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Silverfish (*Lepisma saccharina)*: An Overview and their Management

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INTRODUCTION

Common silverfish (*Lepisma saccharina*) are primitive insects that owe their survival to their secretive life in damp and cool places. They are pests, belonging to the order Zygentoma formerly Thysanura and family Lepismatidae. They eat food materials that are high in protein, sugar, and starch such as paper, the glue on wallpaper and bound books, cereals, and dried meats. They also damage some natural and synthetic fibers and may leave yellow stains, especially on linen (Sloderbeck, 2004).Silverfish got their name from the insect's silvery/ glistening, metallic appearance and fish-like shape and movements. Silverfish are also known as "bristletails" because of their three long, bristle-like or tail-like appendages on the rear end of their body. They are found throughout the U.S. and are typically seen in moist, humid areas in the home, such as bathrooms, basements and attics. They tend to hide their presence from humans, which means any damage they have caused could go unnoticed as well. While they don't bite, silverfish are the creepy nuisance that can be destructive to your belongings.

Silverfish

Scientific Name: *Lepisma saccharina*
Order: Zygentoma&**Family:** Lepismatidae
Silverfish Appearance: It is about 1/2 inch long, with a uniform silvery color over the top surface. Their bodies are long and slender. Silverfish are broad at their head with a grudual tapering toward their rear.
Silverfish Habitats: It can be found almost anywhere, but they prefer damp environments with moderate temperatures such as basements, laundry rooms, and under sinks. Silverfish can travel through a long distances in search of food. It may be difficult to know the exact source of silverfish infestations. It prefers dark and moist environments (75 - 97% humidity). Some of their preferred habitats are basements, kitchens, sinks, bathtubs, bookcases, closet shelves, behind baseboards, wall voids and sub-floors.

Silverfish Biology and Habits

- Silverfish require a large supply of starchy foods or molds to survive. The diets are high in protein, sugar or starch, including cereals, moist wheat flour, starch in book bindings and paper on which there is glue or paste.
- Silverfish are considered as a nuisance pest because they feed on wallpaper pastes, natural textiles, books and papers. It also feed on mold and fungus that grows on a variety of other surfaces.
- Silverfish are fast-moving and can travel throughout buildings. Once they find a good source of food, they stay close to it.
- Silverfish go through a three stage life cycle called Ametabolous (No metamorphosis), whereas most insects have a four stage life cycle (complete metamorphosis). Silverfish can lay eggs at any time during the year. The eggs take 19-43 days to hatch. The life cycle from egg to adult is about three to four months.
- Silverfish are nocturnal, but they are also active in dark areas throughout the structures they inhabit. They can be a problem year round.
- You may see silverfish trapped in sinks and bathtubs because they enter seeking moisture and are unable to climb a slick vertical surface to escape.

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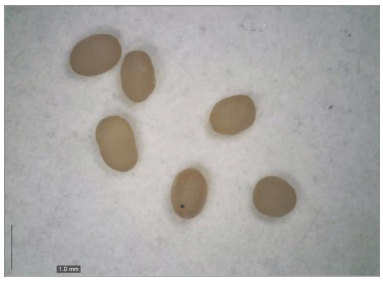
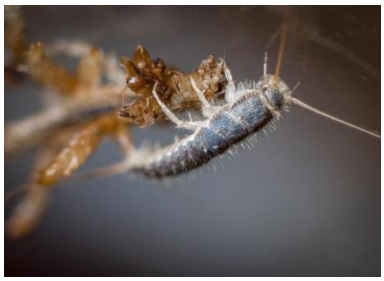
- It may attack fabric if there is left over food particles (spilled cokes and other starchy carbohydrates) or areas of soiled substances (sweat). They will not eat the fabric for substance like clothes moths, but will damage the fiber trying to get to the substances on the fabric.


Egg Stage


Immature Stage


Adult Stage

Fig.1- Different life stages of Silverfish (*Lepisma saccharina*)

Silverfish Detection and Signs of Infestation:

- Silverfish molt throughout their lives. Finding their cast skin is a good indicator that silverfish are present.
- Finding small irregular shaped holes in fabrics is a common sign of silverfish. Irregular shaped holes in wallpaper are another indicator because they like to eat the glue.
- It may leave a yellowish stain on fabric. Firebrats will feed extensively on rayon, whereas silverfish usually damage it only slightly.
- Outside, it may be found in nests. These nests can belong to other insects, birds and mammals. They also live under tree bark and mulch. They are sometimes found in wood shingles or sidings on houses.
- Inside, silverfish are found just about anywhere that is dark and humid.

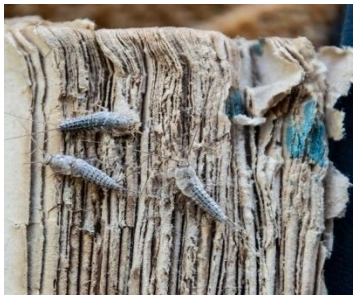


Fig.2- Nature of damage/ infestation on books and clothes by Silverfish

Are Silverfish Harmful to Humans?

