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Synecology

(Study of communities) **Part- 1** 1

- **Introduction & Community composition**

Introduction—

- The branch of ecology dealing with the relations between natural communities and their environment is known as Synecology.
- No plant or animal lives as isolated individual. Different plants and animals living in a habitat constitute a biotic community. When only assemblage of plants in a habitat is considered, it is called **plant community**. Similarly, assemblage of animals in a habitat is called animal community. The study of the relationships of plants and animals making up natural community is termed as **community ecology or synecology**.
- Each community consists of a set of many different species which persist year after year. In a community, each plant species is represented by innumerable individuals . A group of individuals of the same species is known as population. Thus a population is part of community and populations of different species may be intermingled in a community.


Sinecology or Community Ecology
studies the community species composition, their spatial pattern, and communities change with time.

Community Ecology

Synecology

(a)

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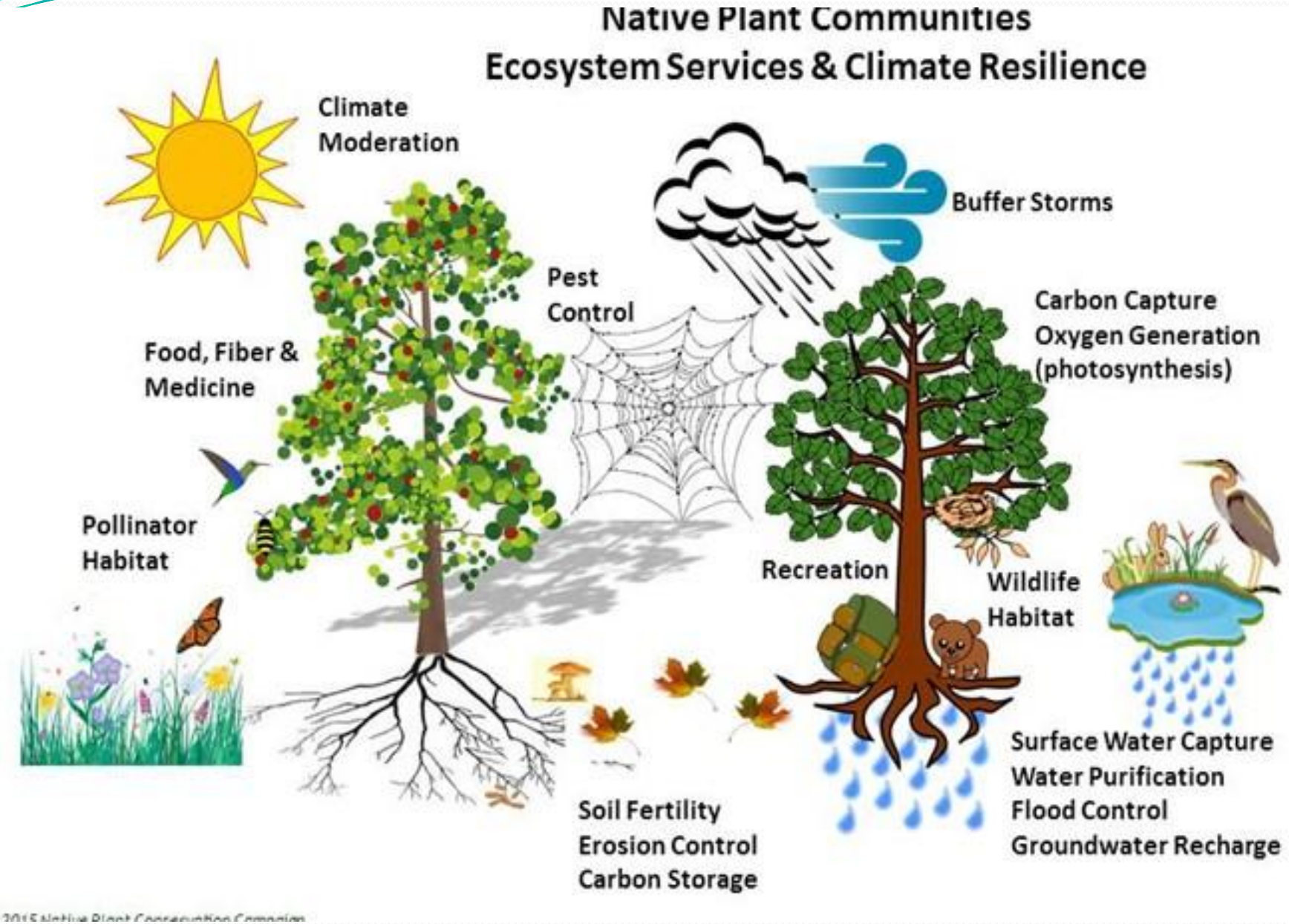
Native Plant Communities
Ecosystem Services & Climate Resilience
Climate Moderation
Buffer Storms
Pest Control
Carbon Capture
Oxygen Generation
(photosynthesis)
Food, Fiber & Medicine
Pollinator Habitat
Recreation
Wildlife Habitat
Soil Fertility
Erosion Control
Carbon Storage
Surface Water Capture
Water Purification
Flood Control
Groundwater Recharge

Plant community

Plant community

Plant community

Plant community

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- The study of relationship of different communities(grouping of populations) to their environment is called synecology or community ecology.
- Oosting defines community as a “ an aggregation of living organisms having mutual relationship among themselves and to the environment. ”
- Misra and Puri (1954) and Puri(1960) are of the opinion that” Community as any unit of vegetation, whether developmental or climax in status.”

