PROCESS OF ECOLOGICAL SUCCESSION

BY

DR. V. SAI SARASWATHI., M. PHARMA., PH. D.,

ENVIRONMENTAL SCIENCE PROFESSOR,

ASST. PROF. (SR.)

SCHOOL OF ADVANCED SCIENCES

VIT UNIVERSITY

VELLORE- 632014

An overlook

Hult (1885) – He was the first to term succession for the orderly changes in communities.

Clements (1916) while studying plant communities defined succession as the natural process by which the same locality becomes successively colonised by different groups or communities of plants.

Odum (1971) preferred to call this orderly process as ecosystem development rather than the more often known ecological succession.

Definition

Ecological succession is defined as an orderly process of changes in the community structure and function with time mediated through modifications in the physical environment and ultimately culminating in a stabilized ecosystem known as climax. The whole sequence of communities which are transitory are known as *Seral stages* or *seres* whereas the community establishing first of all in the area is called a *pioneer* community.

Types of Ecological Succession

Primary succession

The process of Creating life in an area where no life previously existed.

The soil layer thickens, and grasses, wildflowers, and other plants begin to take over

Secondary Succession

The process of re- stabilization that follows a disturbance in an area where life has formed an ecosystem.

Ecological Succession of Coral Reefs

Small coral polyps colonize the rocks.

These polyps grow and divide to form coral colonies.

The shape of the coral reefs attracts small fish and crustaceans that are food for the larger fish. Thus, a fully functional coral reef exists.

Examples of Succession

Primary

Secondary

Pioneer Species

Lichens break down rock to form soil.

Low, growing moss plants trap moisture and prevent soil erosion

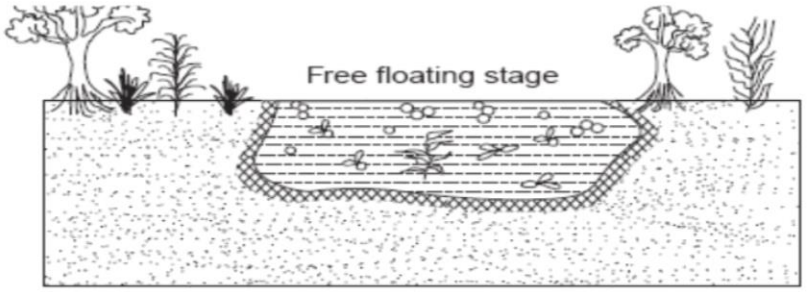
Types of Seres

Hydrosere	Succession in Aquatic habitat.
Xerosere	Succession in Dry habitat.
Lithosere	Succession in Bare rock surface
Psammosere	Succession initiating on Sandy Areas.
Halosere	Succession starting in saline soil.
Eosere	Development of Vegetation in an era.

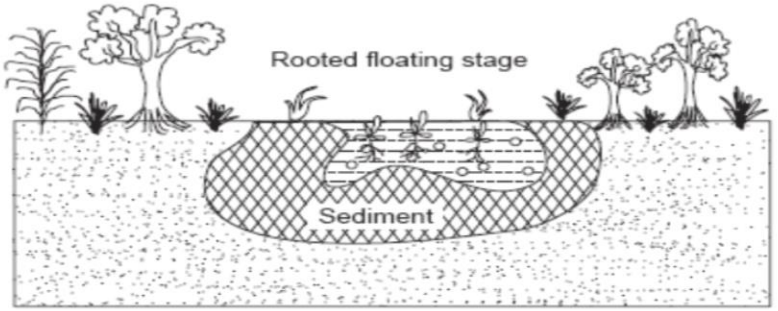
Xerosere (lithosere)

bare rock⟶lichens⟶mosses⟶grasses⟶shrubs⟶trees

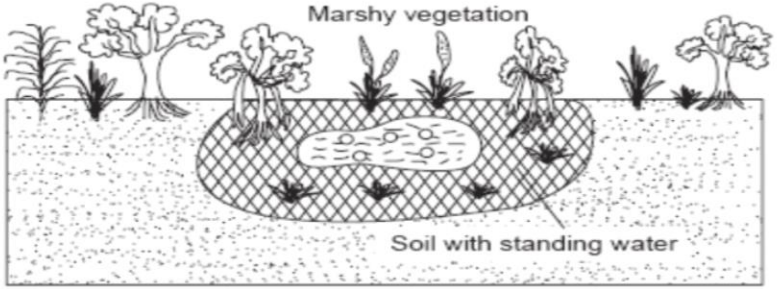
Hydrosere



(*a*) Open water body (lake), sediment brought in by river.



