Topic: Ecology

Class: Second Semester

Paper: Biogeography

The term ecology was first coined by the eminent German zoologist Ernst Haeckel, who applied the term **oekologie** (1873) meaning "branch of science dealing with the relationship of living things to their environments,"( Original term as Ökologie, from Greek **oikos**"house, dwelling place, habitation" and **logia**"study of" ( [**logy**](https://www.etymonline.com/word/-logy?ref=etymonline_crossreference)).)

Ecosystem simply means ‘ecological systems’. Ecology is defined as the study of [ecosystems](https://www.conserve-energy-future.com/what-is-an-ecosystem.php). Ecologists study the interaction of all the organisms in an ecosystem. The study includes complex interactions between thousands of plants and animals to the role of microbes living under the soil to the effects of [tropical rainforest](https://www.conserve-energy-future.com/various-tropical-rainforest-facts.php) on the Earth’s atmosphere. The study done by ecologists can help us to better understand the world around us and can influence our lives in a positive way by [improving the environment](https://www.conserve-energy-future.com/current-environmental-issues.php), managing our natural resources and protecting the public health.

“Ecology is the scientific analysis and study of interactions among organisms and their environment. It is an interdisciplinary field that includes biology and Earth science. Ecology includes the study of interactions organisms have with each other, other organisms, and with abiotic components of their environment.”

Ecological society of America says, “Ecology is the study of the relationships between living organisms, including humans, and their physical environment; it seeks to understand the vital connections between plants and animals and the world around them. Ecology also provides information about the benefits of ecosystems and how we can use Earth’s resources in ways that leave the environment healthy for future generations.”

The best way to understand what is ecology is to think of it as the study of relationships within a given [environment](https://www.conserve-energy-future.com/environmental-ethics.php). You can even have an “office ecology”. Scientists examine how resources are used and replenished by life forms, the natural growth and decay cycles and evolution within the balance and life forms that begin to move the ecology through new developments. While there are many different kinds of ecology studied it is best to start with the basics.

3 Basic Types of Ecology

A type of ecology differs from each other based upon the academic background of the concerned researches. Here a comprehensive division is made in order to male it beneficial to the geography students

All ecology breaks down and falls under three basic types. Under each of the basic types you can break down the ecologies even further, but these are the ones that will give you an understanding of what is ecology.

1. **Conservation Ecology –**This refers to the ecology of the natural world and how it exists without the presence or interference of man, and how it exists with the presence and interference of man. It is common to find different areas in the wilderness or portions of public parks set aside with entrance restricted or forbidden because they are conservation areas. Conservation areas are set aside to protect conservation ecologies.
2. **2. Urban Ecology** – As you can guess by the name this one is focused on the balance of life within urban settings. It includes both conservation and human ecology, but the nature of an urban ecology is so different in how phases of ecological succession may develop that it is studied as its own entity. Urban ecology looks at the impact of human life on an area, how cities and urban areas manage resources and what the cycle of growth and decay within these unique environments are.
3. **3. Human Ecology –**Human ecology is multi-faceted. It focuses greatly on patterns of population and mortality, consumption of resources, conservation efforts and how humans affect plant, animal and other human life. Within human ecology you will also find people studying the impact of the human race on the atmosphere, space and the ocean.

### Phases of Ecological Succession

Each of these ecology types go through three distinct phases of ecological succession. Succession is the term used to define how the development in one phase of the ecology is then used to allow the next phase to occur. While it may seem like this is a very ordered process, if the ecology is disrupted it may go back or forward a phase. To better explain succession we will use the example of what happens after a forest fire has destroyed life on the side of a mountain.

**1. Primary** – This is the beginning stage of ecology. That side of the mountain may begin to be repopulated with seeds that have blown in on the wind, been planted by humans in a conservation effort, and the area may gain animal life from different types moving in to hunt or live for protection. The key to understanding primary ecology is that is begins with the minimal life that the area can support, which is then followed by the next life in the food or resource chain.

**2. Secondary** – During the secondary phase of the ecology life has begun again in the forest area. Grass and flowers may grow, small birds and mammals have returned and there have been two or three cycles of life to seed to decay to birth that have occurred. This then brings in more predators in the cycle to complete the cycle of life.

**3. Climax** – The climax stage of ecological succession sees a forest thriving on the mountainside again with all the plant and animal life you would expect. There is little evidence of the fire as the forest has aged enough to still be young, but to be well established. It is at this point that the ecology begins to slowly decline as it begins to overuse resources and conservation is needed.

### What Can Disrupt Ecology?

Problems happen when ecology is disrupted. This can speed ecology through its successive phases and cause it to die out quickly. Remember that no ecology exists by itself, but all ecologies exist within balance to each other. Small conservation ecology in the rainforest may not seem like a big deal, but it plays a part in managing air, climate and other resources needed by the human ecology a continent away.

**Natural disruptions**

Natural disruptions can come in the form of extreme weather such as prolonged droughts, heavy rain or snowfall, storms, [hurricanes](https://www.conserve-energy-future.com/various-hurricane-facts.php), tornado, monsoons and more. These also can involve seismic disruptions such as [earthquakes](https://www.conserve-energy-future.com/HowEarthquakesOccur.php) and volcanic eruptions. These dramatic events can damage or change the balance within an ecology.

**Man-made disruptions**

Man-made disruptions can come in all shapes and sizes. There are the obvious ones such as clearing land, but less obvious ones when you are looking at ecology in its secondary stage of succession that includes mankind. An increased drain on [natural resources](https://www.conserve-energy-future.com/list-10-natural-resources.php), such as water or [fossil fuels](https://www.conserve-energy-future.com/pros-and-cons-of-fossil-fuels.php), can set up a disruption. All forms of mining, including wind farms, disrupt ecologies as well.

### How To Protect Ecology?

There are many different ways that ecology can be protected. Most of them are in place or in the process of being put in place now as the world begins to understand the importance of managing ecologies better. The three main ways that ecology is protected are:

**1. Conservation** – As mentioned before, conservation is when ecology is protected by harm by being set aside so it cannot be interfered with. In the USA, many of the major state and national parks are conservation areas. You can only visit certain places in the park while other areas are off limits to protect the ecology there.

**2. Regulation** – Regulations such as the Clean Air Act and other laws try to set limits on the types of man-made disruptions caused by expansion, exploration or industrialization that can occur. The goal is to limit the known impact on the natural ecology to preserve and maintain the resources that mankind depends on.

**3. Replacement** – This type of replacement is twofold. In areas where regulation has permitted conservation to be removed, companies may pay to have a new area seeded or protected to try and restore balance. Another aspect of replacement is the search for man-made substances that can replace natural resources. One example of this is the search for a viable alternative energy to fossil fuel.

Please check the links for further reference

<https://www.britannica.com/science/ecology>

<https://www.yourdictionary.com/ecology>

<https://www.conserve-energy-future.com/what-is-ecology.php>