

Hemiptera: Its Diversity and Life Cycle Description

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Short Communication

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ABOUT THE STUDY

Hemiptera, often known as genuine bugs, is an order of insects that includes approximately 80,000 species in subgroups including cicadas, aphids, planthoppers, leafhoppers, assassin bugs, bed bugs, and shield bugs. The name hemiptera comes from the Ancient Greek hemipterus, which means "half-winged." They have similar mouthpart arrangements and range in size from 1 mm (0.04 in) to about 15 cm (6 in). Heteroptera is frequently the only suborder designated as "true bugs"

For Hemiptera or Heteroptera, this excludes other arthropods or insects of other orders including ants, bees, beetles, and butterflies, entomologists reserve the term "bug". All terrestrial arthropods, including myriapods and non-insect arachnids, are also referred to as bugs in various dialects of the English language.

Particularly in American English, many insects containing the word "bug" in their common name really belong to other orders. For instance, the bug is actually a fly, while the maybug and ladybird are actually beetles. In some cases, the phrase is also used by medical professionals and bacteriologists to refer to microorganisms that cause disease, such as superbugs, as well as common names for freshwater or marine crustaceans (such as Balmain bugs, Moreton Bay bugs, and mudbugs) ^[1-2].

The majority of hemipterans consume plants, sucking and piercing plant sap with their mouthparts. Some are predators that eat other insects or tiny invertebrates, while others are hematophagous, or blood-suckers. They inhabit a wide range of environments, most of which are terrestrial, however others, including gigantic water bugs, water boatmen, and pondskaters, are adapted to living in or on the surface of fresh water. Hemipterans are hemimetabolous, and their immature nymphs resemble adults in certain ways. Many aphids are capable of parthenogenesis, which allows them to reproduce quickly in favourable environments by creating young from unfertilized eggs. For thousands of years, people have engaged with hemipterans. Some species, many of which are aphids, are significant agricultural pests that not only directly injure crops by sucking sap but also indirectly harm them by spreading dangerous viral infections. Other species have been employed to biologically control invasive plants or insect infestations ^[3-5]. A few hemipterans have been raised for the extraction of shellac and colours like

cochineal and carmine. A bed bug is a chronic human parasite, and some bugs can spread the disease Chagas. Since the Iliad in Ancient Greece, cicadas have been used as food and have been mentioned in literature.

Diversity

With almost 95,000 identified species, Hemiptera is the biggest order of hemimetabolous insects (without undergoing complete metamorphosis; but certain examples, such as male scale insects, do so). Other insect orders with more species are all holometabolous, which means they go through a full metamorphosis and have a pupal stage. Some species are found in watery settings, although the majority of species are terrestrial, including a number of significant agricultural pests. These consist of the huge water bugs, backswimmers, pond skaters, and water boatmen.

Life cycle

Since hemipterans are hemimetabolous, they do not go through complete metamorphosis, which is the transition from a larval to an adult stage. Instead, they have nymphs as their offspring, which are more or less like the adults. The nymphs go through multiple moults as they develop, and each instar more closely resembles the adult than the one before it. Later-stage nymphs develop wing buds; the ultimate metamorphosis consists primarily of the development of functional wings (if any are present), as well as functional sexual organs, with no pupal stage in between, unlike in holometabolous insects [6]. Many aphids have a stage of their life cycle where they are parthenogenetic, allowing females to create unfertilized eggs that are clones of their mother. Since all of these young are female (thelytoky), 100% of the population can now have more children. Numerous aphid species are viviparous, which means that the offspring are born alive rather than being laid as eggs. When the conditions are right, these changes allow aphids to reproduce very quickly.

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