(*b*) Sediment accumulation continues, organic debris from plants too add to soil formation and shrinking of water body occurs.



(*c*) A mat of vegetation covers the water which is mostly a marshy habitat now, with a small part as aquatic system.

Five process

Nudation

Invasion

Competition & Coaction

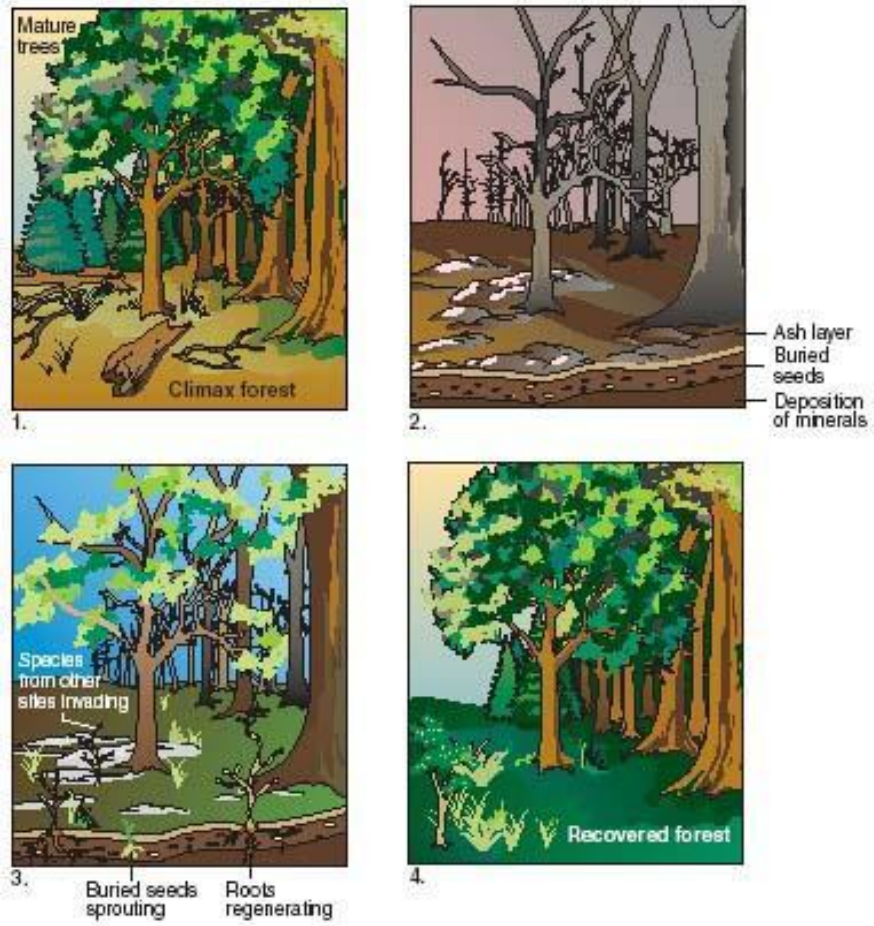
Reaction

stabilization

Nudation

Development of bare area without life forms.

Bare area due to land slides, volcanic, overgrazing etc…



Invasion

Successful establishment of one or more species on a bare area.

Ie. Dispersal of seeds, spores etc.

As they grow, the species increase the numbers and form the groups.

Competition & Coaction

The no. of individuals grows there : **competition, both intra** and inter-specific, nutrition etc.

