Kyrgyz Economic University

M. Ryskulbekov

Shaazadan Tiumonbaev

Open Class

Lecture 1

Topic: Ecology. Introduction

What is Ecology?

- **Ecology** is the scientific study of the interactions between organisms and their environment.
- It is the science that seeks to describe and explain the relationship between living organisms and their environment.

What is Ecology? (Cont…)

- Ecology is describing the relationships between living organisms and their environment.
- Ecology comes from the Greek words
- Οἶκος= House
- -λογία, -logia= Study of Life
- Study of the "house/environment" in which we live.

Factors of Ecology

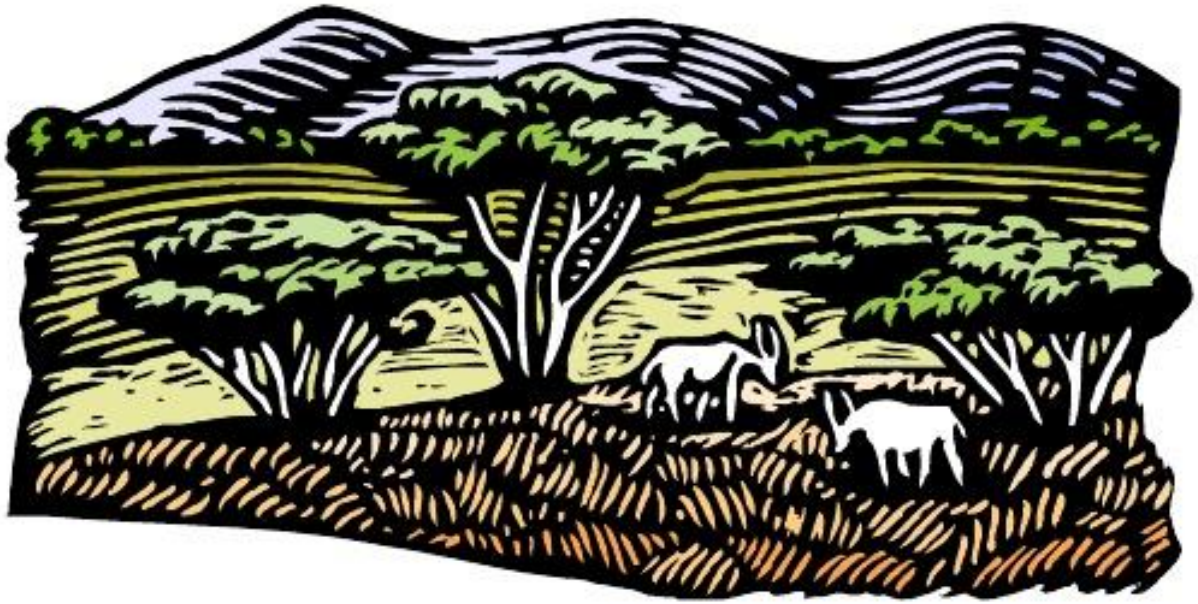
- There is two factors that Ecology study:
  - **The Abiotic Factors** (non-living components) are those inert factors of the ecosystem, as the light, the temperature, the chemical products, the water and the atmosphere.
  - **Biotic Factors** (living organisms) are all the living beings in an environment.

Ecology is study of interactions between

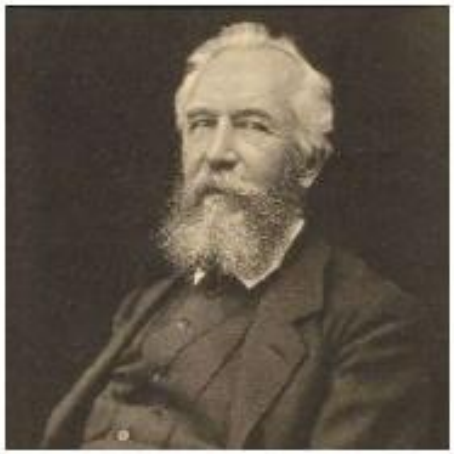
- **non-living components in the environment**…
  - light
  - water
  - wind
  - nutrients in soil
  - heat
  - solar radiation
  - atmosphere, etc.

