

B.Sc. - Part I, Paper II A.

Topic: Ecological Succession (Part II)

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Secondary Succession (Contd) ---
is usually more rapid than Primary
Succession.

The Primary and Secondary Succession may be of following types based on moisture content -

- (i) Hydrosere :- Succession of Aquatic environment.
- (ii) Mesosere :- Succession in an area with adequate moisture.
- (iii) Xerosere :- Succession on a dryland or desert.

II Based upon driving force of a Succession, Succession may be of two types -

a Autogenic - After beginning of a succession, it is the vegetation and animals that modifies its environment directing the way of succession i.e. when the driving force for succession lies in the community itself, then succession is termed Autogenic.

b Allogenic - when direction of succession move under the influence of external factors, as inputs of nutrients, called allogenic Succession.

Furthermore, Succession is of two types on the basis of Early dominance of Autotrophs and Heterotrophs. -

a) Autotrophic Succession: - when a Succession is characterised by Early Dominance of Autotrophs.

b) Heterotrophic Succession: - when a succession is characterised by Early dominance of heterotrophs like bacteria, Fungi and other animals (herbivore or Carnivore).

Process of Succession

The process of Succession can be interpreted into a number of steps: -

I) Nudation - It is the process of development of bare area without any forms of life. The Causes of Nudation may be topographic, climatic or biotic.

II) Invasion - This is the successful establishment of a species in a bare area and is completed in following three successive stages -

a) Migration - This is the transfer of seeds, animals or other propagules to that particular barren land.

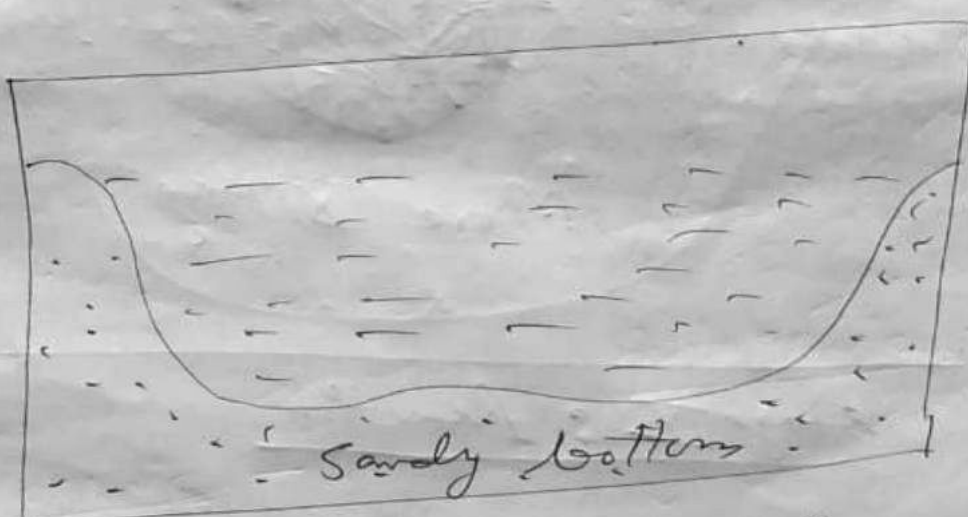
b) Ecesis - This is the establishment of the species as a result of adjustment with prevailing conditions.

C Aggregation :- After Ecceip, there is an increase in the number of species resulting their colonies termed Aggregative.

III Competition & Coaction :- Aggregation of a large no. of individuals of the species at the limited place, results competition or Intra and interspecific struggle.

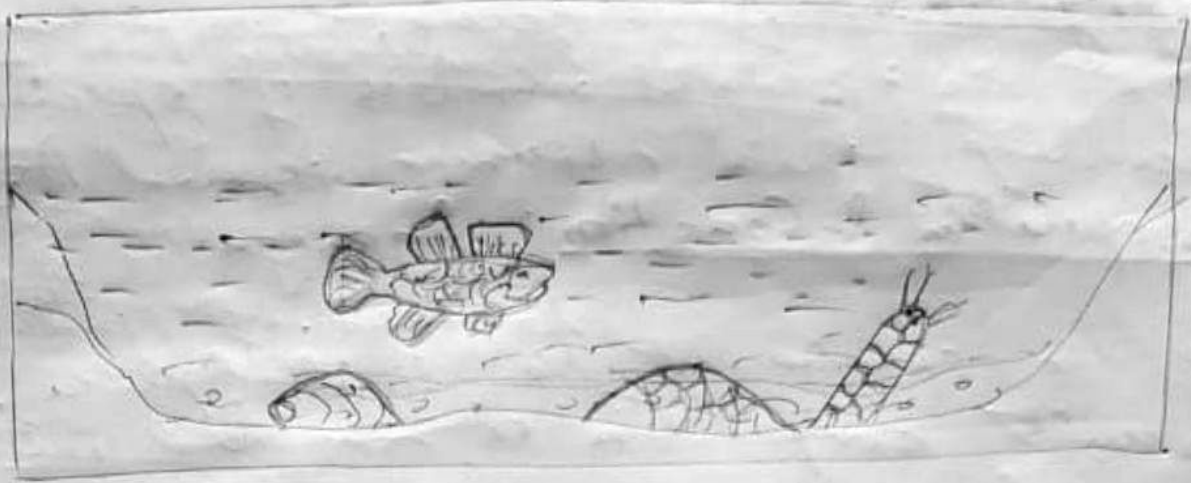
IV Reaction :- This is the most important stage in Succession and involves the modification of environment through the influence of living organisms on it. Reaction results into changes in soil, water, light conditions, temperature etc. of the environment.

