

## Ecological Amplitude

The degree of adaptation of a living organism to changes in its environment. A species trait, ecological amplitude is expressed quantitatively as the range of environmental changes within which a given species is able to carry on its normal vital activities.

Ecological amplitude can be examined as either the reaction of a species to individual environmental factors or to an aggregate of factors. In the first case, species that are able to tolerate a wide **range of changes in the strength** of an acting factor are designated by a term consisting of the name of the given factor and the prefix “**eury**,” such as eurythermal (referring to the effects of temperature), euryhaline (salinity), and eurybathic (depth). Species that are adapted to only a **narrow range of changes** in a given factor are designated by the same term with the prefix “**steno**,” for example, stenothermal and stenohaline. Species that exhibit broad ecological amplitude with respect to an aggregate of factors are called eurybionts, while species with low adaptability are called stenobionts. Inasmuch as euryoky makes it possible for a species to occupy a variety of habitats while stenoky sharply curtails the range of suitable habitats, these two groups are often referred to as eurytopic and stenotopic, respectively.

- Different species differ from each other in terms of their demands and also in respect to extent to which they can tolerate fluctuations in environment.
- **The range of demands of consequent range of tolerance of species is called Ecological amplitude.**
- Ecological amplitude can be high or low

In nature different forms of same species occurs

**Ecotypes** are the ecological races in which the variations associated with certain factors of the environment are genetically fixed. A widely distributed species encounters a variety of environmental conditions and a series of variations, often observable morphological variations, develop in course of the species evolution and adjustment. These variations associated with ecological conditions become genetically fixed and such variants are called ecotypes.

**Ecads** (also called as ecophenes) the plants of same species which differ in appearance such as size, prostrate or erect nature, reproductive vigour etc. in differing environmental conditions. These variations are not genetically fixed, and when transplanted to neutral conditions the variation disappears.

**Ecospecies.** : a subdivision of a cenospecies that is capable of free gene interchange between its members without impairment of fertility but is less capable of fertile crosses with members of other subdivisions of the cenospecies and that is typically more or less equivalent to the taxonomic species.

