

- Little is known regarding adult SHB behaviour in the environment. Research has shown that emerging beetles are gregarious, mate within a week of emerging, and appear to be attracted to hives that are shaded or stressed.
- Dependent to some extent on the colony's behavioural response (eg aggression and confinement traits towards intruders) adult SHB move fairly freely throughout a colony. In colonies where honeybees actively confine adult SHB, most adults were found imprisoned in empty cells

or behind propolis 'walls' on the bottom board or on frames at the periphery of the brood nest. In colonies where adult SHB are not harassed or confined, adult beetles can be found almost anywhere in the hive although their preference is within the brood nest.

- Adult SHB are able to protect themselves from bee attack due to their hard exoskeleton and their ability to retract their head and legs under their body.

Figure 2 Morphological Characteristics of SHB Larvae

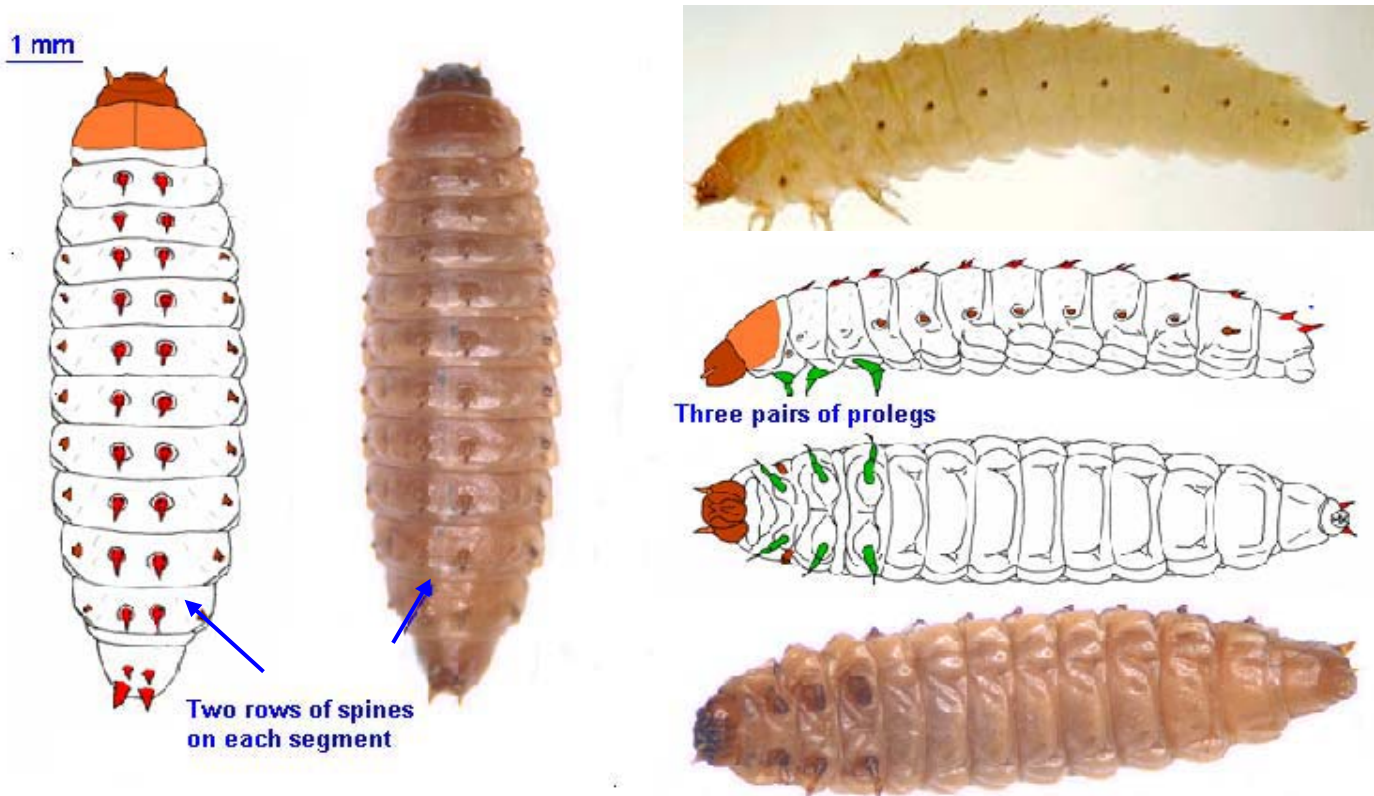
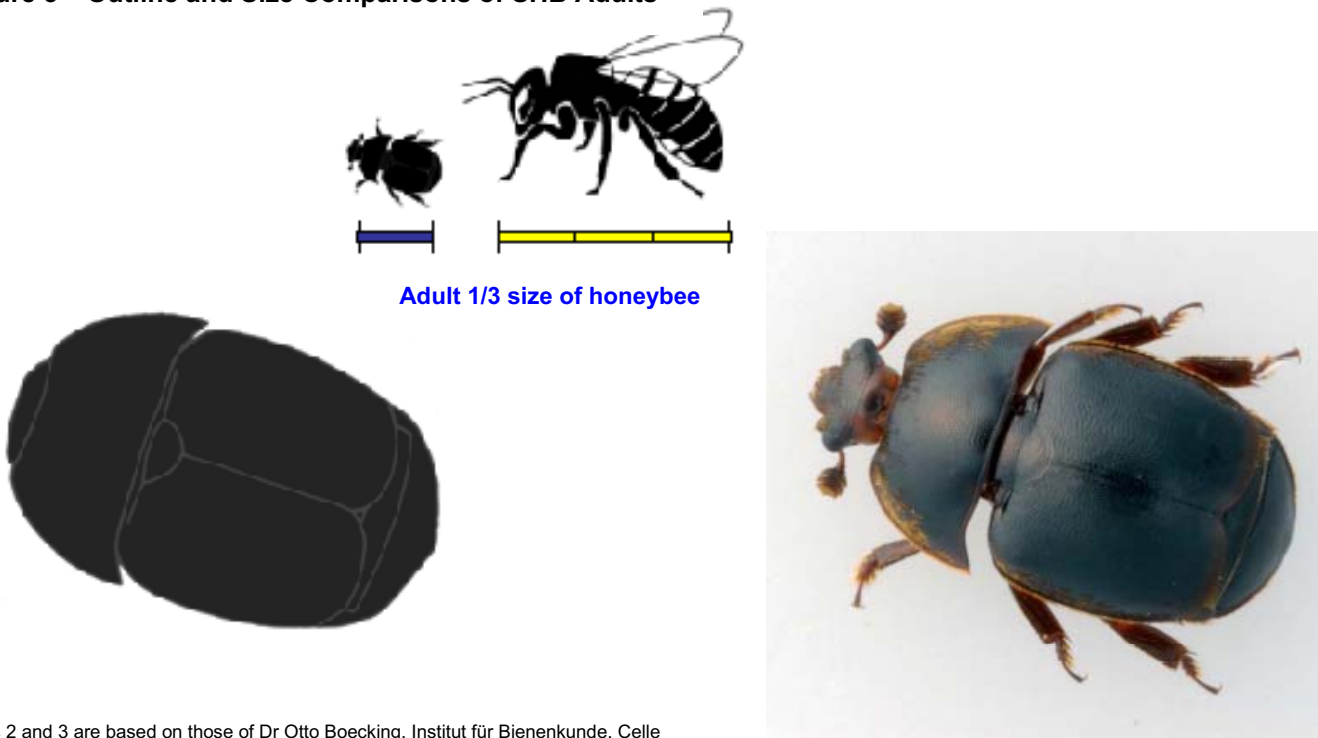


