

Booklice and Psocids

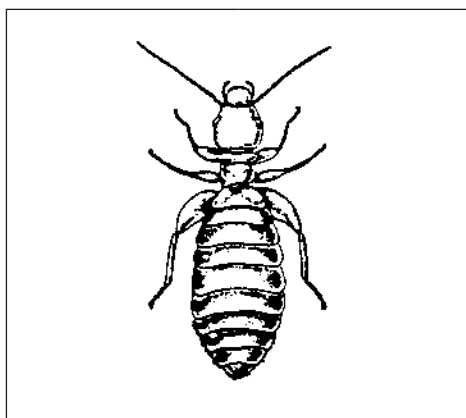
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Booklice are occasionally known as paperlice. These flat, tiny insects may crawl in noticeable numbers over stored papers, books, walls, furniture, and other materials in damp, warm, undisturbed areas in buildings. Sometimes, outbreaks occur in newly constructed dwellings when new lumber or plastered walls increase interior humidity and promote mold growth. Booklice are merely one type of insects called psocids (insect order Psocoptera). True booklice are very flat and have no wings but other psocids that may be found in buildings are more rounded and these

often have short wings that look like flat scales arising from the thorax. Most psocids feed on microscopic molds and mildews associated with high-humidity conditions. Other species of psocids live outdoors and these are often called barklice due to their habit of clustering on the bark of trees, especially trees with lichen or surface algal growth. Booklice and barklice do not bite humans or animals, spread disease, or damage household furnishings. However, when high numbers are present, their body remains and feces can cause allergies that may result in skin irritation or respiratory problems.



Common Name	Scientific Name
Booklice	<i>Liposcelis corrodens</i>
Barklice	<i>Trogium</i> spp.
Psocids	<i>Lachesilla</i> spp. <i>Psyllipsocus</i> spp. <i>Lepinotus</i> spp.

Identification

Booklice are minute, soft-bodied, transparent to grayish-white insects about 1/32 to 3/16 inch (1 to 4 mm) long, usually wingless, and may go unnoticed. It is helpful to use a hand lens and flashlight for detection. The head and abdomen appear large, while the thorax (midsection) is narrow. The antennae are long, threadlike, and segmented. All psocids have chewing mouthparts and large eyes that protrude from the sides of the head. The young appear almost colorless, becoming more opaque with age. They run along exposed surfaces in a jerky, halting manner, and sometimes appear to hop. Outdoor psocids may be winged or wingless. If winged, they are weak fliers and hold the wings in a roof-like position over the body when at rest.



A deathwatch psocid, a common rounded psocid that can be found on basement walls or other damp places. It has a strange habit of tapping its abdomen on loose paper to make a soft drumming sound! (Photo: D. Shetlar)

Life Cycle and Habits

Booklice are all females and development occurs from unfertilized eggs (parthenogenesis). Females deposit an average of 60 eggs over their life span that are white, oval, and covered with a crusty coating. Eggs are laid singly or in clusters near a food source where young white nymphs hatch and feed on molds and mildews. There are four to six nymphal stages with the immatures resembling the adults in form and structure. The life cycle, from egg to adult, takes four weeks to two months or more depending on environmental conditions. There may be seven to eight generations per year with adults dying in cold weather and eggs hatching the following spring. Booklice avoid light and prefer temperatures of 75 to 85°F with relative humidities of 75 to 90 percent. Long periods of humid weather, accompanied by warmth, favor outbreaks.

These insects feed on microscopic molds, fungi, dead insect fragments, pollen, and other starchy foods found in humid environments such as houses, warehouses, libraries, and structures where green lumber is stored or used. Following recent construction where new lumber has been used, water vapor can condense in wall voids that encourage molds and mildews, thereby encouraging booklouse out-

breaks. Damp basements, crawl spaces, leaky and sweating plumbing, house plants, cereal, flour, bird nests, furniture stuffing of natural plant fibers, paste on book bindings, grains, wallpaper, etc. may also harbor or support booklice. Booklice have been a regular problem in doctor's offices, museums, and libraries where paper and paper products are stored or filed.

Control Measures

Lowering the relative humidity hinders development or causes death due to desiccation (drying out). Effort should be made to reduce the relative humidity in rooms and buildings to less than 50 percent, thereby drying out infested materials, and eliminating the food source such as molds and mildews.

Prevention

Use a vacuum cleaner with proper attachments to remove debris from cracks and corners of storage areas. Clean up spilled food stuffs such as cereals and flour. Foods stored for six months or more sometimes become infested especially in damp, dark, warm, undisturbed habitats.

Infested cereals or stored foods can be discarded or supercooled in a deep freeze at 0°F for seven days. Books, papers, or upholstered furniture can be dried in sunlight. Ventilate and dry areas with a dehumidi-



A cluster of adult barklice on the trunk of a tree. (Photo: D. Shetlar)



Some true booklice adults feeding on a piece of cracker.
(Photo: D. Shetlar)

fier or fan, or simply open the doors of a damp room. Infestations will usually disappear during late autumn when rooms are artificially heated and kept dry. Even with a new structure containing green lumber and freshly plastered walls, enough drying occurs after one season of heating so that infestations rarely occur in the following years.

Eliminate corrugated cardboard boxes and materials when possible or store in dry places. Keep books and papers off the floor and repair plumbing leaks and drains to eliminate standing water. Vent the clothes dryer to the outside and remove leaf lit-

ter, vines, and other debris from around building foundations including ground-level window wells. Install a vapor barrier in the crawl space or add additional ventilation in the crawl space or basement. Regrade wet areas around the building and install a drainage tile system to handle rain runoff in problem areas. Seal cracks in interior and exterior foundation walls and repair leaking rain gutters, down spouts, roof vents, and roofs. Allow damp firewood to dry outside before bringing indoors.

Insecticides

Normally chemical control is not needed if strict sanitation is practiced. Booklice cause negligible damage to structures or books. They are a nuisance by their presence, especially when large populations occur. Some apply mothball flakes, naphthalene or paradichlorobenzene in infested closets or file cabinets. Household products that control mold and mildew will reduce the food source of booklice. If pesticides are to be used, select ones labeled for control of “creeping and/or crawling” insects. For persistent infestations, a professional pest control firm may be necessary to treat wall voids or other inaccessible areas. Request that they use drying agents or borates in such voids.

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