

Order Siphonaptera

Common name: fleas

Simple diagnosis. Fleas are active, blood-sucking parasites, 1-10mm long, with a unique laterally compressed body and enlarged hind legs. Head, thoracic and abdominal segments are similar sized, compound eyes are absent, mouth modified into stylets for piercing and sucking, antennae short and apparently 3-segmented, wings absent, tarsi 5-segmented.

Larva legless, vermiform, with distinct head capsule, no eyes, 13-similar sized body segments, 2 short and thin unsegmented lobes on apex of abdomen.

Technical diagnosis. Siphonaptera are specialised for an active externally parasitic lifestyle. They are diagnosed by their mouthparts, which are reduced to labral, maxillary and labial elongated stylets (for piercing and sucking), without mandibles. The bilaterally flattened body is unique within insects. There are often ctenidia (combs of flat blade-like setae) on head, thorax and/or abdominal segments. The compound eyes are absent but a large lateral ocellus may be present. The antennae are short and stout with the third segment partly subdivided. Wings are absent, pro-, meso- and metanota are similar sized, and the legs are modified for jumping, with coxae larger than femora.

Larvae are white and vermiform (worm-shaped), narrow, and apodous. They have mandibulate (= biting and chewing) mouthparts but the mandibles are microscopically small, maxillary and labial segments are reduced, eyes are absent, antennae are 1-segmented but elongate and relatively conspicuous, the thoracic and abdominal segments are similar, with the abdomen 10 segmented, without prolegs. The apex of the abdomen has a pair of short unsegmented thin lobes.



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What can they be confused with? Larvae of Siphonaptera are similar to other legless larvae of the orders Diptera, Coleoptera, Lepidoptera and Hymenoptera. Diptera can be recognised by having 7-9 abdominal segments, often with modified mouthparts (hooks or fans), and prefer moist and aquatic environments. Larvae of Lepidoptera, Coleoptera and Hymenoptera have conspicuous mandibles.

Biology. Siphonaptera have a cosmopolitan distribution, feeding on mammals (including humans) and birds. Larvae usually feed on dried blood, develop in nests of birds and mammals and are free-living.

Diversity in Papua New Guinea. Siphonaptera are cosmopolitan, with about 2400 described species. The New Guinea fauna is fairly well-known, but last revised 55 years ago (Miller 2007).

Key references for Papua New Guinea.

Holland, GP 1969. Contribution towards a monograph of the flea of New Guinea. *Memoirs of the Entomological Society of Canada* 61: 1-77. The only review of the fleas of New Guinea, but out of date and in an obscure publication.

Dunnet & Mardon. 1990. *Insects of Australia*. CSIRO Publishing, Melbourne. Chapter refers to New Guinea species under descriptions of several families.