

## Glossary

**abdominal prolegs** see prolegs

**adfrontal area** Y-shaped area marked by sutures on the anterior of the head in Lepidoptera larvae

**adfrontal lines** see adfrontal area

**ametabolous** simple lifecycle development type in primitive (apterygote) insects where nymphs hatch from the eggs resembling adults and get successively bigger through moulting stages to adulthood, e.g. silverfish and bristletails

**anal prolegs** prolegs on the terminal abdominal segment, at the apex of the abdomen in some insect larvae e.g. Trichoptera, Lepidoptera (modified and hooklike); see prolegs

**anal struts** see anal prolegs

**antennae** paired sensory appendages on the head of an insect above the mouthparts, usually associated with the eye and often with the base arising in antero-ventral positions to the eye

**anterior** the front or head end, referring to the position on the body

**apex** tip of a structure away from the body; also see apical

**apical** at the tip or end of a structure, referring to the position on the body

**apical abdominal filaments** filaments arising from the last (terminal) segment of the abdomen, the tail end

**appendage** limbs or other structures projecting from the body which generally have a particular function

**apterygote** primitively wingless insects

**aquatic** living in or on water

**aristate** antennal type found in higher flies (Diptera: Brachycera), with a bristle-like structure or arista arising from the apical antennal segment which is usually lobe-like

**arolium** pad-like structure of the pretarsus, distal to the tip of the tarsus, between the base of the claws

**asymmetrical** where the two sides of a structure, when divided down the middle, are different, e.g. cerci of male Embioptera (web spinners)

**basal** positioned closest to the body; usually referring to the base of structure that articulates to the body

**calcar** large, movable, tibial spur or spine; often also with a comb of teeth

**campodeiform** insect larvae that are relatively flattened, elongate and active, with long legs, e.g. Heteroptera, Auchenorrhyncha, some Coleoptera, Neuroptera

**caterpillar** an eruciform type of larva, which possesses thoracic legs, usually also abdominal prolegs, and a distinct head; thoracic and abdominal body segments not easily distinguishable

**caudal** tail, tail end or posterior end, referring to position on the body

**cerci** apical or terminal abdominal appendages; always paired

**clypeus** anterior part of the head capsule, immediately posterior to the mouthparts; in many insects (e.g. many beetles) fused with the frons to form the frontoclypeus

**compound eye** an eye composed of many individual cells or lenses, called ommatidia, which appear hexagonal in shape.

**constricted abdomen** waisted, with basal segments of the abdomen greatly reduced in width, narrowly joining the metathorax; see also waist

**coxa** the most basal visible segment of the leg, an oval or thickened joint articulating the leg in the thorax

**crotchets** hooks on the prolegs of insect larvae, often organised in a ring, e.g. in most Lepidopteran larvae

**dehiscent** shedding, referring to the wings of termites (Termitoidea) which drop off

**distal** most distant, referring to position of parts of appendages relative to the body (opposite of proximal)

**dorsal** top or upperside, referring to position on the body

**dorsum** the topside of the body

**ectoparasite** a parasite living on the outside of its host e.g. fleas, lice, bedbugs, some flies - Nycteribiidae

**elateriform** a type of insect larva; elongate and cylindrical worm-like (vermiform) larvae but with small anteriorly clustered articulated legs (= "wireworms")

**elytra** hardened forewing of beetles (Coleoptera), which meet along the midline of the body and do not overlap; without any visible venation although sometimes highly punctured or textured; these may be fused along the midline forming a single inflexible covering in some flightless beetles.

**endoparasite** a parasite living inside its host, e.g. many wasp and fly larvae

**endopterygote** insects with wing development inside the body in immature stages; also known as holometabolous insects with complete metamorphosis

**epiphysis** a lobe or pad-like structure on the inner surface of the foretibia in Lepidoptera

**eruciform** caterpillar-like larvae, e.g. Lepidoptera, and sawflies

**eversible vesicle** sac-like structures can be everted or turned inside out, found on the abdomen of bristletails; see also vesicle

**exopterygote** insects with wing development on the outside of the body; seen as wing pads in immature stages; e.g. hemimetabolous insects with incomplete metamorphosis; also called nymphs

**filament** feather or hair-like projections from the body, e.g. at end of abdomen in bristletails, silverfish and Ephemeroptera - which usually possess a medial filament between paired cerci; sometimes cerci are also referred to as filaments in these groups

**filiform** thread-like, usually referring to antennal structure in insects

**forceps** modified single segmented cerci at apex of abdomen, pincer-like, usually significantly longer than apical abdominal segment, thickened and robust; found in Dermaptera

**fore-** first or front, often referred to first pair of legs, i.e. forelegs, foretibia etc.

**frons** an area of the head capsule bounded by the eyes and the clypeus

**fused** referring to the junction of two plates or segments so that there is no independent movement of each, often represented by loss of the division between them

**genitalia** sexually reproductive organs, usually located in the terminal abdominal segment or segments, at the posterior end of the abdomen.

