

# WILDLIFE: INVERTEBRATES



## TYPES OF INVERTEBRATES

- **Marine invertebrates** are ocean animals without backbones, including starfish, sponges, jellyfish, corals and anemones.
- **Mollusks** have a soft body covered by an outer layer, a mantle. Many live inside a shell. Mollusks include slugs, snails, squid, octopuses and oysters.
- **Crustaceans** are a type of arthropod, meaning they have jointed legs. Their bones are on the outside of their bodies, like a shell. Crustaceans include shrimp, crabs, lobsters and barnacles.
- **Worms** are invertebrates that don't have legs. They live in soil, water, or inside other animals as parasites. Worms include earthworms, tapeworms and leeches.
- **Spiders, centipedes and scorpions** are part of the arthropod phylum, but they are arachnids, not insects, because they have eight legs. Centipedes and millipedes are myriapods and have lots of legs. The average home houses 30 spiders. You are always only three feet from a spider.
- **Insects** make up the largest group of animals in the world, the arthropods. There are over 1 million species of insects.

Mammals, amphibians, reptiles, fish and birds all have backbones. All these animals make up less than 4% of the total animal species. Over 96% of all the animal species on earth are invertebrates. Invertebrates are cold blooded animals that do not have backbones and do not have a skeleton of bone, either internal or external. Some have fluid-filled skeletons, while others have hard exoskeletons, or outer shells.

## FASCINATING INVERTEBRATE FACTS

### THE BIGGEST

The giant cranch squid is the largest squid species in terms of mass. At over 40 feet long, it is the largest known invertebrate. The longest invertebrate is the ribbon worm which can grow to 180 feet long.

### THE SMALLEST

The smallest, the wheel animal, is too small to see with your eyes.

### THE FASTEST

Tiny mites are the fastest animals in the world when it comes to body size.

### THE LONGEST LIVED

Clams can live over 400 years. Some corals live even longer.



### SEA GENIUSES

The octopus has a sophisticated navigation system in its brain that helps it navigate complex mazes, as well as stay one tentacle ahead of any opportunist predators. Octopi have been known to solve problems and play together, and have an impressive short-term memory. They have even been known to sneak aboard fishing boats and pry open holds to steal captured crabs, and can open jars. They use

shells and other objects to build defense structures against predators. They are capable of foresight, planning and using their tentacles as tools. Octopuses collect bottle caps, attractive stones and other finds from the ocean floor and decorate their dens with them, repositioning an object if it doesn't seem to suit the design.

## ARACHNIDA

Spiders are invertebrates but are not considered insects because they only have two main body parts instead of three, eight legs instead of six and no antennae. Most spiders also have eight simple eyes, while insects have large, compound eyes. Some have no eyes and others have as many as 12. Spiders, along with ticks, mites, harvestmen and scorpions, are called arachnida. They are also classified into a special group called araneae because they have very slender waists compared to other arachnida. Most spiders are carnivorous, usually feeding on insects. Some are big enough to prey on larger animals such as mice or small birds. Without spiders, insect numbers would skyrocket and bugs would devour our crops. Most spiders eat about 2,000 insects a year. Some spiders live in silk-lined burrows and leap out to capture prey. Some lie in ambush. Some go hunting in search of prey and others spin webs to entrap them. Some spiders capture prey with silk-made nets, and others use spider silk as "fishing lines". Spider silk is also used to protect their babies,



to create shelters and to assist them as they move and reproduce. Some spiders even build "submarines" that hold air so they can stay under water. Most live on land, but a few live in and on water and can run across water. Spider webs are made of continuous strands of spider silk produced from glands under their bellies. Most take about 60 minutes to construct. The webs have three parts: the frame, built first and

attached to plants or other objects; the radii, which radiate out from the center like spokes of a bicycle and transmit vibrations from prey; and the catching spiral, the sticky threads that stretch without breaking making it difficult for insects to escape. Small and young spiders can travel for miles on air breezes, a travel method called ballooning. To lure other spiders from their webs, the jumping spider plucks rhythms at the corner of a web to mimic a trapped insect. Some spiders live in complex communities housing thousands of individuals, building large communal webs, working together to trap prey and sharing the harvest.

## LARGEST BRAINS IN THE WORLD

The animal with the largest brain in proportion to its size is the ant. They farm, gather, hunt, raise animals and engage in rituals. Ants are social insects and live in colonies of as many as 500,000 individuals. They divide jobs among each other. Queens lay eggs while all other females are workers who feed the babies, take out the trash, forage for food and supplies and defend the nest. Males only have to mate with the queen. Ants have two stomachs, one to hold food for themselves, and one for others. Some ants keep other ants, or other insects, as slaves forcing them to do chores. Ants have been farming for 70 million years, using sophisticated horticultural techniques to grow crops. They even keep "cattle", aphids which they milk by tickling them with their antennae. They clip the wings of aphids that have them or produce chemicals from glands in their jaws to stop the development of their wings. They can also use chemicals to tranquilize aphids. Ants "hear" by feeling vibrations in the ground with special sensors on their feet and knees. Their antennae and body hairs feel around while foraging for food. They communicate with a sophisticated language using chemicals known as "pheromones." One species, *M. smithii*, reproduces asexually, with all babies clones of the queen. There are no males. Army ants do not build permanent nests. They travel around attacking other colonies and other insects and build temporary campsites at night. The largest ant colony discovered to date was over 3,750 miles wide. Ants engage in war, including psychological warfare.

