

Order Phasmatodea

Common names: stick insects, walking sticks

Simple diagnosis. Many species of Phasmatodea mimic sticks or leaves. They often have a very large body. They also can be distinguished morphologically by having a forwardly directed head often with outgrowths, small eyes, ocelli are often present the mesothorax is usually elongate, and the femora are not enlarged, wings are often reduced or absent, but if full-winged, the forewing is leathery with dense venation.

Taxonomic diagnosis. Stick insects are usually large in size, some species can exceed 30 cm in length. Many species are either stick- or leaf-mimicking, their head is usually prognathous (= directed forwards), sometimes with outgrowths, the antennae are multi-segmented, varying in length, the compound eyes are small, ocelli are usually absent, and the mouthparts are mandibulate. The prothorax in Phasmatodea is shorter than other thoracic segments, not extending to the pleura, the mesothorax is usually elongate, extending well beyond the forewing attachment. All legs are gressorial, hind femora are not enlarged, and tarsi are 4-5 segmented. The wings are often reduced or absent, but if full-winged, then the forewings are leathery with distinct venation, and hindwings have dense venation and a large anal region. The cerci are short and unsegmented. The nymphs resemble adults.

What can they be confused with? Representatives of Phasmatodea are similar to species of Orthoptera, with some species of both orders mimicking sticks or leaves. Orthoptera can be distinguished by the large pronotum, with lateral lobes extending over the pleura, the mesonotum not elongate, the greatly enlarged hind legs which are modified for jumping, large eyes and the head is strongly hypognathous (= vertically directed).

Phasmatodea are also similar to plant-mimicking Mantodea, as they also have an elongate body, leathery forewings, membranous hindwings with extensive venation. Mantodea can be distinguished by raptorial forelegs with elongate coxae, subtriangular head with large eyes and three ocelli, multi-segmented cerci and elongate pronotum.



Stick insect (Phasmatodea)



Leaf insect (Phasmatodea)

Biology. Stick insects are most diverse in tropical climates and feed on plants.

Diversity in Papua New Guinea. This order is predominantly tropical with more than 2500 species. The New Guinea fauna is well-known and mostly described (Miller 2007).



Exatostoma tiaratum , feeding

Photograph: © Sam Fraser-Smith; used under a Creative Commons Attribution License

Key references for Papua New Guinea.

van Herwaarden, HCM. 1998. A guide to genera of stick- and leaf- insects of New Guinea and the surrounding islands. *Science in New Guinea* 24: 55-114.