**gills** respiratory (breathing) organs of aquatic nymphs, usually on abdominal segments e.g. caudal gills of Odonata and lateral abdominal gills of Ephemeroptera

**glabrous** hairless, smooth

**halteres** reduced club-like hind wing of true flies (Diptera)

**haustellate** coiled sucking mouthparts found in Lepidoptera, uncoiled in feeding

**hemimetabolous** incomplete metamorphosis lifecycle development, in which eggs hatch to wingless and non-reproductive nymphs which gradually develop wing pads and genitalia through stages as they moult, developing fully articulated wings and mature genitalia in the final moult to adulthood; in many insect orders, e.g. Hemiptera, Ephemeroptera, Odonata, Orthoptera

**hemelytra** the basally hardened forewings of true bugs (Hemiptera: Heteroptera); half hardened and half membranous structure, although the form varies greatly

**herbivorous** feeding on living plant tissue or plant fluids

**holometabolous** complete metamorphosis lifecycle development, in which eggs hatch to larvae which pass through a pupal resting phase (reorganising body organs) from which the adult emerges; e.g. Lepidoptera, Coleoptera, Diptera

**hypognathous** head vertical, mouthparts projected downwards or positioned ventrally

**labial palps** 1-3 segmented paired structures arising from the labium

**labial spinneret** a silk gland structure found in Lepidoptera larvae, positioned medially on the labium, between the labial palps; also see silk gland

**labium** the most ventral or posterior section of the mouthparts or 'lower lip' which usually includes paired appendages (labial palpi) and the plate to which they are attached (mentum); often modified into a greatly elongate sucking tube e.g. bugs (Hemiptera) and some flies (Diptera)

**labrum** most anterior or dorsal mouthpart, the upper lip of the mouth, sometimes absent (e.g. fused to head capsule)

**larva** the immature stage of an insect, usually only applied to the immature stage of holometabolous insects between egg and pupa; in general bears no resemblance to the adult form

**larviform** adults which have larva-like bodies but fully developed genitalia; also neonate

**lateral** on the side, referring to position on the body

**mandible** one of paired and opposed mouthpart structures situated immediately behind labrum, surrounded the oral cavity

**mandibulate mouthparts** with a pair of chewing and/or biting mandibles, usually distinguished by being thick, well-sclerotised and with internal teeth

**maxillae** paired structures of the mouthparts, located posterior to the mandibles, including the maxillary palp, galea and lacinia

**maxillary palp** paired and usually multisegmented (up to 7) projections of the mouthparts arising from the outer edge of the maxilla, often resembling miniature antennae

**medial** in the middle, towards the midline

**membranous** thin, more or less transparent, pliable

**mesial** inside or the inner surface of a structure

**mesonotum** the notum or dorsal sclerite of the mesothorax

**mesothorax** middle or second of the three segments of the thorax; bears the forewings and midlegs

**metathoracic spiracle** a spiracle on the last (third) segment of the thorax, usually positioned laterally

**metathorax** posterior of the three segments of the thorax; adjoins the abdomen; bears the hindwings and hindlegs

**mimic** to imitate, mimicry in all forms (visual, chemical, behavioural) is common in the insect world, and has a selective advantage for insects primarily in avoiding predation

**morphology** physical structure and associated terminology of insects

**multisegmented** comprising more than one segment, often referring to structures such as cerci or antennae

**notum** the dorsal surface or sclerite of a segment, referring to the thorax in insects, e.g. pronotum, mesonotum, metanotum

**nymph** a term for the immature stage of ametabolous and hemimetabolous insects (i.e. those lacking pupa); may or may not bear resemblance to the adult form

**ocelli** a simple single-lensed eye in adult insects; 1-3 situated at posterior dorsal part of head, but often absent

**ocelliform spots** spots that appear to imitate eyes, e.g. on the wings of Lepidoptera

**opaque** a surface that does not allow light to pass through. Such an object or surface is neither transparent nor translucent

**opisthognathous** head with the mouthparts directed posteriorly, articulated on the ventral surface of the head, e.g. cockroaches, hemipterans

**ovipositor** egg-laying structure of the female genitalia, sword-like structure on the ventral surface of the abdomen; may be folded along or hidden inside the abdomen, or greatly elongated and projecting posteriorly (e.g. Orthoptera)

