SILVERFISH AND FIREBRATS

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SUBJECT: Silverfish and Firebrat Management in Schools

Importance

Silverfish and firebrats are primarily nuisances, causing little damage. Although very uncommon, the potential exists for silverfish and firebrats to damage paper, book bindings, wallpaper, cereals, starched fabrics, leather, fur, silk, and rayon. Silverfish and firebrats are not associated with the spread of any disease.

Identification

A full grown silverfish or firebrat is about 1/4 - 1/2 inch long. Both insects have carrot-shaped bodies, thick at the front and tapering towards the posterior. The young look identical to the adults, but are smaller. Silverfish and firebrats have two long antennae on their heads and three tail-like appendages on the tips of their abdomens. The five appendages are approximately as long as the body. Silverfish have uniformly colored silver bodies while firebrats have mottled gray-colored bodies.

Silverfish

Photo from Ken Gray Collection, Oregon State University

Firebrat

Photo from U of MN, Dept. of Entomology

Biology

Silverfish and firebrats can be accidentally brought into buildings with boxes of materials that have been stored in infested areas. They can also move indoors from the outside. Once inside structures, they move quickly through buildings in search of food. When they find a food source, they will generally stay close to it.

Silverfish and firebrats are general feeders, consuming a large variety of materials. They especially eat foods and products that are high in protein, sugar, or starch. This includes vegetable foods, such as flour and cereal; fabrics, including cotton, linen, silk, and rayon; sizing in paper; starch in clothing; and paste or glue. They also eat wallpaper, book bindings, and paper when trying to feed on the glue or paste underneath them.

Both insects are active at night and hide during the day. They lay eggs in cracks, crevices, and other narrow, confined spaces. Silverfish prefer cool, moist, dark places with temperatures between 70° - 80° F and a relative humidity between 75 - 95%. They are often associated with basements, closets, bookcases, and storage areas. Firebrats also prefer damp areas but in areas with temperatures over 90° F. They are found in boiler rooms, tunnels, insulation around hot water or heating pipes, bakeries, and similar places.

Silverfish and firebrats run with characteristic, quick movements, stopping at short intervals and then moving on rapidly. These insects cannot climb on smooth vertical surfaces and may be found trapped in sinks and similar places. Despite the circumstantial evidence, they do not come up out of drains.

Prevention & Nonchemical Management

When silverfish or firebrats are sighted or their damage is suspected, inspect basements, closets, boiler rooms, tunnels, and other potential silverfish and firebrat areas to detect their presence. Concentrate management efforts at the source of infestations. Silverfish and firebrats can wander through buildings as they search for food and can be found away from food sources. Regardless of where you find silverfish or firebrats, concentrate management efforts at the source of infestations.

- