forest Stage

Stages in Hydrosere



Plankton stage

- Germination of encysted spores in the newly formed water body forms the pioneer community, Spores could have reached the water body through wind or animals.
- Planktonic stage includes minute autotrophic diatoms, phytoflagellates, cyanobacteria etc.
- Population of phytoplankton is regulated by zooplanktons.
- Their dead and decomposed organic matter mixes with silt and forms soft mud at the bottom of the pond.



Rooted submerged stage

- Rooted submerged hydrophytes like *Hydrilla*, *Vallisneria*, *Utricularia*, etc. grow on the soft mud.
- Due to death and decay of these plants and deposition of sand and silt, leads to a slow rise in the bottom level (soil layer) of the pond.
- Buried older plants form good humus for next seral stage

Submerged Hydrophytes



Hydrilla



Vallisneria



Utricularia



Chara



Ceratophyllum

Rooted floating stage

- Area is now invaded by species of floating, leaved, anchored plants like *Nymphaea*, *Trapa*, *Monochoria*, *Nelumbo* etc, which help the water become rich in mineral and organic matter.
- Later free floating species like *Azolla*, *Lemna*, *Pistia*, *Eichornia*, etc. appear.
- This rapid growth of plants builds up the pond bottom and makes the water shallower.

Free Floating Hydrophytes



Lemna



Salvinia



Azolla



Pistia



Wolffia

Reed swamp stage

- Also called amphibious stage and plants like *Typha*, *Sagittaria*, *Scripus*, etc., replace the floating plants.
- These plants produce abundant amount of organic wastes and lose huge amounts of water by transpiration.
- Addition of organic matter raises the substratum of the pond and becomes unsuitable for growth of amphibious plants.



Sedge meadow stage

- Also called marsh meadow stage where the area is now made up of plant species like *Carex* (Sedge), *Juncus*, *Diochanthium* and herbs like *Caltha*, *Polygonum*, etc.
- They form a mat like vegetation with their much branched rhizomatous system.
- Finally the marshy vegetation disappears due to the development of mesic conditions.

Plants Sedge Meadow Stage



Wood land stage

- First the peripheral part of the area is invaded by some shrubby plants, which can tolerate bright sunlight and water logged conditions.
- Plants that grow are *Cornus* (Bogwood), *Cephalanthus* (Button brush), etc.
- The next to invade trees are *Populus* (Cottonwood), *Alnus* (Alder), etc. Further fall in the water table, along with mineralisation and soil buildup favours the arrival of plants for next seral community.

Plants Woodland Stage



Forest stage

- It is the formation of climax community, which depends upon the climatic conditions.
- For e.g., tropical deciduous or monsoon forests are formed in regions of moderate rainfall, tropical rain forests in areas with heavy rainfall, mixed forests in temperate regions.

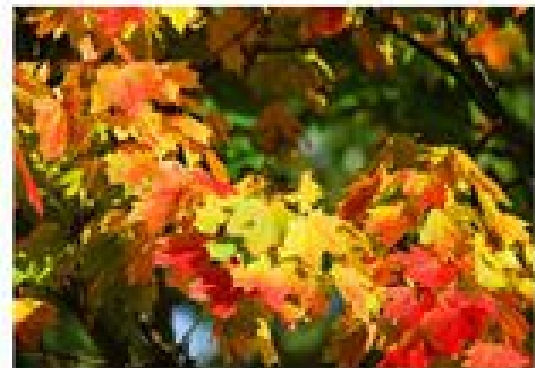
Plants Forest Stage (Climax Community)



Shorea



Quercus



Acer