They influence each other in a no. of ways: coaction

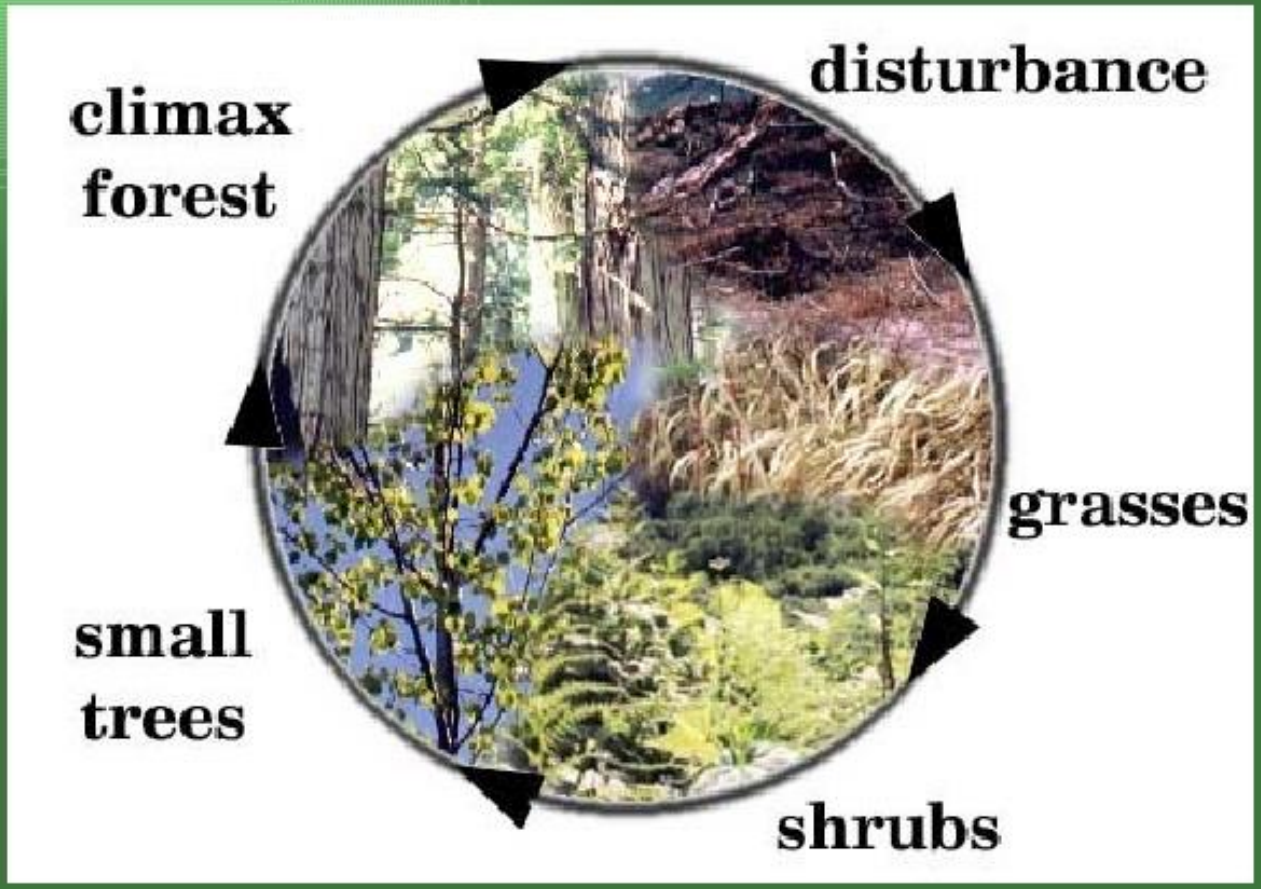
Reaction

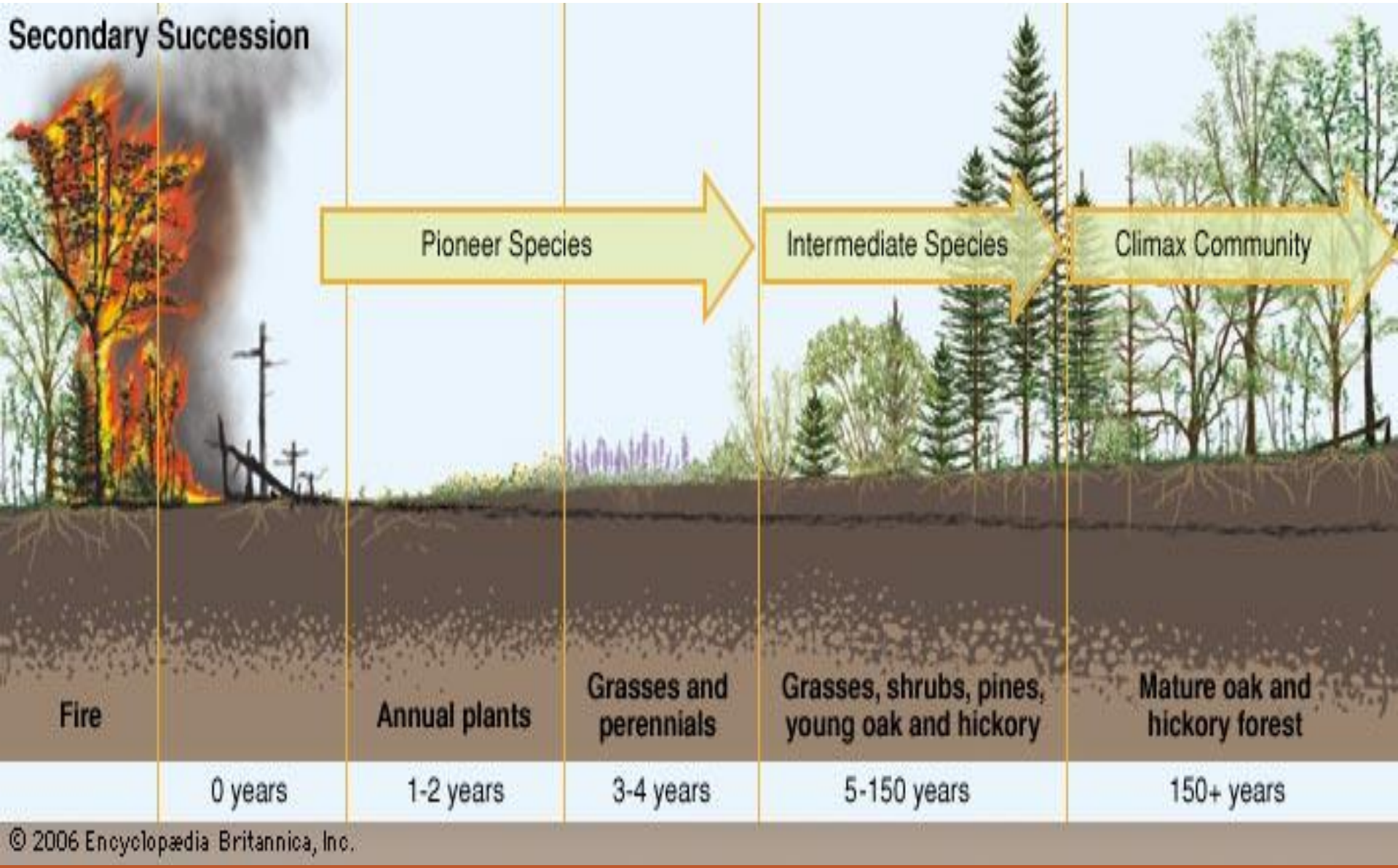
The living organism grow, use water, nutrients from the substratum, in-turn they are influenced by the environment, this is known as **reaction.**

Stabilization

Ultimate culminates in more or less stable community called **climax.**

The Circle of Life in Secondary Succession




Secondary Succession
Pioneer Species
Intermediate Species
Climax Community
Fire
Annual plants
Grasses and perennials
Grasses, shrubs, pines, young oak and hickory
Mature oak and hickory forest
0 years
1-2 years
3-4 years
5-150 years
150+ years
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Threats to ecological succession

The grasses that move in as pioneer species – weeds

Subsequent growth of shrubs – change as brush

Without intermediate stages, the habitat cant return to a natural forest

Stability of community depends various factors.

Ecological Succession Never Ends …….

Thank You