



Bed Bug Wings & Preening

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Many of us know that insects clean or preen themselves. If we watch closely, we will see how an insect works diligently to clean its antennae, feet and mouthparts regularly. This behavior may be easily observed when watching cockroaches, flies and other insects. Some insects, such as social insects, ants, bees and termites, may preen each other or otherwise communicate and share food through preening, trophylaxis and touching of antennae. These processes play a significant role in the control of insect pests as vehicles, which assist in the spread of control materials. While we may readily understand how a cockroach may clean its tarsal segments (i.e. sticky pads on its feet) or antennae by use of its chewing mouthparts, we may also wonder how a bed bug might preen while having piercing, sucking mouthparts.

Do bed bugs preen or clean themselves?

True Bugs (Hemiptera) have piercing sucking mouthparts. These mouthparts are modified from the ancestral biting/chewing type. Because of this, we have been taught that bed bugs don't act like cockroaches. With regard to cleaning their bodies and legs, this is the reason they are less prone to coming into contact with, and ingesting insecticides. If you watch bed bugs, you'll soon realize that cleaning is an important behavior.

Bed bugs do preen themselves and this behavior is crucial to maintain chemical reception with the world around them. Often, quickly crawling bed bugs stop for a moment and perform a cleaning ritual. The first pair of legs in the common bed bug has a comb structure on the distal tibia. The bed bug uses this structure to comb its antennae. We have also witnessed the bed bug beak being cleaned in a similar manner. Usinger (1966) in his "Monograph of Cimicidae" depicted the comb structures in the figures depicting certain taxonomic structures associated with several bed bugs species.

Preening behavior and bed bug control

Insect pest preening behavior may play a key role in the control of insect pests. For example, in lab trial work, as cockroaches crawl across residual treated surfaces they pick up insecticide residues. Such residues are then ingested as the cockroach preens or cleans its tarsi. The ingestion serves to deliver the pesticide within the cockroach's body as a stomach poison resulting in the death of the cockroach. In addition to this preening behavior cockroach tarsi also include the presence of sticky pads. German cockroaches have such sticky pads, which enable them to climb smooth surfaces such as glass with ease. These sticky pads pick up pesticide residues, which may be subsequently ingested during the preening process.

Upon close examination we can see that bed bugs do not have sticky



In this photo of the tarsi of a common bed bug, we see the presence of a claw but the absence of sticky pads.

Photo courtesy of Dr. Phillip Koehler of the University of Florida Department of Entomology.

pads present on their tarsi. (See photo above.) As such, the bed bugs do not pick up pesticide residues as efficiently as German cockroaches do when crawling across treated surfaces. In addition to this, bed bugs — like cockroaches — have piercing sucking mouthparts rather than chewing mouthparts. The combination of these factors reduces the role that preening plays in bed bug control when compared to that of the cockroach. **PMP**

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