AND…

- **Living organisms…**
  - Plants
  - Animals
  - microorganisms in soil, etc.

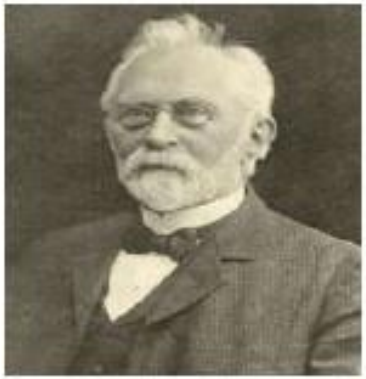


- **Ernst Haeckel**, a German zoologist coined the term Ecology in 1866.



  - After that….

- Danish botanist, **Eugenius Warming** elaborate the idea of Ecology.



Classification of Ecology

- Ecology is a broad discipline comprising many sub-disciplines. Under this system the subjects studies:
  - **Ecophysiology** examines how the physiological functions of organisms influence the way they interact with the environment, both biotic and abiotic.
  - **Behavioral ecology** examines the roles of behavior in enabling an animal to adapt to its environment.

Classification of Ecology (cont…)

- **Population ecology** studies the dynamics of populations of a single species.
- **Community ecology** (or synecology) focuses on the interactions between species within an ecological community.
- **Ecosystem ecology** studies the flows of energy and matter through the biotic and abiotic components of ecosystems.

Classification of Ecology (cont…)

- **Systems ecology** is an interdisciplinary field focusing on the study, development, and organization of ecological systems from a holistic perspective
- **Landscape ecology** examines processes and relationship in a spatially explicit manner, often across multiple ecosystems or very large geographic areas.

Classification of Ecology (cont…)

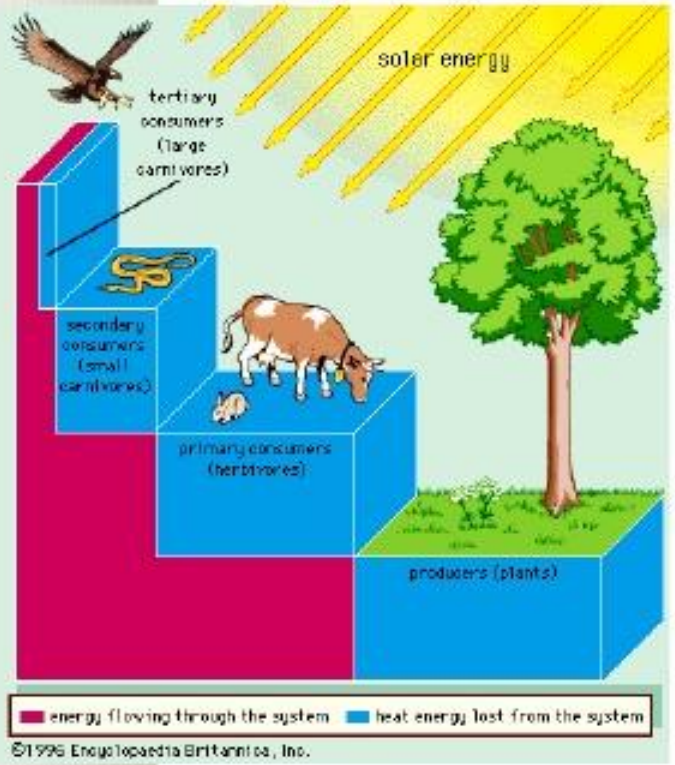
- **Evolutionary ecology** studies ecology in a way that explicitly considers the evolutionary histories of species and their interactions.
- **Political ecology** connects politics and economy to problems of environmental control and ecological change.

