

ECOLOGICAL SUCCESSION

PART-(A)

The occurrence of relatively definite sequence of communities over long period of a time in the same area resulting in establishment of stable or climax community is known as ecological or biotic succession.

Characteristic of Ecological Succession:

- ✓a) A continuous change in the kinds of plants and animals towards a state of stability.
- ✓b) Tendency towards increase in the species diversity.
- ✓c) An increase in organic matter and biomass supported by available energy flow in atmospheric succession.
- ✓d) Decrease in net community production or annual yield.
- ✓e) In an area, the plant and animal communities undergo succession side by side.
- ✓f) Biotic succession on bare ground progress towards increasing wetness, while biotic succession in open water progresses towards increasing dryness.

✓ The first community to inhabit an area is called pioneer community, while last and stable community in area is called Climax community. The intermediate communities between the pioneer and climax communities are called transitional or serial communities. The entire series of communities is called Community.

(2)

Causes of Ecological Succession:

These can be divided into two categories.

- (a) Biotic factors: the interactions among the organisms in the communities are collectively called biotic factors. These influences structure, composition and function of a community.
- (b) Physiographic factors:

These includes the physical and chemical factors of the environment which determine the nature and composition of the community. These includes landslides, erosion, storm, frost, fire etc.

Since, Succession is a complex processes so it is controlled by a number of causes which are —

- i) initiation causes — produce bare areas
- ii) Continuing causes or ecosis — cause successive waves of population and
- iii) Stabilizing causes — stabilize the organism.

Types of Succession:

These are of following types —

- ① Primary Succession (Perisere):

In any of the basic environment (terrestrial, freshwater, marine), one type of succession is primary succession which starts from the primitive ~~succession~~ substratum where there was no previously any sort of living matter. C-Sterile area of land formed by volcanic lava or newly formed estuarine made by bank etc.

(3)

conditions are extreme so unfit for the growth of most plants and animals. The first group of plants establishing there are known as pioneers or primary community or primary colonisers. It takes longest period. eg. development of forest climax on a barren land may take about 1,000 years.

③ Secondary Succession (Subser):

If the area under colonization has been cleared by whatever agency (such as burning, grazing, felling of trees etc) of previous plants, it is called secondary succession. The rate of secondary succession is faster than that of primary succession because of better nutrients and other conditions in area.

④ Autogenic Succession: After the succession has begun, in most of the cases, it is the community itself which, as a result of its reactions with the environment, ~~the~~ modifies its own environment and thus, causing its own replacement by new communities.

④ Allogenic Succession: In some cases, however, the replacement of the existing community is caused largely by any other external conditions and not by the existing vegetation itself. Such a course is known as allogenic succession.

⑤ Autogenic Autotrophic succession: It is characterized by early and continued dominance of autotrophic organisms eg. green plants. It begins in a predominantly inorganic environment.