



THE BRISTLETAILS

Lepisma saccharina, the common silverfish

Thermobia domestica, the common firebrat

INTRODUCTION

Silverfish, *Lepisma saccharina*, and firebrats, *Thermobia domestica*, are insect species that belong to the order Thysanura and are usually found in homes. They are mostly a nuisance pest, but they can destroy cereals, books, papers, wallpaper, and other starchy items with their excrement. During severe infestations, these starchy targets may develop irregular-shaped holes from the insects' feeding. Silverfish and firebrats do not feed on wool or other animal products.

DESCRIPTION

Silverfish (Fig. 1a) and firebrats (Fig. 1b) are often referred to as the bristletails (or fishmoths, tasseltails, or fringetails) because of the three, tail-like appendages that protrude from their last abdominal segment. Silverfish have silvery-metallic scales covering their body and antennae as long as their body; they can grow to 12 mm in length (head to tip of abdomen). Firebrats have tufts of brown scales that create a mottled appearance and antennae which are longer than the length of their body; they are similar in size to silverfish. Both species move rapidly (including sideways), and their flat bodies let them hide in narrow crevices. The immature bristletails look similar to the adults, but do not have scales until after several molts.

DEVELOPMENT AND BEHAVIOR

Silverfish can live for two to three years, or more, and produce more than 50 offspring. Eggs, deposited one to three at a time, take from 19 to 43 days to hatch (temperature dependent); these offspring can reach sexual maturity in a few months or up to 3 years. This variability is due to environmental conditions and quality of food sources. Firebrat have similar lives, but they can produce more than 100 offspring, and eggs are deposited in batches of about 50.

Little is known about bristletail behavior. Most behavioral studies examined food preference or food suitability. Although most people think that bristletails feed on book bindings and carbohydrates, they actually prefer dried beef, beef extract, dead insects, and other items high in protein. Silverfish cannibalize dead and

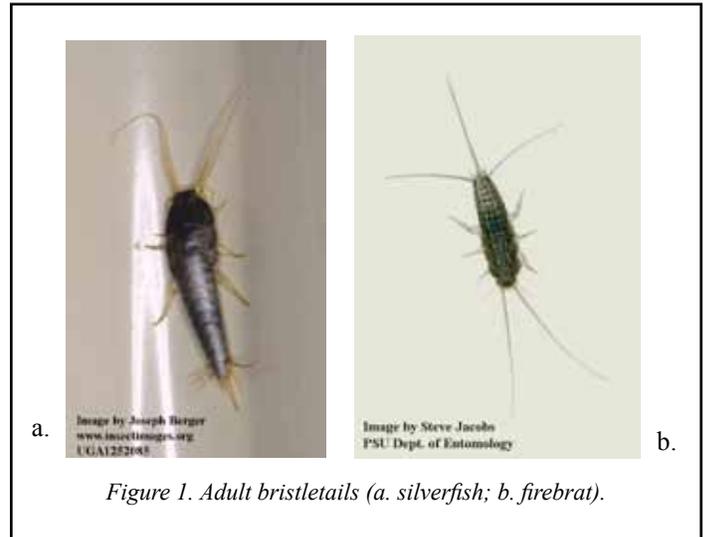


Figure 1. Adult bristletails (a. silverfish; b. firebrat).

injured insects. They can survive for weeks without food and water, and more than 300 days if water is available. Both firebrats and silverfish prefer high humidity, although firebrats are more resistant to dryer environments. Silverfish desire cooler temperatures and are usually found in basements. Firebrats prefer warmer temperatures (over 90°F) and are often near furnaces, hot water pipes, attics, and roofing shingles.

MANAGEMENT

Managing silverfish and firebrats is difficult. A complete strategy that involves sanitation, de-humidification, habitat modification, and insecticides can eventually produce satisfactory results. However, none of the following methods alone will eliminate these pests from your home. Use them together to achieve proper control.

1. Reduce food sources. Keep cereals, flour, meal, pastas, pet foods, and pet treats in airtight containers. Vacuum carpets, flooring, and upholstered furniture regularly.
2. Reduce water sources. Use dehumidifiers in damp basements. Install plastic sheeting on the ground in dirt crawl spaces and ridge vents in roofs let humid air escape. Keep exterior areas caulked and well painted, gutters and downspouts free of debris, and landscaping graded to allow water to drain away from your home.

3. Reduce harborages. Seamless interior walls limit access to sites such as wall interiors and spaces between ceilings and walls. Bristletails can gain access to these harborages through crevices and cracks under and behind baseboards, windows, and door trim and holes in walls and floors where pipes pass. Use caulking, spackle, or expandable foam to eliminate these openings.
4. Direct insecticide application. Various insecticides and chemical formulations are available for bristletail control. Diatomaceous earth and silica aerogel that cause insects to lose moisture are known as desiccants. Apply them as a dust to cracks and crevices or inject them into wall voids. They are only effective if they remain dry, and work best when water sources are reduced. You can apply synthetic pyrethroids such as deltamethrin, cyfluthrin, lambda-cyhalothrin, cypermethrin, sumithrin, or tralomethrin to cracks as a water-based spray. When injected into dark crevices, the materials have a longer period of efficacy because they are not in direct sunlight.

Professional pest control companies have experience controlling many types of insects and can be contracted to develop a management strategy for bristletails.

WARNING

Pesticides are poisonous. Read and follow the labels' directions and safety precautions. Handle them carefully and store in original, labeled containers—out of the reach of children, pets, and livestock. Dispose of empty containers quickly, in a safe manner and place. Do not contaminate forage, streams, or ponds.

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