

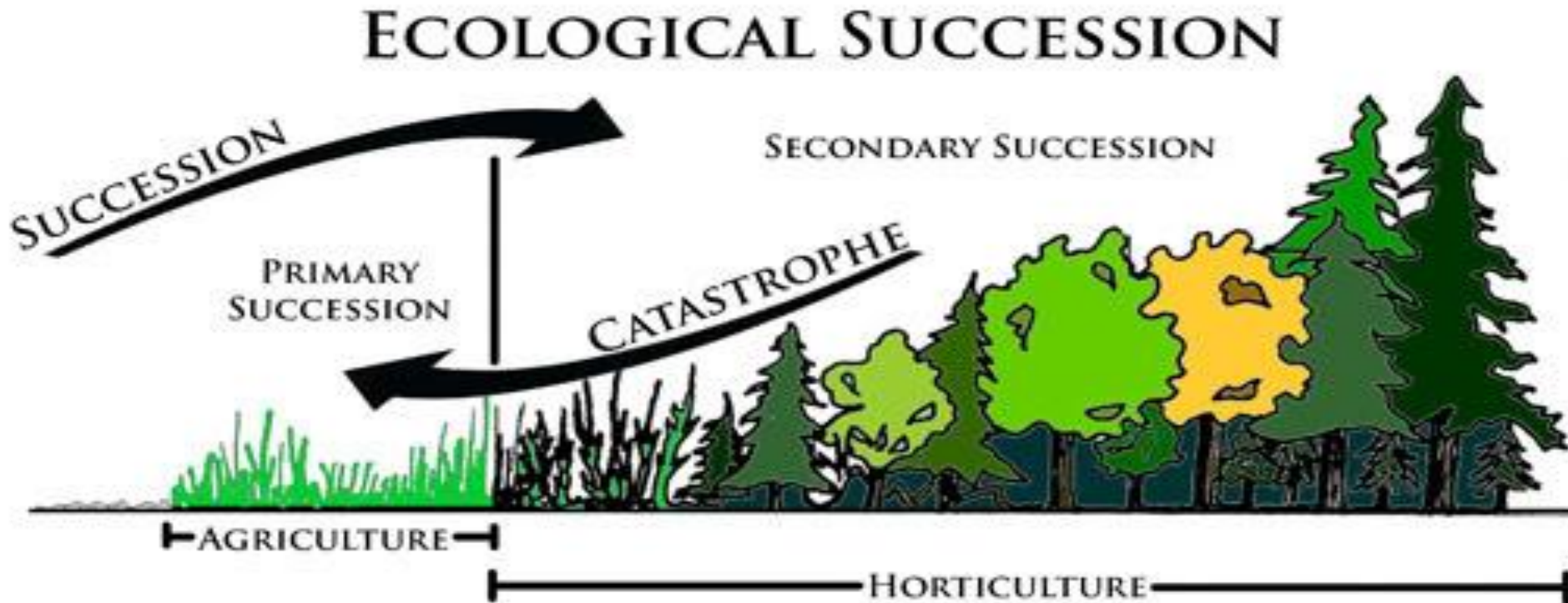
M. Sc IV Semester Zoology
Topic: ECOLOGICAL SUCCESSION
Paper 402: Ecology and Animal Behaviour
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- **INTRODUCTION**
 - **CAUSES OF SUCCESSION**
 - **PROCESS OF SUCCESSION**
 - **TYPES OF SUCCESSION**
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ECOLOGICAL SUCCESSION (INTRODUCTION)

- The development of a new community is known as succession.
- The sequence of vegetation types occurred during succession is called sere.



SUBSISTANCE STRATEGIES

CAUSES OF SUCCESSION

- A. Initial cause** - These are climatic as well as biotic factors. E.g.- fire, flood, land slides.
- B. Continuing cause**- These are migration, Aggregation, competition, etc.
- C. Stabilizing causes** –These are responsible stabilizing a community. The chief cause for this is climate.

PROCESS OF SUCCESSION

➤ NUDATION

- Formation of a bare area.
- Basic process of succession.
- There are several results for nudation including volcanic eruption, landslide flooding, fire and other catastrophic event.

➤ INVASION

- It is the arrival of the reproducing organism (plants and animals from the surrounding areas and their aggregation.
- These immigrants are called the pioneers.
- They are of three types:-
 1. **Dispersal**- The seeds, spores or other propagules of the species reach the bare area by air, water or living organisms.

