

BED BUGS

By J.E. Moxon, Senior Entomologist, L.A.E.S., Keravat
East New Britain Province

INTRODUCTION

The tropical bed bug *Cimex hemipterus* (Tok Pisin: musmus; Motu: darura) is a common parasite of man in Papua New Guinea. The bed bug lives in houses and feeds on people's blood. It can cause great discomfort even though it does not carry any diseases.

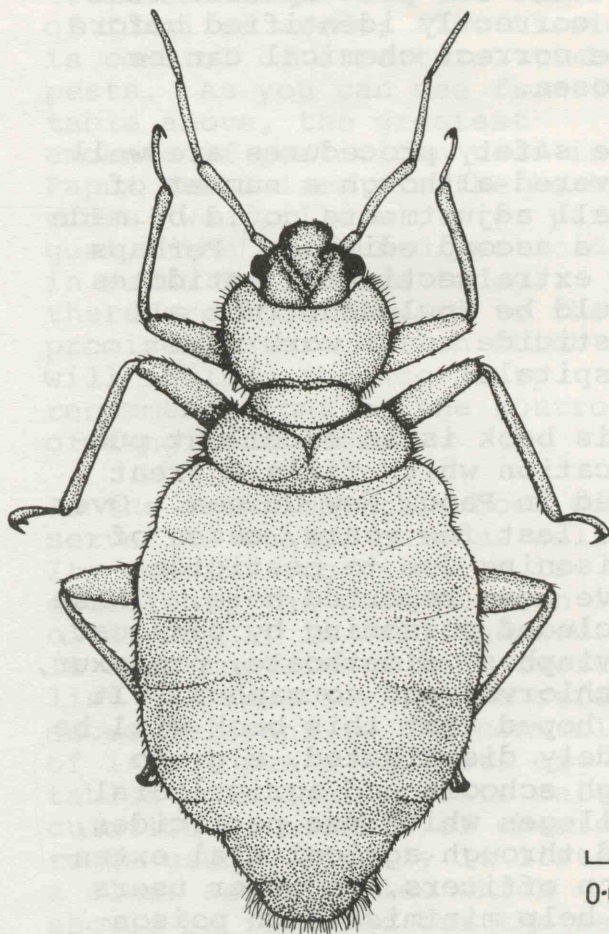
DESCRIPTION

Adult bed bugs are dark brown insects about 1 cm long. Their bodies are flattened from top to bottom. The head and thorax are small and the abdomen is large and round. The legs are clearly visible, but bed bugs have no wings. When disturbed they produce a bad smell. This smell is often strong in rooms where there are many bed bugs.

The adult bed bug is shown in the figure opposite.

BIOLOGY

The eggs are white, about 1 mm long, and can be seen with the naked eye. They are stuck onto the surfaces where the adult bed bugs live. The eggs hatch after about 6 days to produce nymphs. The newly hatched nymphs look like small adults but are pale yellow. The nymphs moult (change their skins and grow) five times before maturing into adults. This takes



