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# GUIDE TO URBAN ANIMALS

## INVERTEBRATES

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## **KEY TERMS**

### **Biodiversity**

short form of biological diversity, it is the variety and number of different types of living organisms including plants, animals, fungi, microorganisms and their ecosystem

### **Pollinator**

an animal that transfers pollen from one flower to another, helping to fertilize the plant so it can reproduce

### **Prey-predator relationship**

a type of relationship between two species where one species (predator) eats the other (prey)

### **Bio-indicator**

a species whose presence or absence measures the health or quality of an environment

### **Seed dispersers**

animals that help spread or transport seeds away from a parent plant

### **Herbivore**

an animal that feeds on plants only for energy

### **Carnivore**

an animal that feeds on other animals for energy

### **Omnivore**

an animal that feeds on both plants and other animals for energy

### **Insectivore**

an animal that feeds on insects

### **Decomposers**

living organisms that feed on dead or decaying matter. They help break down organic waste so that nutrients can be recycled in the ecosystem

### **Scavengers**

animals that feeds on dead plant or animals

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# INSECTS



## Butterfly

**Description:** Active in the day time, they have club-shaped antennae and their wings are held upwards when at rest.

**Ecological function:** pollinators, prey-predator relationship

**Level in food chain:** primary consumer

**Feeding behaviour:** herbivore (when caterpillar), nectarivore

**Microhabitat:** trees and shrubs where it can rest, flowering plants where it can feed.



## Moth

**Description:** Active at night, they have antennae with various shapes and their wings are flat when at rest.

**Ecological function:** pollinators, prey-predator relationship

**Level in food chain:** primary consumer

**Feeding behaviour:** herbivore (when caterpillar), nectarivore

**Microhabitat:** trees and shrubs where it can rest, flowering plants where it can feed.



## Grasshopper

**Description:** They have short antennae and are active during the day. They “sing” by rubbing their hind legs against their wings

**Ecological function:** herbivore, prey-predator relationship

**Level in food chain:** primary consumer, secondary consumer

**Feeding behaviour:** usually herbivore

**Microhabitat:** usually on plants and grass



## Cricket

**Description:** They have long antennae and are active at night. They “sing” by rubbing their wings together.

**Ecological function:** decomposer, prey-predator relationship

**Level in food chain:** secondary consumer

**Feeding behaviour:** omnivore, detritivore

**Microhabitat:** usually on the ground and in fallen leaves

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# INSECTS



## Dragonfly

**Description:** They have a thicker and chunky abdomen. Their wings are unequal in size and are open at rest. In males, the large eyes are touching.

**Ecological function:** prey-predator relationship

**Level in food chain:** secondary consumer

**Feeding behaviour:** carnivore

**Microhabitat:** wet areas like ponds, drains, puddles and streams



## Damselfly

**Description:** They have a thin and narrow abdomen. Their wings are equal in size and are closed at rest. There is a gap between the eyes.

**Ecological function:** prey-predator relationship

**Level in food chain:** secondary consumer

**Feeding behaviour:** carnivore

**Microhabitat:** wet areas like ponds, drains, puddles and streams.



## Bee

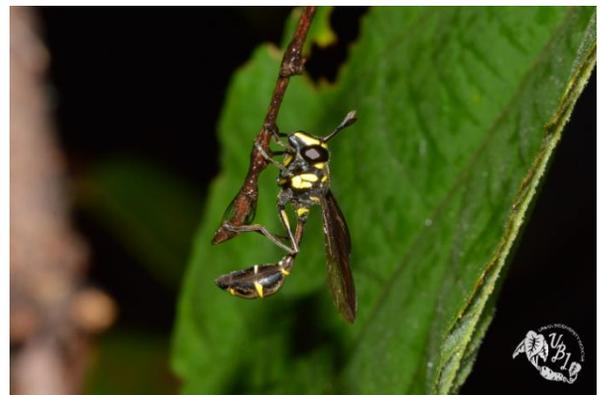
**Description:** They usually have a hairy, round body and legs are usually hidden when flying. They only sting when provoked.