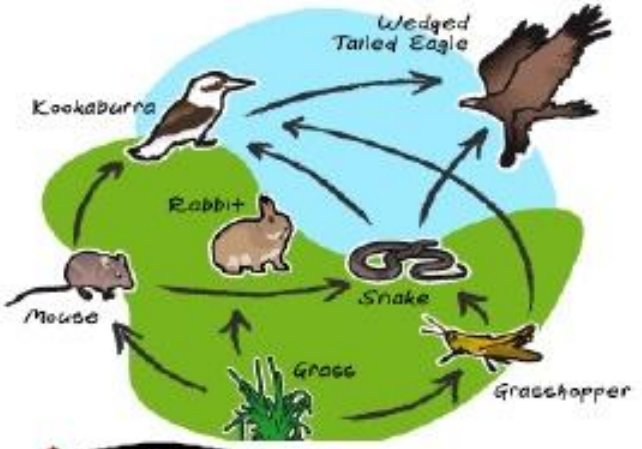
Ecosystem

- Ecosystem is a dynamic complex of plant, animal and micro-organism communities and their non-living environment, interacting as a functional unit.
- Every element of the environment have their own ecosystem.
- A dynamic ecosystem makes the balance of nature.

Ecosystem (cont…)

- Example of Ecosystem:





Status of Ecology

- Past Status
  - Calm and Quite
  - Human don't disturb the nature
  - Ecosystem had been going on its natural cycle

Status of Ecology (cont…)

- Present Status
  - Population increasing
  - Negative Effect
  - Ecological Crisis

Ecological Crisis

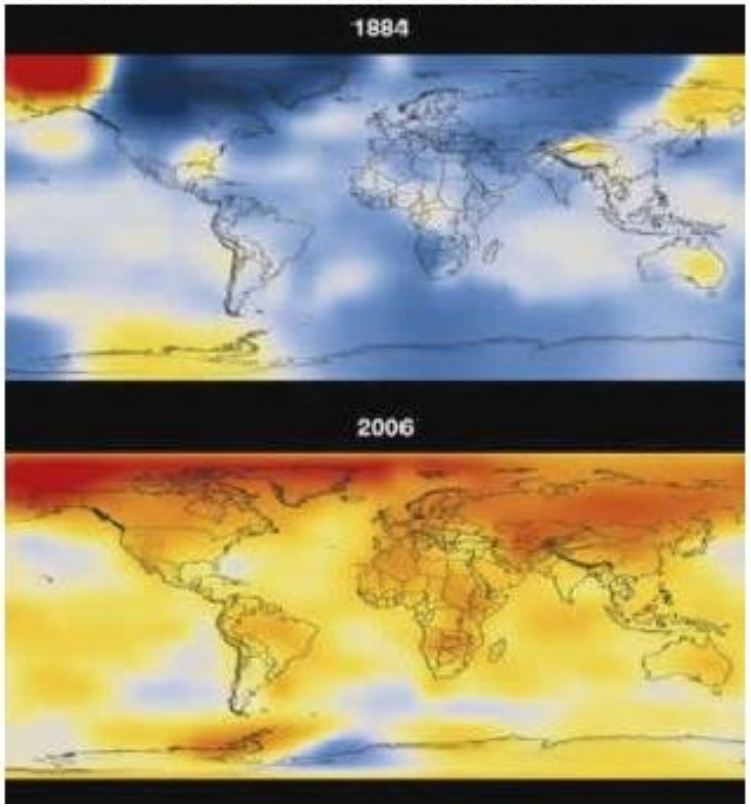
- The main causes of Ecological Crisis are:
  - Over Population
  - Environment Pollution
  - Deforestation

Ecological Crisis

- Major Ecological Crisis which are facing the World:
  - Greenhouse Effect
  - Global Warming
  - Climate Changes

Global Warming

- Global warming is an increase in the average temperature of the earth's atmosphere.



Climate Changes

- Climate change means a long-term significant change in the "average weather" that a given region experiences. Average weather may include average temperature, precipitation and wind patterns.
- It causes natural disasters.

Deforestation

- **Deforestation** is the logging or burning of trees in forested areas.

Conclusion

- Ecosystem is a natural cycle.
- Ecosystem makes the balance of nature.
- Human beings are an integral part of ecological systems and depend on nature for survival and quality of life.
- Save Nature, survive ecosystem, safe ourselves.