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Community composition - The following points characterised the community-

- i)Species diversity- The biotic community is a natural assemblage of a large number of plant and animal species in an area.

- ii) Coexistence- Species occurring in their particular habitat do not live in complete isolation as pure cultures, but they coexist in mutual adjustment. The coexisting populations are inter-related and they show some sorts of interaction.

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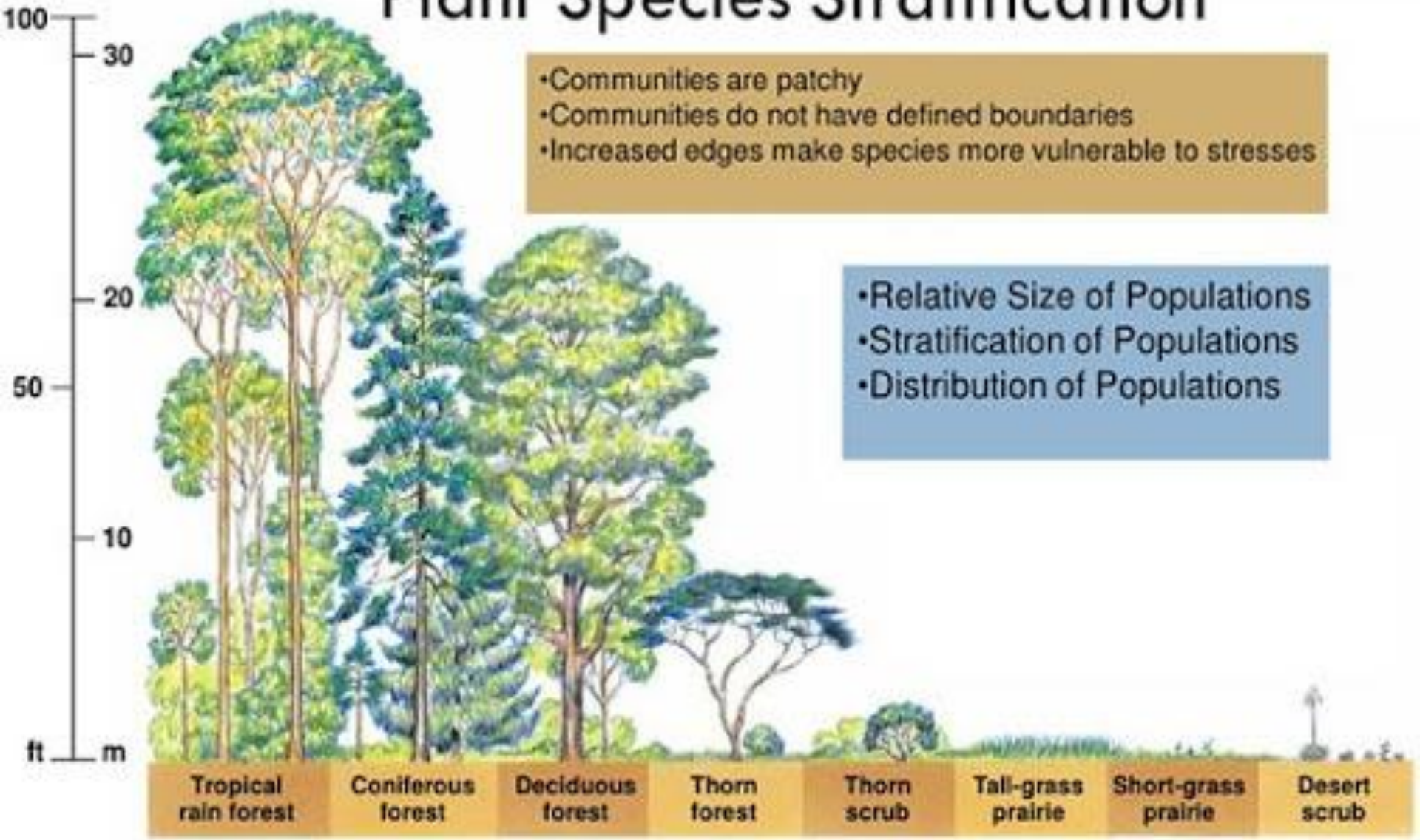
- iii) Interdependency- All the members of a community have ability to live under the conditions of the habitat and they are interdependent upon one another to some extent. Thallophytes, mosses, ferns and many shade loving herbs that are found on the forest floor are dependent on the forest trees because trees provide shadow and moist conditions. If the trees of forest are removed, the ground vegetation may disappear.
- iv) Species dominance- Only a few species are found in abundance either in number or in biomass(living weight) in a community. Dominant individuals influence the associate individuals. In the forest, tallest trees, influence the under-storey plants and ground vegetation not only by decreasing the intensity of light reaching the forest floor and increasing the moisture content of air but also by changing the soil structure and its chemical composition.

Plant Species Stratification



- Communities are patchy
- Communities do not have defined boundaries
- Increased edges make species more vulnerable to stresses

- Relative Size of Populations
- Stratification of Populations
- Distribution of Populations

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- v)Stratification- In a plant community different plants ie trees, shrubs, herbs, mosses, lichens and thallophytes form more or less distinct strata or layers or storeys on vertical as well as in horizontal planes. This is known as stratification.

- vi) Succession- Interacting populations of community are characterised by continuous death and replacement and usually by immigration and emigration of their individuals. In this way, composition and shape of community remains in changing state. The changes in the community go on taking place untill a complete balance is established between community and environment. This is called succession.

- **Next synecology part- 2**

---Study of plant community structure-

Analytical and Synthetic characters.

THANKS