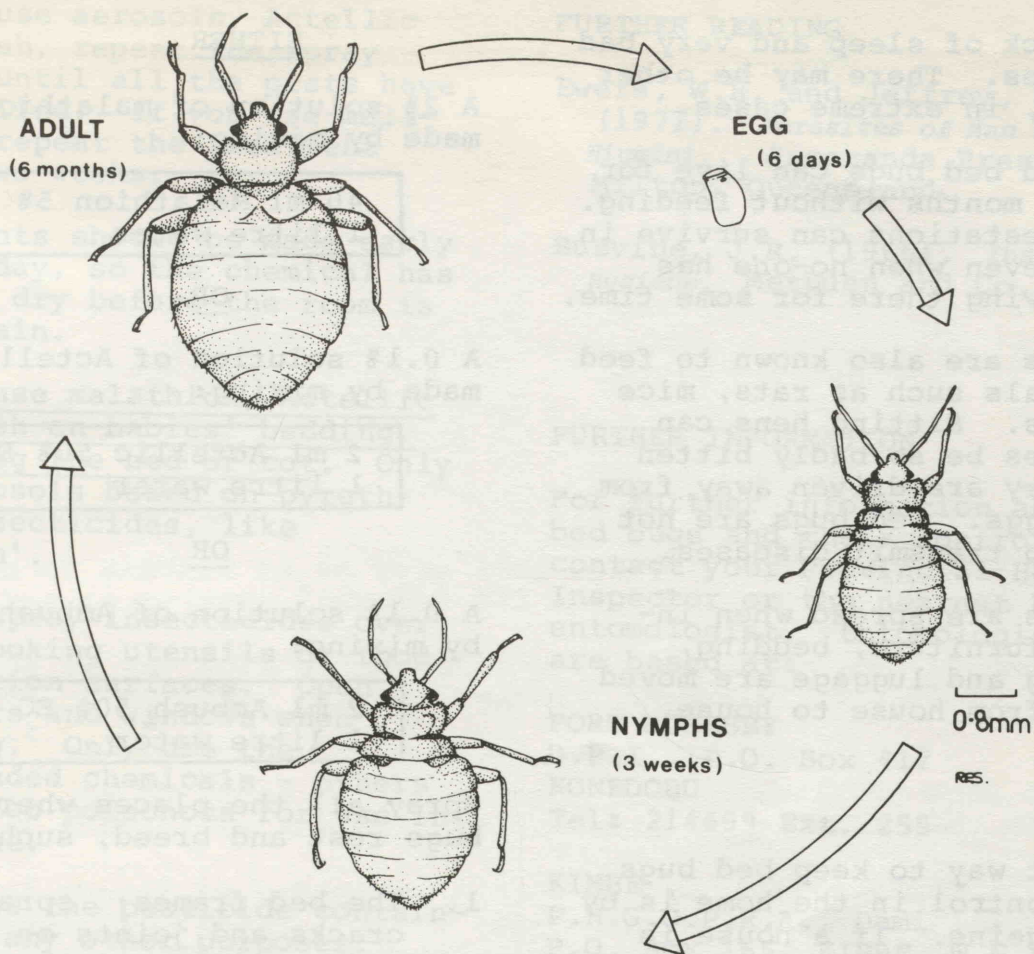
0.6 mm

RES.

An adult bed bug

about 3 weeks. An adult female bed bug may live for about 6 months. She lays several eggs a day, and may produce several hundred in her lifetime.

Bed bugs are nocturnal (active at night). In the daytime they hide inside cracks and spaces of walls, floors and furniture. Hollow metal bed frames are a



Stages in the life cycle of the bed bug

favoured hiding place. They are also found in mattresses, especially along the seams and under the buttons.

Bed bugs usually live in rooms where people sleep. They come out to feed during the night. If they are very hungry and the light is dim, they will feed during the day.

Both adults and nymphs bite through the skin (of man) and suck the blood from sleeping people. The bed bugs inject saliva into the wound to stop the blood clotting in their mouth parts. This causes an itchy lump on the skin. Feeding takes about 10 minutes. While the bed bug is feeding, its body swells up with blood. The insect excretes excess fluids almost immediately. This leaves dark spots on the bedclothes.

Dark brown or black spots of dried excrement (dung) are also commonly found on the walls of infested houses, and around the places where the bed bugs usually hide.

A fully fed bed bug crawls to its hiding place where it remains for several days digesting a meal.

Bed bugs feed about every 4 days in the warm lowlands, but less often in the cooler highlands.

ECONOMIC IMPORTANCE

Bed bugs may be found in large numbers, especially in overcrowded houses. Some people are more affected by bed bugs than others. A person who is continually bitten by large numbers of bed bugs may suffer

from lack of sleep and very bad headaches. There may be other effects, in extreme cases.

Well fed bed bugs can live for several months without feeding. So, infestations can survive in houses even when no-one has been living there for some time.

Bed bugs are also known to feed on animals such as rats, mice and hens. Sitting hens can sometimes be so badly bitten that they are driven away from their eggs. Bed bugs are not known to transmit diseases.

Bed bugs are spread when infested furniture, bedding, clothing and luggage are moved around from house to house.

CONTROL

The best way to keep bed bugs under control in the home is by good hygiene. If a house is cleaned regularly, infestations will be found early, when they are easier to control.