2. Ecesis

- The successful establishment of migrated plant species into the new area.
- It include germination of seeds or propagules, growth of seedling and starting of reproduction by adult plants.
- Only a few of the immigrants are capable of their successful establishment .

3. Aggregation-

- It is the final stage of invasion, the successful immigrant individual of a species increase their no by reproduction and aggregate in the large population .

➤ COMPETITION

- When the no. of living organism(plants and animals) increases in a limited space the competition for space and nutrients is shared among them.
- The competition or struggle for existence may be intraspecific or interspecific.

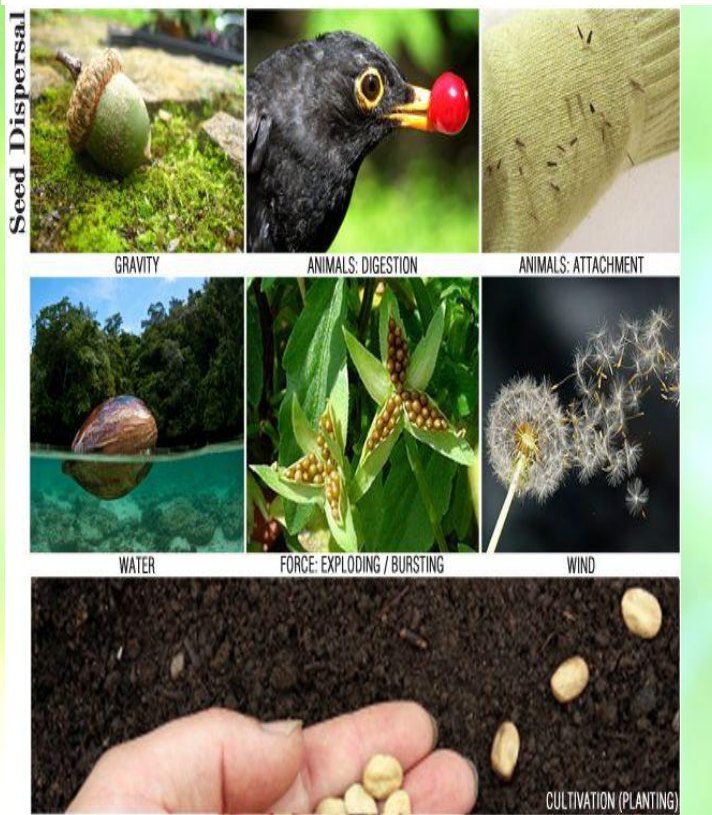
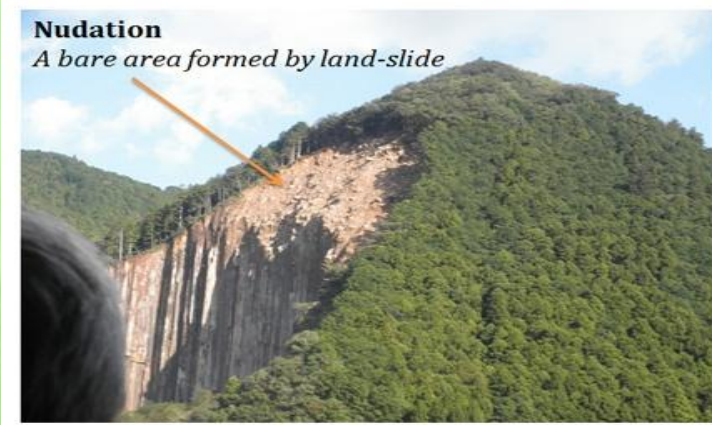
consequently due to increase in intra or interspecific competition and other biotic and abiotic interaction, the environment is modified and progressively becoming unsuitable for the existing community which sooner or latter is replaced by new invaders or another community .

CLIMAX- End process of succession is also called stabilisation or climax.

When a climax community has become established it tend to remain in possession of the area because it does not change the environment or to favour the growth of different dominant species.

It is generally believed that once climax is attained the community does not change at all .

The climax community may also be changed by ageing, storm, diseases and by other biotic and other abiotic factors.



INVASION (DISPERSION)



COMPETITION



CLIMAX

TYPES OF SUCCESSION

➤ PRIMARY SUCCESSION

- It is the formation of a new community where the environment has no life.
- The first group of organisms established there is known as pioneers.

➤ SECONDARY SUCCESSION

- It is the formation of a new community from previous substrata which already exist from the living matter .
- This process is faster than primary succession .

