Objectives
1. To assess the importance of studying animal behavior in ethology.
2. To analyze the factors affecting animal behavior.
3. To describe the importance animal behavior research has on human psychology and social sciences.

Animal Behavior
- Examines the reaction of an animal to a certain stimulus – an agent, action or condition causing a response
- Shows how an animal reacts with its environment
- Reflects internal and external factors as well as learned
Genetics

- Study the science of heredity and variation of inherited traits among related
- Explain instincts, which animals are born with
- Control some behavior, such as walking, which is shared by most animals whereas other actions are
to certain animals

Instincts – inborn pattern of behavior which is characteristic of a species, often a response to
t heir environment

Ethology

- Is the study of animal behavior, especially in the environment
- Examines instinctive and adaptive nature in early development
- Observes natural processes such as communication, mating, and self defense
- Monitors animal welfare influenced by internal, external and learned factors

Welfare – the health, happiness and well-being of an animal

Instinct

- Causes a newborn kangaroo to into the mother’s pouch and begin nursing
- Tells a newly hatched herring gull to peck a small red spot on its mother’s beak in order to be fed
- Allows a spider to build a web for the first time despite having no previous experience with weba

Pheromones

- Are secreted by an animal which influence the behavior of others in the same species
- Include the following:
  - aggregation
  - alarm
  - territorial
  - trail
  - sex

Aggregation Pheromones

- Promote the [ ] of animals
- Attract both male and female animals
- Influence animals to form groups for protection, migration and [ ]

Example:
Spiny lobsters use aggregation pheromones to create safety in numbers by forming groups to wave spiny antennae in order to deter predators.

cohesion – the act of uniting

Alarm Pheromones

- Warn animals of possible [ ]
- Trigger defensive and aggressive behavior
- Emitted by one animal in a group will cause others to [ ]

Example:
Alarm pheromones secreted from the stinger of a wasp bee signals other bees to the threat, explaining why once one bee has stung, others move in.
**Epideictic Pheromones**
- Are known as ______ pheromones
- Regulate population density
- Affect the colonization or extent of exploration of a plant resource
- Helps ______ identify healthy hosts from parasitized ones

Example:
Flies will produce epideictic pheromones when laying eggs to deter other female flies from laying larvae in the same spot.

**Territorial Pheromones**
- Define the ______ area of specific organisms
- Warn other animals of nearby animal
- Can be used to recognize other animals, such as an ant from another colony

Example:
Dogs deposit territorial pheromones, present in their urine, on landmarks to mark the boundaries of their domain.

**Trail Pheromones**
- Allow animals to ______ one another
- Lead to food sources, new colonies and prey animals later plan to kill
- Permit lost animals to find the group by following ______

Example:
When found walking in a straight line, ants are actually following the trail pheromones left behind the ant in front of them.
Sex Pheromones

- Attract the sex in animals
- Allow animals to know when the opposite sex is ready to mate
- Are often used by predators to prey into capture

Example:
When a female dog is in heat, she is excreting sexual pheromones which can attract male dogs over a mile away.

Hormones

- Are chemical substances in the body regulating specific processes
- Include the following:
  - epinephrine
  - testosterone

Epinephrine

- Releases in response to physical or mental stress such as fear or injury
- Accelerates heart rate and raises blood pressure
- Is released during a fight, resulting in animals being aggressive for several after

Example:
When dogs fight or feel threatened, high levels of epinephrine are released causing them to become hostile to both the aggressor and surrounding animals, including humans.
**Animal Behavior & Welfare**

**Estrogen**
- Induces estrus and prepares the uterus for reception of an egg.
- Causes females to be receptive to males for mating.
- Attracts males from up to away.

*Example:*
When housecats are in estrus due to the release of estrogen, it is known as being in heat and causing agitated behavior.

**Testosterone**
- Stimulates the development of the male sex organs.
- Leads to a hierarchy in most animals; the dominant male having the highest level of testosterone.
- Causes males to seek females for mating and accounts for behavior toward other males during this time.

*Example:*
When two male dogs are seeking the same female, the dog with a higher level of testosterone will succeed in obtaining the female.

**Pregnancy**
- Inhibits activity among females, decreasing the amount of time spent walking or standing and increasing the amount of time spent.
- Increases the amount of food a female will consume.
- Causes females to become more agitated and towards other animals and humans.

