



Utah State University Extension
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Bedbugs

Introduction

Bedbugs are notorious for their association with humans and have been recognized as important pests for hundreds of years. The common bedbug, *Cimex lectularius*, is the most often encountered bedbug species, although several other species are occasionally important. These species include the bat bug, *C. pilosellus*, the barn swallow bug, *Oeciacus vicarius*, and the poultry bug or Mexican chicken bug, *Haematosiphon inodorus*.

All bedbugs are blood-feeders and have piercing-sucking mouthparts which are inserted in to the skin of the host and used to withdraw a blood meal. They feed on a variety of warm-blooded vertebrates, including man. Some without any particular preference.

Most of the information given here applies to the common bedbug. However, all bedbugs have similar behavior and biology. Control measures used for the common bedbug are effective against other species as well.

Description

Bedbugs belong to the family of true bugs known as Cimicidae. Members of this family are small, oval, flat, hard-bodied, flightless insects in which the wings are absent or reduced to stubs.

When unfed, the common bedbug adult is 1/4 to 3/8 inch in length and brownish in color. After feeding, the body elongates and widens and the color changes to dull red. This apparent change is quite striking and may cause the observer to believe that two different species of insects are present. Bedbug nymphs resemble the adults but are smaller and have a pale yellow coloration after molting. The nymphs undergo five molts, becoming successively larger after each molt.

Bedbug eggs are elongate, about 1/32 inch long (large enough to be easily seen), white in color, and have a distinct cap at one end. The eggs are laid singly or in clusters and are cemented to wood, fabrics, or other surfaces in places where the bugs hide.

Other species of bedbugs have appearances similar to the common bedbug. The bat bug is virtually identical but is parasitic upon bats. The barn swallow bug is similar in size and coloration but is clothed with long silky hairs. The poultry bug or Mexican chicken bug is

more active than the common bedbug, and has a longer beak and legs.

Life Cycle

Bedbugs are capable of producing up to four generations per year, although one or two generations is the usual number. Development time depends on temperature and food supply, and breeding can occur throughout the year in warmer regions or in colder regions where rooms are kept uniformly heated during winter. Egg laying activity is suspended during winter if rooms are allowed to cool, but adults or nymphs can still overwinter under these conditions. Since some bedbug nymphs may feed more successfully than others, development time may vary greatly even among nymphs from the same generation. For this reason, both adults and nymphs will usually be present throughout the year.

Each female bedbug lays 50 to 200 eggs at the rate of 3 or 4 eggs per day. At temperatures above 70° Fahrenheit, egg hatch occurs in 6 to 17 days. Hatching may take up to 28 days at lower temperatures. Development to the adult stage may occur in as little as one or two months, but usually takes longer.

Feeding Behavior

Bedbugs are nocturnal insects and emerge from their hiding places at night to feed on nearby hosts. They may occasionally feed during the day if very hungry and lighting conditions are dim. Hosts of the common bedbug include man, mice, rats, rabbits, guinea pigs, horses, cattle, and poultry.

Young and adults of both sexes feed exclusively upon blood. The bugs pierce the skin of the host and withdraw blood with their beak-like mouthparts. The bugs prefer to be in enclosed places and often feed in areas where clothing is held tightly against the skin, such as underneath the waistband of pajamas.

The bite is usually not felt at first but later may itch, swell, burn, become inflamed, or form a welt. Effects of a bite vary with the individual but may persist for a week or more in susceptible persons. There is no evidence that bedbugs transmit any diseases, at least within the United States.

Bedbugs may feed on small animals kept as pets or upon laboratory animals, and blood loss due to their feeding may weaken such animals. In poultry houses, sitting hens may be driven from their nests by bedbug attacks.

A given bedbug individual usually does not feed every night, but at intervals of a few days to a week. Newly-hatched nymphs will feed as soon as possible, then usually feed once between each molt. If left undisturbed, a bedbug can obtain a full blood meal in 3 to 5 minutes. Bedbugs can live for 4 to 12 months without feeding. The bugs will survive longer without a meal at lower temperatures than at higher temperatures.

Sources and Detection of Infestations

Bedbugs may be found in many situations, including homes, hotels, poultry houses, around laboratory animals or small caged pets, or near bird and bat nests and roosts. Bedbugs often find their way into the luggage of travelers and may be transported and spread in this

manner. If the occupants of a home or apartment infested with bedbugs move out, the bugs may migrate to other nearby dwellings. Similarly, they may occasionally enter homes after a bird or bat control program has eliminated their normal hosts, and are sometimes unknowingly carried into the home from poultry houses.

Infestations of bedbugs can often be detected by the offensive odor associated with them. The odor is caused by an oily secretion produced from special glands, and has been described as a smell resembling that of "old dirty laundry" in light infestations, becoming even more objectionable in heavy infestations.

In a light infestation, bedbugs will be found in the tufts, seams, and folds of mattresses and covers, later spreading to crevices in the bed frame and box springs. In severe infestations the bugs will also be found behind baseboards, window and door casings, picture moldings, loosened wallpaper, cracked plaster, or in furniture.

Brown or black spots or dried excrement found around hiding places or in bedding is also an indication of bedbug infestations. Eggs, egg shells, and molted skins may often be found in the bedbugs' hiding places.

The masked hunter, an assassin bug, is known to feed upon bedbugs. Presence of this insect in the home may be indicative of bedbug infestations, although this is not always the case since these assassin bugs may enter homes anyway.

Bedbug Control

Bedbug control in the home begins with location of the hiding places used by the insects. A thorough inspection should be made during the day and all hiding places that are located should be treated with a suitable chemical.

Pesticides containing dichlorvos (Vapona), malathion (premium grade), and pyrethrins have been effective against bedbugs. Be sure that the chemical used is registered for use in the home and follow label directions carefully.

A pesticide spray should be applied to the slats, springs, and frame of the bed. The mattress should be sprayed lightly, but not to the point of wetness. Allow mattresses to dry thoroughly before using. Brush or spray applications should be made to baseboards and wall cracks. Applications of pyrethrins should be repeated several times at weekly intervals.

Infestations in hotels, apartments, condominiums, or other multiple dwellings, as well as heavy infestations in private homes, are often best left to a professional pest exterminator. Because of the bedbug's ability to migrate, all units in a multiple dwelling must be inspected, treated where necessary, and periodically checked for reinfestations until all of the bugs are eliminated.

Bedbug control around animals also involves location and treatment of the bedbugs' hiding places. In poultry houses, bedbugs hide and breed in nests, behind nest boxes, under loose boards, or in cracks in the walls, roosts, and around nests. The bugs are almost never found on fowl in the daytime. Special precautions may be required when treating near laboratory animals if pesticide residues are a concern. Care should be taken not to apply pesticides directly to poultry or other animals.

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Precautionary Statement

All pesticides have both benefits and risks. Benefits can be maximized and risks minimized by reading and following the label. Pay close attention to the directions for use and the precautionary statements. The information on pesticide labels contains both instructions and limitations. Pesticide labels are legal documents, and it is a violation of federal and state laws to use a pesticide inconsistent with its labeling. The pesticide applicator is legally responsible for its proper use. Always read and follow the label.