Class Lecture
on
Plant Succession

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Succession

Gradual replacement of one community by another in the development of vegetation towards a climax

Sub components

- Nudation
- Migration
- Ecesis
- Competition
- Reaction
- Final stabilization

Pioneers : Species invades bare area such as newly exposed soil or rock surface

Serel : stages in the successional process

Kinds of succession

I. Change in vegetation

- Progressive succession
- Retrogressiive succession

  Sequences – Normal ,Rhythmic and Catostrophic

II. Broad bases

1. Moisture condition

- Xerarch – Succession on extremely dry conditions
  Lithosere (on roky places)
  Psammosere (on sandy places)
- Hydrarch – Succession on more to less hydrophytic forms

2.Presence / absence of vegetation

- Primary succession – Succession on place where plants had not grown previously
- Secondary succession - Succession on place where plants had been grown previously but damaged by biotic and adverse climatic factors

Causes of succession

Initial causes

Primary succession

- Erosion
- Physiography
- Elevation

Secondary succession

- Climatic
- Biotic
- Topographic

Secondary/ continuing causes

- Migration
- Establishment
- Aggregation
- Competetion
- Reaction

Concept of climax

- BCFT(1953) defines climax as the culmination stage in plant/community succession for a given environment.

Theories of Climax

Monoclimax theory:

All successions of a reign lead automatically to the same, climatically controlled final stage, the so-called climatic climax association. This idea is known as the monoclimax hypothesis.

Polyclimax theory:

This predicats that there may be a number of different climax communities within a climatic region.

Mosaic theory:

This was put by Aubreville. This theory suggests that a climax is not a static equilibrium but it is a dynamic community with periodic alterations in its constituent units.

Vegetational gredient and climax pattern theory:

There is no absolute climatic climax for an area, rather it is the sum of climate ; site factors ;soils ; species factors ; biotic factors;

Classification

A.Primary Climaxes:

climax types in which recurrent disturbance by fire or grazing animals is not a major factors in maintaining structure or floristic composition.

1. Climatic climax:

The climax which owns its distinctive characters to climatic factors in conjunction with only such biotic influences as plants and animals that occur naturally in the area.

2. Edaphic climax:

Differs from the climatic climax of area owing to the influence of special soils factors.

3. Pre-climax:

Preclimax is the plant community immediately preceding in seral development the climatic climax of the region, and site conditions drier than are usual in the climate of the region.

4. Topographic climax:

Owing to topography that produces a highly distinctive microclimatic,e.g., steep slopes (hotter/drier) or colder and wetter than gentle slopes.

5. Post-climax:

A plant community more exacting than that of the climatic climax of a given region, and found under exceptionally favorable site conditions within that region

6. Topo - edaphic climax:

This is the climax influenced by the effect of both factors i.e., topography and edaphic.

7. Biotic climax:

A climax which differs from the climatic climax of the areaa owing to the action of biotic factors.

B. Disclimaxes:

- It is described as any proclimax that originates from and is maintained due to disturbance by a man, or, domestic animals.

1. Fire climax
2. Zootic climax

Uses of succession

1. Classification of forests
2. Species choice for afforestation
3. Evaluating the sites
4. Delineating economic species

THANK YOU…