V Stabilization :- This is the final stage of Succession, in which the terminal community becomes more or less stabilised for a longer period of time and it can maintain itself in equilibrium with climate of the area.

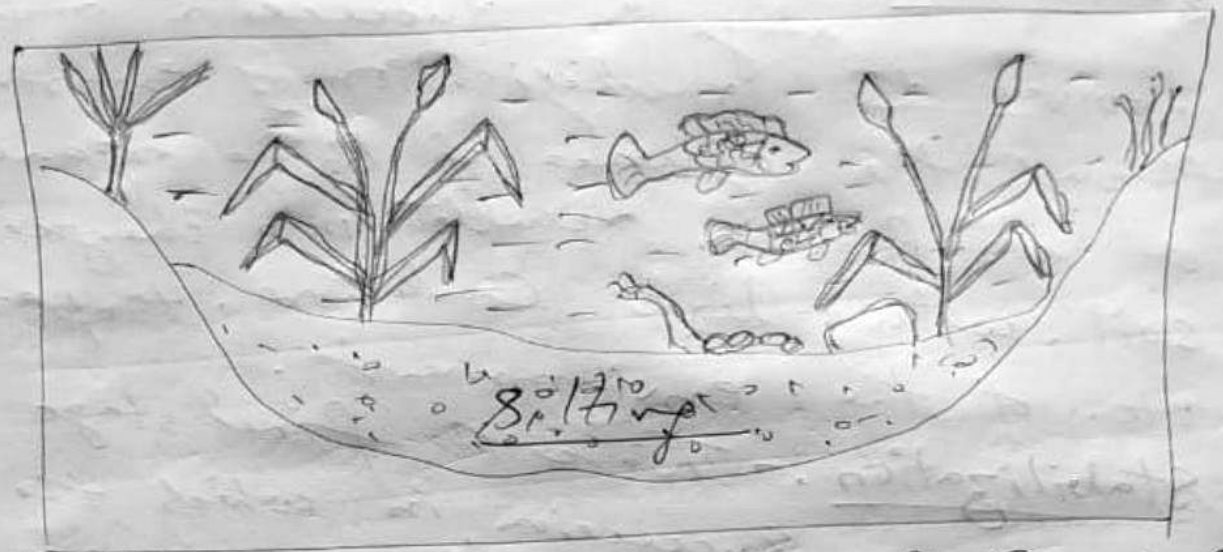


Stage I - Nudation :- A newly formed pond





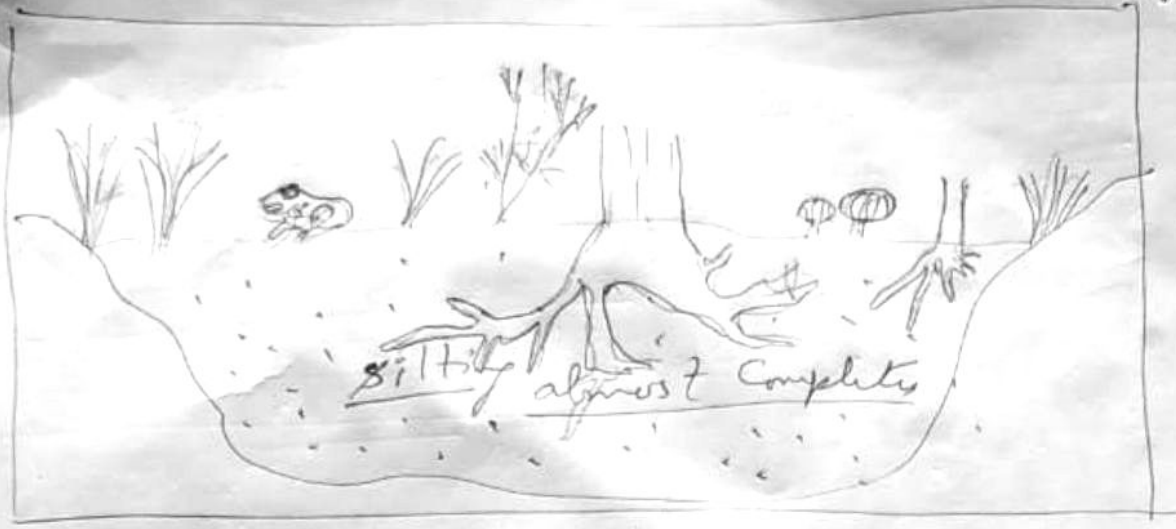
Stage II : Invasion by Various Species



Stage III : Aggregation & Competition



Stage IV : Reaction



Stage V : climax

Significance of Succession :-

Ecological Succession plays a significant role in shaping the destiny of animal and plant communities.

- (i) Excess food produced in Early Successional Communities helps to feed older stages because production declines gradually due to senescence.
- (ii) A climax ecosystem has a high rate of CO_2/O_2 exchange, helping greatly as a means for remedy of pollution.
- (iii) They have almost completely the nutrient cycles, serving to buffer the supply of regenerated nutrients.
- (iv) Succession enables us to measure ecological efficiency in terms of biomass supported per unit of energy flow. So, even the total biomass is relatively stable and uniform in the development period, but communities keep on changing.