

Ecology

Introduction

- **Ecology** is the scientific study of the interactions between organisms and their environment.



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- Ecologists make predictions of what should be observed in the environment.
- The environment of any organism includes the following components:
 - **Abiotic** factors: non-living chemical and physical factors such as temperature, light, water, and nutrients.
 - **Biotic** factors: the living components

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Organism- a single living thing.



- **Population**: a population is a group of individuals of the same species living in a particular geographic area.



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- **Community**: a community consists of all the organisms of all the species that inhabit a particular area.



Fig. 50.2c

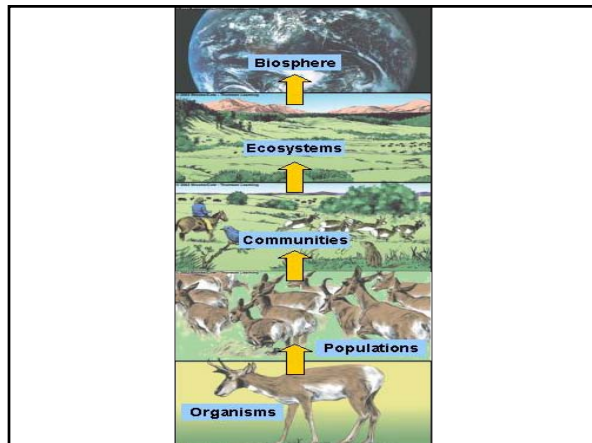
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- **Ecosystem:** an ecosystem consists of all the abiotic factors in addition to the entire community of species that exist in a certain area.



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Biosphere- the region of Earth where life exists.



Ecology provides a scientific context for evaluating environmental issues

- Rachel Carson, in 1962, warned that the use of pesticides such as DDT was causing population declines in many non-target organisms .
 - The precautionary principle (essentially “look before you leap”) can guide decision making on environmental issues.



Fig. 50.3

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•Habitat

•Niche

Symbiosis

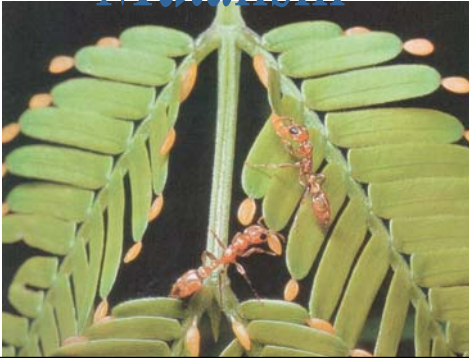
Predation



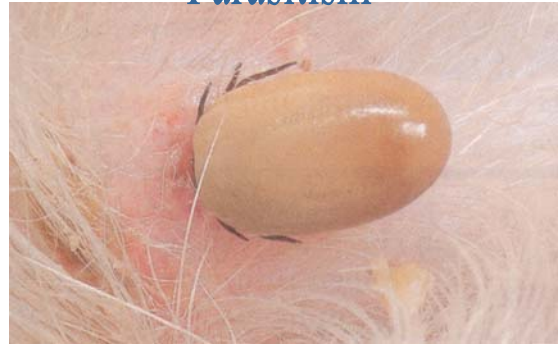
Commensalism



Mutualism



Parasitism



Nutrition & Energy Flow

•Autotroph

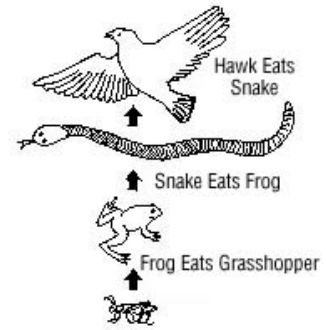
•Heterotroph

- Herbivore

- Carnivore

- Omnivore

Food Chain



Food Web



2nd Law of Thermodynamics

- Producer**

- Primary Consumer**

- Secondary Consumer**

- Tertiary consumer**