➤ AUTOGENIC SUCCESSION

- Replacement of the existing community by new one by the factors of the same environment .

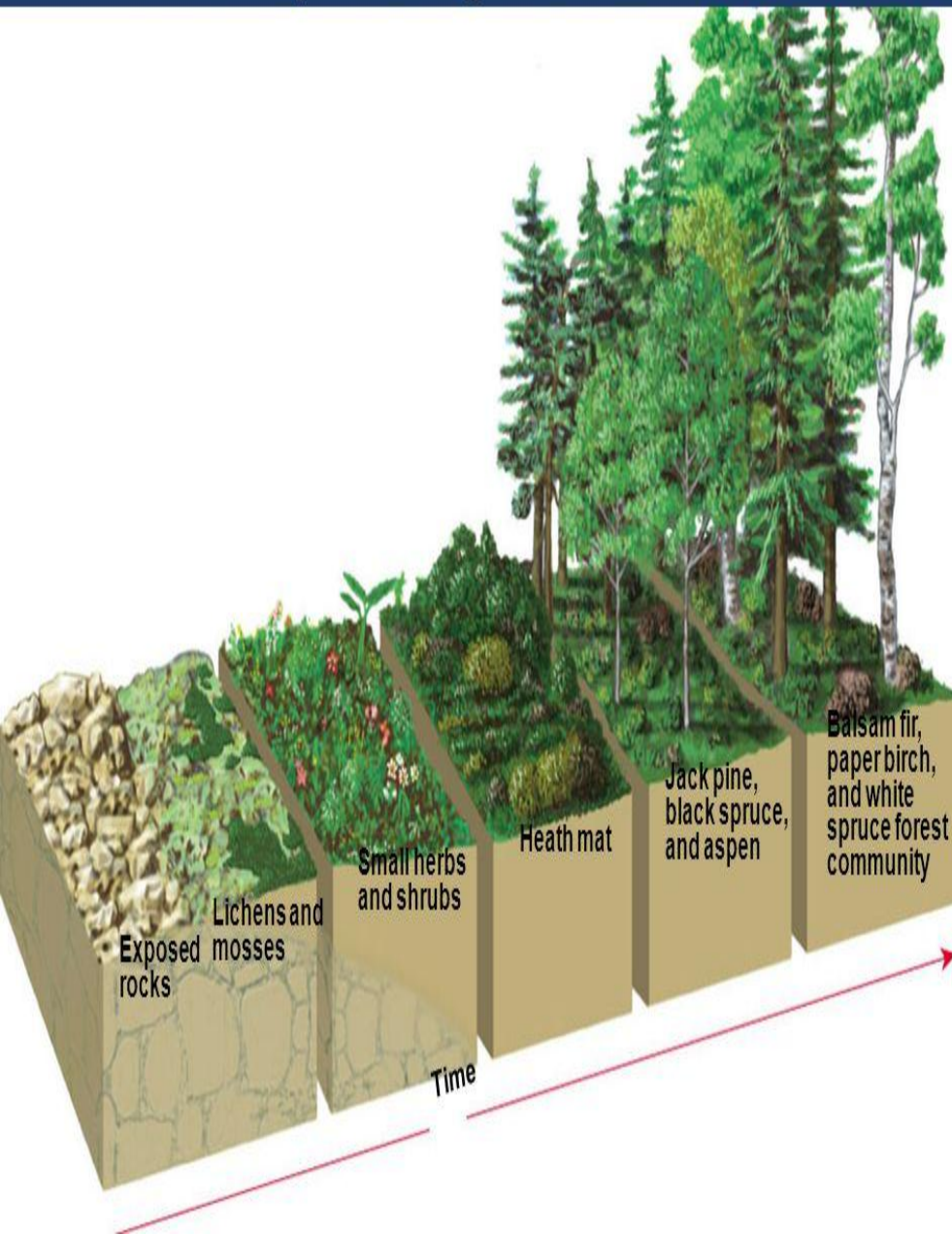
➤ ALLOGENIC SUCCESSION

- Replacement of the existing community by new one, when caused by external factors.