Figure 3 Outline and Size Comparisons of SHB Adults



Figures 2 and 3 are based on those of Dr Otto Boecking, Institut für Bienenkunde, Celle

Figure 4 Morphological Characteristics of SHB Adults

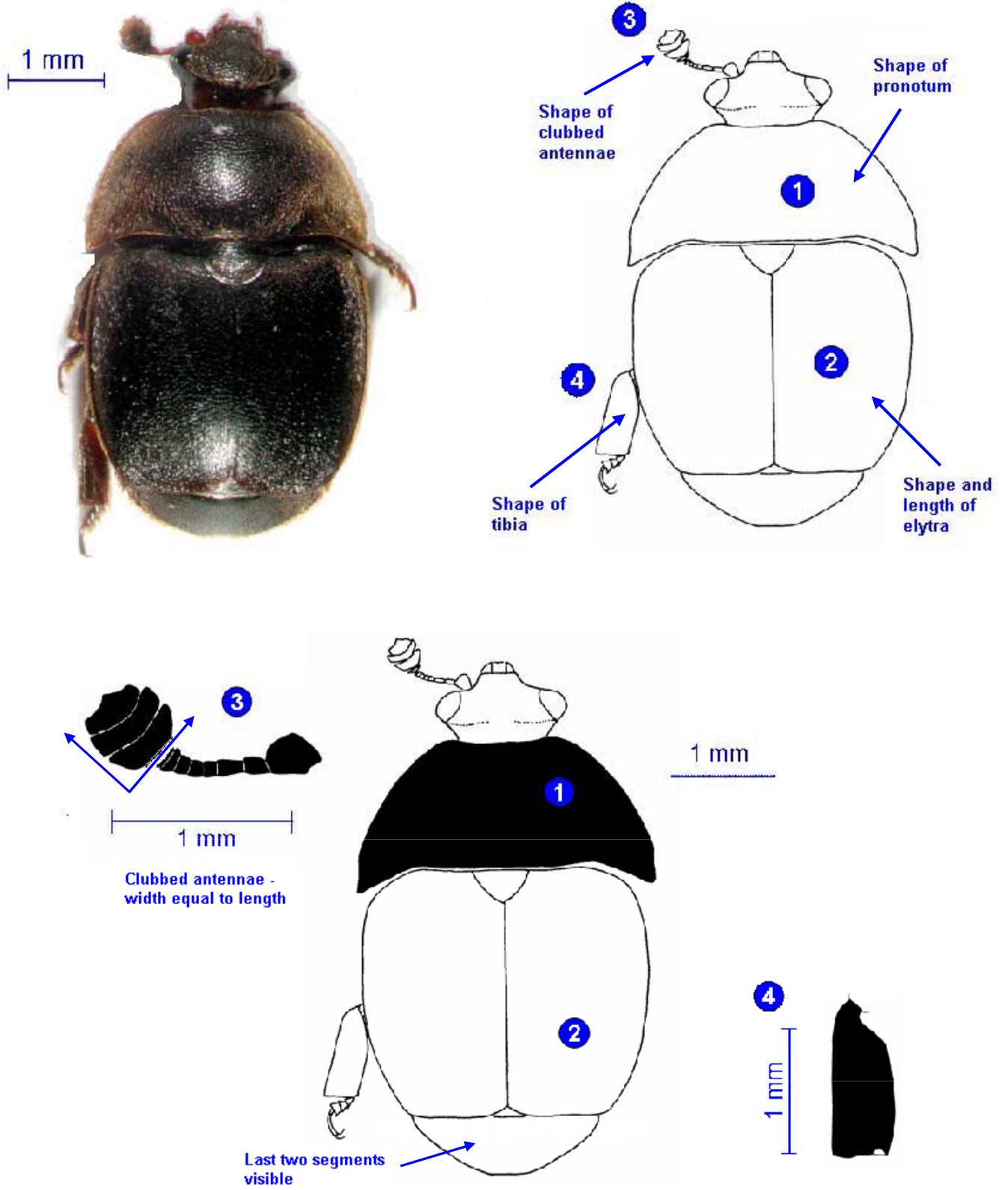


Figure 4 is based on that of Dr Otto Boecking, Institut für Bienenkunde, Celle

Figure 6 *Carpophilus* spp – Eggs, Larva, Pupa and Adults



(Not to scale - Pin tip shows scale/ 1 square = 1mm)

***Derme*stid species**

*Derme*stid spp larvae and adults can be differentiated from SHB larvae and adults based on a number of morphological characteristics (Table 3).

Table 3 SHB and *Derme*stid spp differentiation

| SHB larvae | <i>Derme</i>stid spp larvae |
|--|---|
| Pairs of prominent brownish dorsal spines present on each segment, including larger anterior & posterior pairs. | Covered in long hairs, with body and hair colouration tending to dark brown-black (Figure 7). |
| Found throughout live and dead hives. | Generally only found in debris in dead hives. |
| SHB adults | <i>Derme</i>stid spp adults |
| Found throughout live and dead hives. | Generally only found in debris in dead hives. |
| Are brown-black dorsally and reddish brown-black ventrally with a broad flattened oval body approximately 5 - 7 mm long x 2.5 - 3.5 mm wide. | Are dark brown-black with a broad flattened oval body ranging in size (Figure 7). |

Figure 7 *Derme*stid spp – Various Larvae and Adults



(Not to scale - 1 square = 1mm)

one metre. The extraction plant and honey containers must be sanitized prior to re-use, whilst salvaged frames must be rinsed in warm potable water and the residue must be collected and buried.

Figure 9 shows several frames of infested honey, all of which contain unmarketable honey.

It is important to note that SHB infested honey is unmarketable.

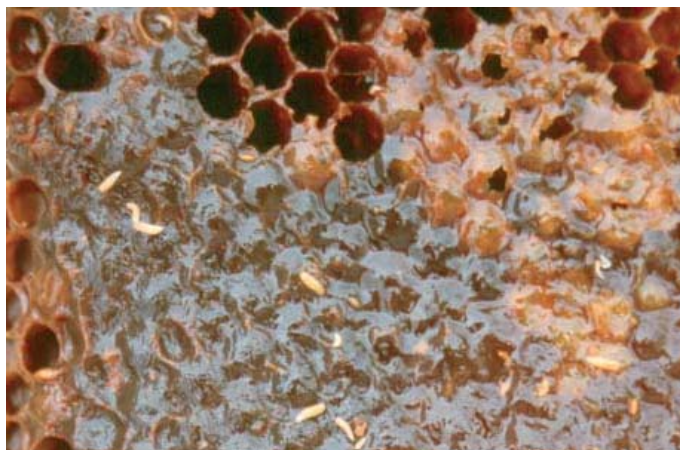
Bees may be able to handle and re-store small areas of SHB damaged honey, however damaged frames should be subject to some form of SHB control first, and frames should be placed on hives according to the existing barrier system.

Recent experience suggests several household products may assist in salvaging combs. However before these types of products are used, you must to consult your packer as residues may be an issue.

- **honey frames that are covered with small areas of SHB larval slime without capping damage or fermented honey.** These frames must be wiped free of slime immediately prior to extraction using a moist clean lint free cloth. The cloth should be rinsed in warm potable running water between each frame or super depending on the degree of contamination.

Should contamination occur it is important to discuss salvage, identification and delivery options with your packer.

Figure 9 SHB Damage to Honey Frames



Photos: Denis Anderson



Figure 10 The Result of a SHB Hive Infestation



Photo: Denis Anderson

Notes

Notes