

# FACT SHEET

## BED BUGS

The principles of bed bug control are very similar for domestic and commercial situations. Bed bugs are small non-flying insects with a flat oval shape about the size of an apple pip. Their flattened body allows them to squeeze into small cracks and crevices and as a result they can be hard to detect and eradicate. They are blood-sucking insects that require blood for nutrition and development.

In Australia there are two species, the common bed bug, *Cimex lectularius*, and the tropical bed bug, *Cimex hemipterus*. The type will depend on the location of the property affected. Fortunately the two species are similar and the same control strategies can be used for both.

Bed bugs feed mostly at night when the host is asleep. Bites cause small, hard, swollen welts on the skin that may become inflamed and itch severely.

Bed bugs have not been implicated in the transmission of diseases. Their medical significance is usually limited to the irritation from their bites.



### Appearance

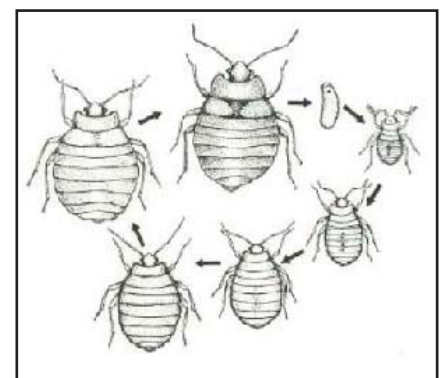
There are five juvenile stages leading to the adult bed bug. Adults (see picture) are about 6mm long, reddish-brown in colour with the juveniles (nymphs) a similar shape but lighter in colour and smaller.

Eggs are about 1mm in length, white to cream coloured and under magnification pear-shaped. They well concealed and not always obvious.



### Life Cycle

The female bed bug lays her eggs (one to five per day and 200-500 within her lifetime) using a clear “glue” to attach them in cracks and on rough surfaces. At 22C, the temperature of most air conditioned rooms, eggs hatch in about seven days and the nymphs moult five times, taking a blood meal between each moult. Development time from egg to adult is very dependent on temperature. In Australia they are likely to live for a few months. In cold climates they have been known to survive for up to two years, even without a blood meal.



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Young bugs (nymphs) are nearly colourless, becoming brownish as they mature.

### **Habits**

Bed bugs prefer to hide in cracks and crevices during the daytime and come out to feed at night. The blood meal requires three to five minutes and usually goes unnoticed by the victim. After feeding, the bite site may become inflamed and itch severely in sensitive people. In extreme cases there may be a severe allergic reaction requiring urgent medical treatment.

Over time harbourage areas become filled with the moulted skins, faeces, and old eggshells of the resident bed bugs. These can have a sweet, musty odour similar to “stink bugs” found on lemon trees.

Typical hiding places are in the tufts, folds and seams of mattresses, and cracks in the box spring and bed frame. Harbourage is not limited to these areas and in all cases all cracks and crevices need to be inspected. This includes carpet edges, picture frames, curtain folds, electrical fittings and any area into which they can squeeze.

The cryptic nature of bed bugs and their ability to hide in small spaces means that they will be protected from pesticides unless it is applied thoroughly and correctly. Eggs are not affected at all. Both characteristics have significant implications for treatment.

### **Why are they on the increase?**

Worldwide, bed bugs are on the increase and countries from which their presence had almost disappeared now experience problems similar to Australia. This includes the USA and UK.

The exact reasons are not fully understood. However the increase of low cost international travel has certainly aided their dispersal. Backpacker accommodation was one of the first in Australia to report problems but bed bugs are now seen in all standards of accommodation. This also demonstrates another important point that the problem is not necessarily linked with poor hygiene although good vacuuming can assist in control.

Changes in pest control management practices to Integrated Pest Management (IPM) and the loss of some persistent pesticides is also thought to have contributed to the increase. IPM techniques use far less chemicals and in some cases present the pesticide in a way that does not affect other insects. For example spraying for cockroaches would have also killed many bed bugs; this is on the decline as methods other than spraying are used.

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### Signs of bed bug Infestation

- Blood spotting on bedding as well as walls and furniture.
- Skin welts and irritation caused by the bites.
- Sweet musty smell (less noticeable except in extreme cases or up close)
- Shed skins and faeces.

### Management

Control of bed bugs requires the cooperation of the owner of the infested premises, along with the pest manager.

If an owner suspects a bed bug infestation they should first ensure there is no chance of spreading the problem. Bed bugs are great hitchhikers so do not spread the infestation by moving bedding, furniture etc into another room. In extreme cases it may be necessary to isolate all equipment and materials that come into contact with the infected room. Even minor infestations from a chance transfer can become a major problem.

The first essential step in pest management is identification of the pest and determination of the extent and level of the infestation. When this is known the pest manager can assess the treatment options and their duration.

An inspection for bed bugs may take far longer and be more detailed than for other pests. This is because the full extent of the infestation needs to be determined and the areas to be treated fully identified. Inspections can take several hours and may require significant disruption to the room; for example lifting of carpet at the edges, removal of electrical switches, detaching fixtures from walls, etc.

The pest manager may decide on one of several pesticides but it is important that these are thoroughly applied to all infected areas. Various types may be used depending on the application area. For example a persistent pesticide may be applied under the carpet while a less persistent product, with a high safety margin for human contact, used in other areas. Mattresses and furniture in direct contact with humans may be treated with low risk pesticides and sufficient time allowed before reuse. Steam has been used successfully in the USA and its use is being introduced in Australia. It requires the operator to have steam of sufficient temperature and to use the correct technique.

After inspection and before treatment, a wash down of surfaces affected with blood spotting not only improves the appearance but also allows a follow up inspection to be done with greater confidence.

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Except in the lightest infestations, which often go unreported, it is strongly recommended that a follow up inspection, and if necessary retreatment, be done. This is because of the reasons given above; bed bugs can be protected in their hiding place and eggs are resistant to pesticide. Follow up after two weeks is recommended.

IT IS HIGHLY UNLIKELY THAT A QUICK INSPECTION AND ONE TREATMENT WILL BE SUCCESSFUL - DON'T WASTE YOUR MONEY AND RISK BE FURTHER DISTRESSED BY ACCEPTING "CHEAP" REMEDIES.

### **Other treatments**

Bed bugs are susceptible to both heat and cold. In very cold European countries, control by putting a mattress outside was once practiced. It is doubtful if this would be successful in Australia.

Putting a mattress in a black plastic bag and leaving it in the sun has been tried. There are reports of this failing and until it is scientifically proven it is not recommended.

In extreme cases it may be better to discard the mattress - burning or tipping is recommended, again ensuring that other items do not become infested. Care must be taken when moving affected items, sealing them in plastic bags before they leave the room is recommended. Bed linen should be washed in hot water followed by a hot drier. Sensitive materials can be placed in a freezer allowing enough time for the entire volume of the item to reach the temperature of the freezer.