KEY STONE SPECIES
&
ECOSYSTEM FUNCTIONING

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SPECIES INTERACTIONS WITHIN COMMUNITIES

- Composition of communities is often affected by competition and predation.

  Eg: Sea star, Disaster – reduce 15 sp of Molluscs.

Carrying capacity:

- Predators keep the number of individuals of a particular prey species below the number that the resources of an ecosystem can support.

- ✓ Mutualistic relationship
- ✓ Symbiotic relationship
- ✓ Cannibalism
- ✓ Parasites, pests and disease causing organisms
- ✓ Decomposers & detritivores.

KEY STONE SPECIES

- Species or groups of species with similar ecological features may determine the ability of large numbers of others species to persist in the community.

Ex: Sea Anemone → Clown fish

Corals → Zoothamnium

- **ECOSYSTEM ENGINEER**

Species that extensively modify the physical environment through their activities is termed “ecosystem engineer”

Ex: Construction of dams or lakes or ponds

Polychaetes → Mudskipper

Caribbean coral reefs – sea urchins of genus *Diadema*

KEY STONE RESOURCES

- The physical or structural characters of particular habitats that occupy only a small area yet are crucial to many species in the community.
- Salt ……. & mineral pools - provide essential minerals for wildlife
- Deep pools – Streams, seas, lakes, estuaries, lagoons, coral reefs
- Breeding forest – Ex: Mangroves

ECOSYSTEM FUNCTIONING

- The interaction of the biological community using the physical environment, key ecosystem process include transfer of energy, production of biomass, cycling of carbon, nitrogen and other nutrients and the movement of water.

- **Ecosystem integrity:**

  The condition in which an ecosystem is free from human influences.

- **Healthy ecosystem:**

  An ecosystem in which the processes are functioning normally, whether or not there are human influences, is referred to as a healthy ecosystem.

ECOSYSTEM FUNCTIONING

- **Stable ecosystem:**

  Ecosystems that are able to remain in the same state are referred to as stable ecosystems.

- **Resistance:**

  Resistance is the ability to maintain the same state even with ongoing disturbance (eg: despite an oil spill, a estuary or river ecosystem retains its major ecosystem processes)

- **Resilience:**

  Resilience is the property of being able to return to the original state quickly after disturbance has occurred.