

Ethology

The word 'ethology' is derived from two Greek words 'ethos' meaning habit and logos, meaning study.

Animal behaviour can be defined as observable activities an animal performs in response to the various stimuli in order to survive and reproduce. A behavioural act is a response to a stimulus which is the basic and universal concept of behaviour. A stimulus is always a change in the internal or external environment of organisms. A stimulus may be in the form of signs/symbols or releases. Signs can be visual, auditory, chemical or other types of sensory models.

A releaser stimulus releases certain fixed action pattern (FAP) of behaviour. A stimulus always elicits a response which is an attempt to adapt to the change. Thus behaviour is generally stimulus

oriented

- response oriented. The behaviour of an organism is essentially an expression of the capabilities of its nervous system. While the environment determines the nature of the stimulus, the response involves the body, especially the nervous system of the organism which is genetically determined.

AIMS AND OBJECTIVE OF ETHOLOGY

1. To understand why animals behave the way they do.
2. Understand the cause of behaviour
3. The physiological mechanism that generates the action.
4. To understand how behaviour developed.
5. To study evolutionary history of behaviour
6. To analyze the potentials of the nervous system

7. To study the range of behaviour prevalent in the animal kingdom starting from innate to learned behaviour from fighting to cooperating etc.
8. For effective management of game animals.
9. The farmer must be aware of habits of his animals to get maximum benefit.
10. Knowledge of behaviour of animals like some insect, rodents etc. that damage the crop has helped in effective pest control.
11. Behavioural studies can help in animal conservation. By understanding the nesting and territorial habits of the birds can help to create or preserve the habitats required by them. It can also help to increase the number of endangered and threatened animals.
12. The information gathered in animal behaviour can be used to understand human behaviour.

EVOLUTION. HOW ...
comparative approach

C. **BRANCHES OF ETHOLOGY** : Some the more important branches of ethology are as follows

- **Ecoethology** : Ecoethology is a comparatively new branch of ethology in which the relationships between the Behaviour of a species and other abiotic and biotic components of an ecosystem are investigated.
- **Ethophysiology** : Ethophysiology or Behavioural physiology deals with the physiological basis of Behaviour.
- **Neuroethology** : Neuroethology deals with the sensory process and the central nervous system that underline a particular Behaviour.
- **Ethoendocrinology** : Ethoendocrinology deals with the relations between hormones and Behaviour.
- **Ethogenetics** : Ethogenetics or Behavioural genetics investigates the genetic basis of Behaviour, using simple concepts of single or multiple gene inheritance. Its goal is to prove empirically the relationship between genetic factors and their influence on Behaviour.
- **Phylogenic ethology** : The phylogeny of Behaviour traces the evolutionary origin and development of Behavioural characteristics and the ontogeny of Behaviour study the development of Behaviour in a species.
- **Behavioural embryology** : This branch of biology deals with the prenatal development of Behaviour patterns.
- **Human ethology** : The goal of human ethology is to study human Behaviour. It emphasizes phylogenetically transmitted and genetically determined regularities and variability of human Behaviour.
- **Sociobiology** : Sociobiology stands between ethology and population biology. Its central concern is to understand how and why animal social Behaviour has evolved. Sociobiology does not have discrete boundaries; it is interwoven with many disciplines, including physiology, embryology and ultimately anthropology, psychology and even history. E.O. Wilson is often regarded as the father of Sociobiology.
- **Comparative ethology** : Comparative ethology makes the evolutionary explanation for many common Behaviours to show that they all share a common ancestor that performed those Behaviours.
- **Cognitive ethology** : Cognitive science is an umbrella term for convergent approaches

to the study of mind in linguistics, artificial intelligence, cognitive psychology, and increasingly the neurosciences. Cognitive ethology is that it is the marriage of cognitive science and ethology.

- **DEEP ethology** : Consideration of the causes and consequences of a Behavioural pattern from the converging perspectives of Developmental biology, Ecology, Evolutionary biology, and Physiology.
- **Bioacoustics** : It is a field of ethology that investigates the sound production of animals with the help of high quality recording equipments to understand their Behavioural functions