## Ecotone

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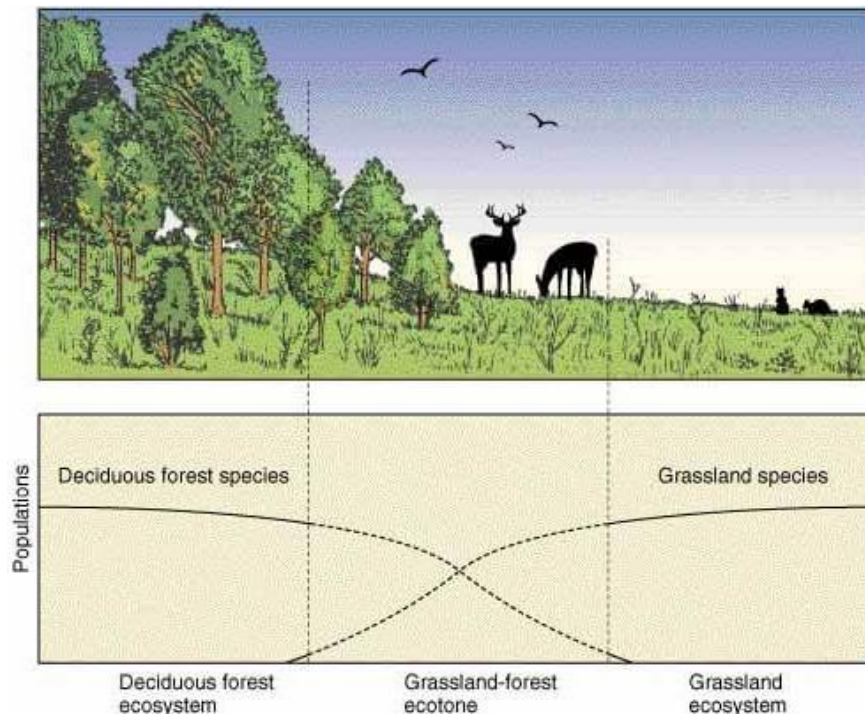
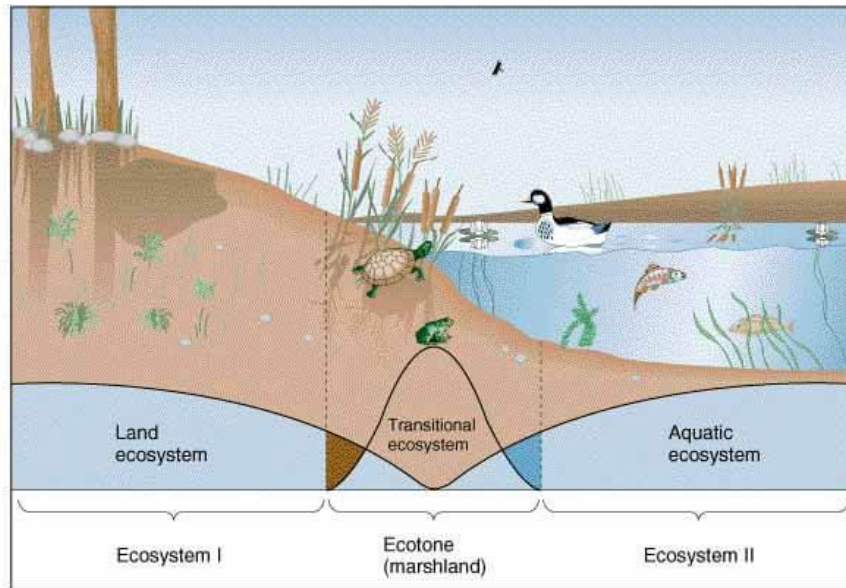
An ecotone is an area that acts as a boundary or a transition between two ecosystems. A common example could be an area of marshland between a river and its riverbank. Ecotones are of great environmental importance. Because the area is a transition between two ecosystems or biomes, it is natural that it contains a large variety of species of fauna and flora as the area is influenced by both the bordering ecosystems.

Examples of ecotones include marshlands (between dry and wet ecosystems), mangrove forests (between terrestrial and marine ecosystems), grasslands (between desert and forest), and estuaries (between saltwater and freshwater). Mountain ranges can also create ecotones due to the changes in the climatic conditions on the slopes.

- An ecotone is a **zone of junction or a transition area** between two biomes (diverse ecosystems).
- Ecotone is the zone where two communities meet and integrate.
- For e.g. the **mangrove forests** represent an ecotone between marine and terrestrial ecosystem.
- Other examples are **grassland** (between forest and desert), **estuary** (between fresh water and salt water) and **riverbank or marshland** (between dry and wet).

### Characteristics of Ecotones

- It may be wide or narrow.
- It is a zone of tension (as it has conditions intermediate to the bordering ecosystems).
- It could contain species that are entirely different from those found in the bordering systems.
- Ecotones can be natural or man-made. For example, the ecotone between an agricultural field and a forest is a man-made one.



## Edge Effect

Edge effects refer to the changes in population or community structures that occur at the boundary of two habitats. Generally, there is a greater number of species found in these regions (ecotones) and this is called edge effect. The species found here are called **edge species**.

## Importance of Ecotone

1. They have a greater variety of organisms.
2. They also offer a good nesting place for animals coming in search of a nesting place or food.
3. They serve as a bridge of gene flow from one population to another because of the larger genetic diversity present.
4. They can act as buffer zones offering protection to the bordering ecosystems from possible damage. For example, a wetland can absorb pollutants and prevent them from seeping into the river.

Ecotones are also a sensitive indicator of global climate change. A shifting of boundaries between ecosystems is thought to be due to climate change. So, scientists and environmentalists are studying ecotones with greater interest now

### **Ecocline**

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- Ecocline is a zone of gradual but continuous change from one ecosystem to another when there is no sharp boundary between the two in terms of species composition.
- Ecocline occurs across the environmental gradient (gradual change in abiotic factors such as altitude, temperature (thermocline), salinity (halocline), depth, etc.).