

“CAMOUFLAGE” IN IMMATURE BARK LICE IN 100 MILLION-YEAR-OLD AMBER

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Deception or false communication among animals involves three entities: a primary signal generator (i.e. the species or background with which is deceived), a secondary signal generator (i.e. the deceiver) and a signal receiver (i.e. the deceived). Mimicry is the most common example of one species deceiving another. This deception happens for multiple reasons, e.g. warn colouration to signal toxicity and thus avoiding predation. Camouflage is another example of deception, though less studied, wherein the deceiver blends into their background to avoid detection or recognition. There are different modalities in which one can camouflage oneself, mostly studied within visual camouflage. Specific colour patterns that allow the deceiver to blend into their background, or disruptive colouration that masks or blurs the deceiver's body outline to hamper detection are widespread examples of visual camouflage. Other strategies that do not involve camouflaging colour patterns, but more behaviourally influenced mechanisms are e.g. masking or debris-carrying behaviour. Therein the animal accumulates debris either actively or passively on the back to blend into the background and adheres the debris with special morphological structures. Within Insecta there are a few in-groups that exhibit this behaviour, immatures of mostly Reduviidae (Hemiptera), lacewings (Neuroptera), caddisflies (Trichoptera) and bark lice (Psocodea). Bark lice are paraneopteran insects with relatively few species that are rather small and live mostly on plants or in/on soil. Many extant bark lice are bark-dwelling (hence the name!) and most are well camouflaged against this background, not only as immatures, but also as adults. Adult bark lice mostly employ colour pattern camouflage, whereas immature bark lice seem to exhibit multiple camouflaging strategies, like debris-carrying, plant-part masquerade or even mimicry. Here we describe four bark lice immatures from Myanmar amber that probably exhibited debris-carrying behaviour as their dorsal sides are covered in fine sand granules and organic material.