*Fun Fact:*
The Asian Elephant's pregnancy lasts for 22 months.
Body Homeostasis

- Describes an environment which supports the survival of cells inside an animal
- Is achieved by all body systems working together to maintain body temperature, acidity and alkalinity levels
- Occurs at different levels in different animals
- Operates both internally and externally

Example:
A dog will curl into a ball and use its tail to cover its nose to minimize heat loss during cold weather.

External Factors

- Include the following:
  - communication
  - courtship rituals
  - threats to

Environment

- Includes the surroundings and conditions placed upon an organism
- Influences how an animal feeds and reproduces
- Shapes how animals will respond to new situations, including the behavior of humans
Wild Animals
- Live in colonies of humans
- Set up territories in areas with plenty of food sources, water and shelter
- Fight to establish dominance
- Scavenge for food
- Find potential partners

Domestic Animals
- Rely on humans for housing and care
- Breeding is largely controlled by humans
- Learn to respect owners

Fun Fact: Domestic turkeys weigh twice as much as their wild counterparts

Zoo Animals
- Can be broken up into the following three groups:
  - Wild animals: breed on their own while maintaining loose ties with humans
  - Semi-domesticated animals: breed on their own but have undergone physiological or behavioral changes due to captivity
  - Zoo animals: completely rely on humans for breeding and feeding purposes

physiology - biological study of the functions and activities of living organisms
Communication

- is classified and described based on the ways animals receive including the following:
  - chemoreception
  - visual
  - vocal

Chemoreception

- Describes the response to a chemical stimulus
- Includes recognizing and exhibiting phenomena and identifying substances based on taste
- Explains behavior in animals such as constant and sniffing

Example:
Butterflies have chemoreceptors on their feet to let them sense different strengths and types of nectar

Mechanoreception

- Expresses an animal's response to a physical
- Includes communicating through vibrations including the following:
  - substratum: through the ground or other foundation
    through the air or water

Example:
Spiders use vibrations to pluck mating calls to one another as well as determine the type and location of prey having landed on the web
Visual Communication

- Leads to competition among males for the most impressive displays to females
- Warns of other male competitors
- Is displayed through facial expressions and body language
- Alerts predators to the position of their

Example:
Male peacocks brightly colored tails are used to impress and attract female peacocks, but also attract predators.

Vocal Communication

- Is made by the giving and receiving of audible noises from one animal to another
- In [____], and whales include making clicks and squeals to inform others of feeding, migration, and location
- In elephants involve emitting a pitched sound below the level of human hearing which draws in other elephants from miles away

Courtship Rituals

- Attract members of the opposite sex for mating
- Include [_____] dancing, singing or displaying decorations
- Cause males to become more territorial and aggressive, often leading to a fight with [_____] suitors

Fun Fact:
Male grasshoppers can produce over 400 mating songs, each with a different meaning.
Threats to Safety

- Occur when predators appear or animals feel trapped
- Cause animals to become tense and 
- Result in a fight or flight situation

Learned Behavior

- Include the following:
  - habituation
  - reasoning

Habituation

- Occurs when an animal becomes accustomed to a particular situation due to frequent repetition
- Results from exposure to an event which merits no reward or punishment
- Leads to an animal completely ignoring the event to which it has become accustomed or see no danger in it, as with deer becoming accustomed with passing cars
Conditioning
- Happens when animals learn to respond to a stimulus in a certain way due to
  from a reward or punishment
- Occurs in the following forms:
  - conditional: pairs a neutral stimulus with
    one eliciting a response until the neutral
    stimulus itself causes the response
  - causes an animal to associate a
    certain behavior with pain or pleasure to
    either reinforce or discourage this behavior

Reasoning
- Involves an animal responding
  to a stimulus the first time
  presented
- Takes place when an animal uses past
  experiences to make a decision
  regarding its

Imprinting
- Is learning which occurs during a
  brief receptive period, often right after
  birth or hatching
  - Is
Animal Behavior

- Is studied to help understand behavior, instincts and social interactions.
- Is paired against human behavior in comparative psychology to analyze a specific action and see if the two share similarities.
- Is researched in evolutionary psychology to see how humans and animals have adapted to living in their environments over the years.
- Helps scientists study sociobiology, which examines social behaviors in animals and humans and shows the evolutionary advantages of such.

Resources

- (2008), Retrieved October 9, 2008, from ACS Publications: pubs.acs.org
- (2008), Retrieved October 9, 2008, from California State University Northridge: www.csun.edu
- (2008), Retrieved October 9, 2008, from Association for the Study of Animal Behaviour: asab.nottingham.ac.uk

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