**Ecological function:** pollinators

**Level in food chain:** primary consumer

**Feeding behaviour:** nectarivore

**Microhabitat:** sometimes live in colonies in hives



## Wasp

**Description:** The body is slender and narrow-waisted with little to no hair. Their legs hang down when flying. They only sting when provoked.

**Ecological function:** prey-predator relationship, pollinator

**Level in food chain:** secondary consumer

**Feeding behaviour:** nectarivore, carnivore

**Microhabitat:** sometimes live in colonies in grounds or in roof spaces

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# INSECTS



## Ants

**Description:** They have a thin waist and are usually wingless, sometimes divided into smaller workers and larger soldiers. 'Ant bites' are usually the acidic stings of ants.

**Ecological function:** decomposer, scavenger

**Level in food chain:** primary and secondary consumer

**Feeding behaviour:** detritovore, omnivore

**Microhabitat:** almost everywhere



## Fly

**Description:** They usually have a round body and large eyes. They are important pollinators, decomposers and food items for insectivores.

**Ecological function:** pollinator, decomposer, scavenger

**Level in food chain:** secondary consumer

**Feeding behaviour:** coprophagous, necrophagous

**Microhabitat:** near rotting material



## Midges

**Description:** They can be mistaken for mosquitoes, but do not suck blood. Their hind legs are not larger than the front legs. Midges do not have a long needle like mouthpart. They are important pollinators.

**Ecological function:** pollinators, decomposer,

**Level in food chain:** secondary consumer

**Feeding behaviour:** carnivore, detritivore, nectivore, coprophagous

**Microhabitat:** damp areas with a lot of shade



## Mosquito

**Description:** Their hind legs are larger than their front legs. Females will feed on blood when they need to lay eggs, but male mosquitoes do not suck blood and are useful pollinators. Mosquitos are important prey to many insectivores.

**Ecological function:** parasite, pollinator

**Level in food chain:** secondary consumer

**Feeding behaviour:** nectivore, blood feeder

**Microhabitat:** damp areas with a lot of shade

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# INSECTS



## Beetles

**Description:** Beetles are an incredibly diverse group. The shell has a line in the middle where the wings open.

**Ecological function:** pollinator, decomposer, scavenger, predator, predator-prey relationship.

**Level in food chain:** primary and secondary consumer

**Feeding behaviour:** omnivore

**Microhabitat:** almost everywhere



## True bugs

**Description:** They are mainly predators and herbivores. Their shells do not have a line in the middle. Many produce a stinky smell if disturbed.

**Ecological function:** herbivore, predator

**Level in food chain:** primary and secondary consumer

**Feeding behaviour:** herbivore, carnivore

**Microhabitat:** near trees and shrubs

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## OTHER INVERTEBRATES



### Spider

**Description:** They have eight legs. Some make webs while others hunt by jumping or ambushing their prey. They are important for controlling insect populations.

**Ecological function:** bio-indicator, prey-predator relationship

**Level in food chain:** secondary consumer

**Feeding behaviour:** carnivore

**Microhabitat:** almost everywhere



### Snail & Slug

**Description:** These animals crawl on a single muscular foot. Most feed on plants, but sometimes they eat fungus and decomposing material. Snails help to break down decomposing material and become food for birds and other animals. Snails have shells, while slugs don't.

**Ecological function:** herbivores, detritivore, decomposer

**Level in food chain:** primary consumer

**Feeding behaviour:** herbivore, fungivore, detritivore

**Microhabitat:** moist soil, under leaf litter

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## OTHER INVERTEBRATES



### **Centipede & millipede**

**Description:** Millipedes have two pairs of legs per segment and move slowly. Centipedes have one pair of legs per segment. Millipedes protect themselves by coiling up and producing a yellowish poison. Centipedes have modified front legs that inject venom into their prey.

#### **Millipedes**

**Ecological function:** decomposer

**Level in food chain:** decomposer

**Feeding behaviour:** detritivore

**Microhabitat:** usually found in rotting material

#### **Centipedes**

**Ecological function:** predator

**Level in food chain:** secondary consumer

**Feeding behaviour:** carnivore

**Microhabitat:** usually found in rotting material

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## References

1. Malaysia Biodiversity Information System (MyBIS)  
<https://www.mybis.gov.my/one/>
2. Ecology Asia <https://www.ecologyasia.com/>