**ECOLOGY**

**Lecture 5.**

**TYPES OF INTERACTION BETWEEN TWO SPECIES**

1. **BIOTIC FACTORS**

Theoretically , population of two species may interaction basic ways that correspond to combination of 0 ,+ ,- as follows:

1. **Neutralism** , in which neither population is affected by association with the other.
2. **Competition** , in which both is populations actively inhibit each other. **Amensalism** , in which one population is inhibited and other not affected.
3. Parasitism
4. **predation** and **5. Predation**: in which one population adversely affects the other by direct attack but never the less depends on the other. Predators kill and consume other organisms.Typical predators are animals that feed on other animals, wolves that eat moose, snakes that eat mice .Parasites live on the tissues of their host often reducing the fitness of host but not generally killing it.
5. **Commensalism**: in which one population is but the other is not affected .
6. **Protocooperation** , in which both populations benefit by the association but relations are not obligatory.
7. **Mutualism** : in which growth and survival of both populations is benefited and neither can survive under natural conditions without the other. **ex:** mycorrhizae.

**ANALYSIS OF TWO –SPECIES POPULATION INTERACTION**

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of interaction** | | **species (1 2)** | **general nature of interaction** |
| 1 | Neutralism | **0 0** | neither population affects other |
| 2 | Competition | **- -** | direct inhibition of each species by the other or in direct inhibition when common resource is in short supply(resource use type). |
| 3 | Amensalism | **- 0** | population 1 inhibited , 2 not affected |
| 4 | Parasitism | **+ -** | population 1,the parasite generally smaller than 2 the host |
| 5 | Predation | **+ -** | population 1 the predator generally larger than 2 the prey.(including herbivory). |
| 6 | Commensalism | **+ 0** | population 1 the commensal benefits while 2 the host is not affected |
| 7 | Protocooperation | **+ +** | interaction favorable to both but not obligatory |
| 8 | Mutualism | **+ +** | interaction favorable to both and obligate |

**THE SYMBIOSIS :**

Plant interact with many soil microorganisms in different ways that have important consequences for plant growth and fitness. When microorganisms colonize and live with a host plant, these interactions are called symbiosis. The symbiosis is sometimes used in the same sense as mutualism , since symbiosis literally means (living together).

**Allelopathy:**

An organism produces one or more biochemicals that influence the germination, growth, survival, and reproduction of other organisms. ...

These biochemicals are known as allelochemicals and can have beneficial (positive allelopathy) or detrimental (negative allelopathy) effects on the target organisms and the community.