To control bed bugs in houses, find the places where they hide during the day. Apply insecticides directly into those places. The easiest chemicals to use against bed bugs are aerosol sprays. These are available from supermarkets and trade stores. The best aerosols to use are those marked 'surface spray'

Note: Insect repellants are unsatisfactory against bed bugs.

Care should be taken when using aerosol spray cans to open all doors and windows. The spray should not be used in a confined space. Do not breathe in the spray.

Other safe and effective chemicals that will kill bed bugs are malathion, Actellic and Ambush. Use:

EITHER

A 2% solution of malathion, made by mixing:

40 ml Malathion 5% EC 1 litre water
--

OR

A 0.1% solution of Actellic, made by mixing:

2 ml Actellic 50% EC 1 litre water

OR

A 0.1% solution of Ambush, made by mixing:

2 ml Ambush 50% EC 1 litre water

Spray all the places where bed bugs rest and breed, such as:

1. The bed frames: spray all cracks and joints on wooden beds. Pay particular attention to the tubes in metal beds. Spray any holes or openings in the tubes.
2. The structure of the house: spray into the spaces behind skirting boards, door and window frames and cracks in the floor. Spray into all cracks and openings of walls, especially if they are hollow or panelled. If possible, open hollow walls to get insecticide into them.
3. Beds, mattresses and bedclothes: if possible, these should be taken outside into the sun before spraying. The hot sun makes the insects become active. Spray around the seams and around any buttons on the mattresses. Sheets and bedclothes should be washed with soap and hung to dry in the sun.

If you use aerosols, Actellic or Ambush, repeat the spray weekly until all the pests have been killed. If you use malathion, repeat the treatment every two weeks.

Treatments should be made early in the day, so the chemical has time to dry before the room is used again.

Do not use malathion, Actellic or Ambush on babies' bedding, including the bed or cot. Only use aerosols based on pyrethroid insecticides, like 'Mortein'.

Do not spray insecticides over food, cooking utensils or food preparation surfaces. Open all doors and windows when spraying. Only use the recommended chemicals - others may be too poisonous for use in your home.

Never use the pesticide containers for any other purposes. Read the labels carefully. Only mix up enough chemical for immediate use, as diluted chemical quickly loses its strength. Wear rubber gloves when handling the concentrate. Store the chemical in a safe place out of the reach of children and animals, and away from food. Do not throw away unwanted chemicals near a drinking water supply. Wash yourself with soap and water immediately if you spill any insecticide on your skin, and when you have finished using the chemical. If you feel sick after using the chemical see a doctor as soon as possible.

Full details about the safe handling and use of pesticides are given in Entomology Bulletin No. 9, HARVEST, Volume 6(3): 149-152, and in Rural Development Series Handbook, No. 18.

Temporary relief from bed bugs can be obtained by sleeping with the lights on.

FURTHER READING

Ewers, W.H. and Jeffrey, W.T. (1971). *Parasites of Man in Niugini*. Jacaranda Press, Milton, Queensland.

Busvine, J.R. (1966). *Insects and Hygiene*. Methuen and Co. Ltd.

FURTHER INFORMATION

For further information about bed bugs and their control contact your Provincial Health Inspector or the nearest D.P.I. entomologist. Entomologists are based at:

PORT MORESBY
D.P.I., P.O. Box 417
KONEDOBU
Tel: 214699 Ext. 255

KIMBE
P.N.G.O.P.R.A., Dami
P.O. Box 165, KIMBE, W.N.B.P.
Tel: 935204

LAE
Agriculture Research Centre
Bubia
P.O. Box 73, LAE
Tel: 424922

MOUNT HAGEN
Kuk Agricultural Research
Station, P.O. Box 339
MOUNT HAGEN
Tel: 551377

RABAUL
Lowlands Agricultural Experiment
Station, P.O. Keravat
East New Britain Province
Tel: 926251 or 926252

Copies of this Entomology Bulletin can be obtained from:
The Publications Officer,
Publications Section, D.P.I.
P.O. Box 417, KONEDOBU.

(Illustrations: R.E. Sutherland)