Because of their **appearance,** people may assume that a silverfish is harmful. Here's the good news: Silverfish are not known to bite and there's **no scientific evidence** to suggest silverfish are poisonous. Additionally, they're not known to carry any pathogens that cause disease.

That being said, they can trigger allergic reactions in some people. As you now know, silverfish shed their skins throughout adulthood in a process called "moulting." When they do this, they leave behind scales. Some people may be allergic to the dust created by the dropped scales.

Now for the bad news: Silverfish aren't harmful to people, but they can damage your belongings. These insects prefer a **diet** filled with sugars and carbohydrates, so they'll chow down on everything from

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cereals and books to wallpaper, **insulation** and clothing. They'll also enjoy tissue, newspaper and cardboard. They'll even eat human hair that's fallen to the ground.

While you may not be too upset if an old stack of newspapers slated for the recycling center is eaten, you probably don't want to find holes in clothing or — worse yet — open a box of family photo albums only to have a bunch of tiny prehistoric monsters stream out and find your pictures ruined.

Management practices

I) Preventive Measures

Silverfish are very common insects to have in the home. Unfortunately, **getting rid of silverfish** is a tough task. Their flat bodies and high speed make them adept hiders; and the fact that silverfish are nocturnal doesn't make it any easier to spot them. You don't have to let silverfish damage your belongings. Here are several steps you can take to help **make your home less attractive to silverfish**:

- Limit their food sources by keeping dry goods (thick cereals, grains, pastas and beans) and pet foods in airtight containers.
- Vacuum carpets, flooring and upholstery regularly to help remove fallen food crumbs.
- Use dehumidifiers in damp areas (including basements) to help remove the moisture that silverfish tend to be attracted to.
- Have dirt floors in crawl spaces or unfinished basements properly lined with plastic sheeting to help control moisture in the structure.
- Have ridge vents properly installed in roofs to help let humidity escape.
- Keep gutters clean and help ensure water drains away from your home.
- Make sure the outside of your house is caulked and well painted.
- Properly seal any open areas, such as seams between walls and ceilings and cracks under and behind baseboards, windows and trim.

II) Curative Measures

What if you already have a silverfish infestation or even a minor problem? What helps remove silverfish once and for all?

Silverfish can be tough to completely control. This is especially true in homes that have wooden shingles on the roof. Wood shingles are prone to mold, which silverfish tend to eat, and also har30d to treat because it's challenging to reach all the areas a flat-bodied insect can shelter in.

The best way to get rid of silverfish is to attack them at the source; however, in your case it sounds like the source is going to be impossible to find! The good news is, you don't have to reach for the highly toxic sprays; in fact, some of the less-toxic options are the most effective! Here are some things to try:

Boric Acid: This is the most popular product for silverfish control and compared to other products, boric acid is quite low on the toxicity scale. In fact, it has historically been used as a cleaning product. You can purchase boric acid powder to sprinkle in areas where silverfish are active. You can also find boric acid in ready-to-use products such as baits, wafers and traps.

Diatomaceous Earth: The tiny silicate shells of microscopic sea diatoms are lethal to many insects, penetrating their exoskeletons and dehydrating them. Sprinkle diatomaceous earth in crevices, but make sure pets and children cannot get close enough to breathe it.

Pyrethrin: This is a synthetic chemical pesticide, but because it's made from the flowers of the pyrethrum plant, it's biodegradable and considered less toxic than others. It's the active ingredient in many flea and tick pet collars. While no pesticide is completely safe, this might be a more attractive option than a harsher chemical. You can find pyrethrin sprays and powders at most garden centers and you would apply it only in crevices and areas where the silverfish are active.

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Jar Traps: Make your own silverfish trap by covering the outside of a glass jar with masking tape (to help the critters crawl in), then put crackers or something starchy in the bottom of the jar as bait. The silverfish crawl in, but they can't get out.

Sticky traps: Make a paste of flour, water and boric acid. Coat index cards with the paste, allow it to dry and use as sticky traps.

Baits: Sprinkle boric acid on and around a cracker, and place it as poison bait. Be sure to put it out of reach of children or pets. You can also do this with diatomaceous earth.

Crevice sprays: Make a 5% solution of boric acid in water. Use a spray bottle or turkey baster to inject the spray into cracks and crevices. You can also spray the powder directly. This puts the treatment where you need it and reduces your exposure to the chemical.

Some entomologists claim that it should not be necessary to use pesticides to control silverfish and instead advocate controlling numbers by focusing on reducing humidity and on heating or freezing infested articles (Slater and Kastanis, 1997)

REFERENCES

1. Sloderbeck PE (2004) Silverfish and firebrats. Kansas State University
2. Slater A, Kastanis G (1997) Silverfish and firebrats: how to control them. Oakland University, Calf. Div. Agric. Nat. Res. Leaflet 2101