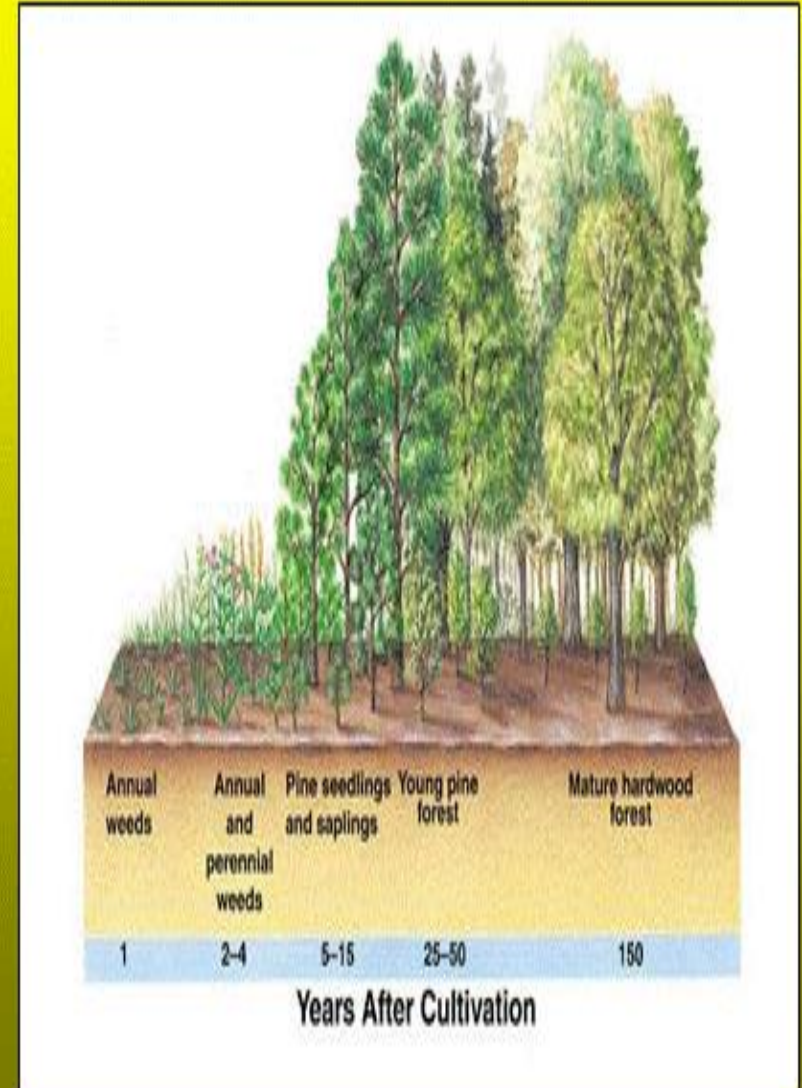
➤ AUTOTROPIC SUCCESSION

- Formation of autotrophic organisms in early stage.

Primary Ecological Succession



Secondary Succession



➤ **HETEROTROPIC SUCCESSION**

- Formation of heterotopic organism in early stages.

➤ **RETROGRESSIVE SUCCESSION**

- Due to destructive effect of organisms, sometime the development become retrogressive instead of progressive .

➤ **SEASONAL SUCCESSION**

- Formation of new community in different seasons of the year .
- **Other types** - There are many types of succession depend mainly upon the nature of environment .
 - **Hydrosere** –Succession starting in water environment.
 - **Xeroxers** –Succession starting in dry, waterless environment.
 - **Lithosere-** Succession starting in rocks .
 - **Halosere-** Succession starting in saline environment .

CLIMAX THEORY

1.MONOCLIMAX THEORY-

- **This Theory was given by F.E. Clemens.**
- **According to this theory, within a given region all land surface is eventually covered by single type of community. This type of climax is determined by climate .**

2.POLYCLIMAX THEORY-

- **This theory was given by Tansley.**
- **In this type climax vegetation is not consist of numerous type vegetation controlled by many factors .**

FEATURES OF PIONEER SPECIES :-

- **A pioneer species should have the habit of exploring new habitat.**
- **A pioneer species should be agile in nature.**
- **A pioneer species should have greater ability to adapt to new environment.**
- **A pioneer species should have wide choice of food.**
- **A pioneer species should be a good breeder.**
- **A pioneer species should be a tolerant species .**

CONCLUSIONS

- **The process of succession shows how a new community is established.**
- **By the process of succession and by of the species of that area the factors responsible for succession can be determined.**
- **The process of succession help us in the conservation of the climax community.**



REFERENCES

- **Ecology – Mohan. P. Arora .**
- **Life Science – Pranav Kumar and Usha Mina.**