

Lecture- animal behaviour 1

- Behaviour is the aggregate of the responses or reactions or movements made by an organism in any situation.
- **Tinbergens shell experiments:**
- Observed that black gulls took eggs out when chicks hatch.
- Important that birds remove their eggs
- **WHY DO THIS?**
- Eggs might carry disease
- Other birds don't remove their eggs.
- Eggs attract predators to their nest.
- Natural camouflaged eggs weren't taken nearly as much-safer nests.
- Jagged broken shells may injure newly hatched chicks.
- He showed that other birds in other habitats didn't remove eggs.
- **Timbergen four questions:**
- **Cause:** what stimuli causes this behaviour? What neurobiological, psychological or physiological mechanisms contribute or regulate this behaviour.
- **Development:** how did behaviour arise? How does enviro influence this behaviour?
- **Function:** how does behaviour help animal survive and reproduce?
- **Evolution:** how did the behaviour evolve.
- **Proximate questions:**
- How → cause and development, comparative psychology and ethology.
- **Ultimate questions:**
- Why → function and evolution, behavioural ecology.
- Ethology is concerned with mechanisms of behaviour.
- FIXED actions/patterns of behaviour
- The development of FLEXI behaviours
- The production and detection of cues and stimuli which are important to these.
- **Behavioural ecology**-how animals interact with environ → cost and benefit of a behaviour.
- **Central idea in behavioural ecology:** any behaviour will be beneficial- otherwise process of natural selection would have selected against it and removed from population.
- Animals behaviour is adapted to environment.
- **Questions behavioural ecologists ask:**
- Why do animals live in groups?
- Why do they eat certain food?
- Why do animals disperse?
- Why do animals cooperate?
- **Mechanism and function in animal behaviour:**
- Zooplankton make vertical migrations in ocean at night-time.
- Go deep in day.
- WHY?
- Circadian rhythms

- Responses to changes in light quantity and spectral ratios act as **zeitgebers** for their circadian rhythm.
- Exploitation of resources at surface and avoid predators in the day time by going deep into the ocean.
- These are examples of a mechanistic and a functional explanation.
- **Behavioural repertoire of animals:**
- Innate: animal is born with this behaviour-instinctive.
- Learned: animal learns this behaviour as it grows.
- Juvenile animals and humans are designed so that they will be protected by adults. Small ears with big eyes in babies triggers adults to want to protect babies.
- **Fixed action patterns-** typically triggered by a sign stimulus!
- This is a mechanism in brain which is triggered when an animal sees something. The animal starts behaving.
- **Sign stimulus→ releasing mechanism→ fixed action pattern**
- **Sign stimulus:** critical portion of an overall stimulus or releaser
- **Releasing mechanism:** neural pathway
- **Fixed action pattern:** behavioural response.
- **Sex attraction in sticklebacks:** females respond to red belly and start to mate. They see red male and breed. The males red belly is the sign stimulus.
- **Egg retrieving behaviour in geese:** eggs outside the nest triggers geese to bring it back to nest. The egg is the behavioural trigger.
- **Supernormal stimulus:** a stimulus so large that it triggers a huge behavioural response e.g. beer bottles and beetles in WA breeding with them. Huge arses and sex behaviour trigger.
- **Anthropomorphic subjectivity:** humans subjectively view this world using our own senses and we superimpose our view onto other animals.
- **Proprioception-**knowing where your body is e.g. where a limb is.
- **Nociception:** pain sensing.
- **Humans don't have:** magnetic sensing.
- **Semiochemicals:** sense of smell.