**parasitic** living on or within another animal called the host; the host is required for part or all of the lifecycle to be completed

**piercing mouthparts** tube-like mouthparts that are inserted into the food source; feeding is by a sucking mechanism (e.g. mosquito proboscis or bug labium)

**postclypeus** the dorsal part of the clypeus which is greatly swollen in some insects, e.g. booklice (Psocodea), cicadas and some other groups of sucking insects (Hemiptera)

**posterior** the back or tail end, referring to the position on the body

**predatory** preying on other animals for food

**proboscis** beak-like or extended sucking mouthparts; generally referring to the coiled tube of moths and butterflies (Lepidoptera) or the elongate mandible of bees (Hymenoptera: Apocrita)

**prognathous** mouthparts at front of head and projecting forward

**prolegs** fleshy appendages on the abdominal venter (rarely also dorsum); functioning as legs but without segmentation

**pronotum** the dorsal part (notum) of the prothorax, often forming a dorsal shield on the thorax anterior to the wings (e.g. earwigs, cockroaches, beetles, bugs) but often greatly reduced (e.g. dragonflies).

**prothorax** anterior segment of the 3 thoracic segments; the first thoracic segment adjoining the head; bears the forelegs and lacks wings

**proximal** most basal, referring to position of parts of appendages relative to the body (opposite of distal)

**pterothorax** fused meso- and metathorax; present in some beetles (Coleoptera), flies (Diptera) and in all dragonflies and damselflies (Odonata)

**rostrum** a narrow projection of head anterior to eyes, with mouthparts at apex; in Hemiptera: mouthparts modified into an elongate tube for piercing and sucking.

**Scales** flattened setae; unicellular outgrowths of the body

**scape** first antennal segment

**scarabaeiform** white C-shaped larvae with a well developed head and thoracic legs (e.g. Coleoptera - scarabs)

**sclerotised** hardened or thickened

**scutellum** the posterior sclerite of a thoracic notum; a triangular sclerite on the mesonotum, usually positioned posterior to the pronotum and often visible between the forewings in many bugs and beetles

**scutum** the middle sclerite of a thoracic notum, e.g. the mesoscutum which is anterior to the scutellum (e.g. Heteroptera)

**sessile** immobile without a means of locomotion, usually attached or fixed in one place

**setae** hair-like outgrowths of the body wall, with a ringlike articulation at its base

**silk gland** structure for silk production and can be found in labium of Lepidoptera, Trichoptera, some Hymenoptera (Apocrita); also see labial spinneret

**single lens eyes** see stemmata

**spiracle** breathing hole or pore, opening of the insect tracheal (breathing) system; spiracles are often visible laterally on the thorax and abdomen

**stemmata** unicellular or single lens eyes of insect larvae, located laterally on the head.

**sternite** the ventral sclerite of an abdominal segment

**stylet** a piercing needle-like structure; part of piercing sucking mouthparts; in bugs two pairs of structures, each pair of mandible and maxillary origins respectively

**stylus** a short pointed process; plural is styli; e.g. on the abdominal sternites of silverfish

**sucking mouthparts** mouthparts for feeding on liquid food; variously modified to either pierce and then suck liquid from within the food source, or sponge-feed externally on liquid, or greatly elongate to access nectaries of flowers to feed on this sugary liquid

**symmetrical** where the two sides of something, divided down the midline are the same

**tarsal segments** see tarsomere

**tarsi** see tarsus

**tarsomere** a segment of the tarsus

**tarsus** apical major leg segment, usually subdivided, with 1 to 5 tarsal segments which are called tarsomeres; usually with one or two terminal claws; plural is tarsi

**tegmina** toughened leathery forewings

**tergite** the dorsal plate of an abdominal segment

**terminal** end of body or tail end; see caudal

**tibia** a medial leg segment, between the femur and tarsus; the long shank of the leg

**translucent** allowing light through but without clear visibility of objects

**transparent** see through and allowing all light to pass through; also see membranous

**transverse** wider than long

**trochanter** the segment of the leg which joins the femur to the coxa, usually much shorter than the femur

**urogomphi** paired cerci-like dorsal processes on the ninth abdominal segment of beetle larvae

**venation** the arrangement and structure of veins on the wings

**venter** the underside of the body

**ventral** the underside, referring to position on the body

**vermiform** worm-like, describing larvae of Siphonaptera, some Diptera

**vesicle** a cavity, sac or bladder, often below the surface, often containing liquid

**vestigial** weakly developed, usually non-functional

**waist** a constriction where the abdomen joins the thorax in most Hymenoptera (except sawflies); see constricted abdomen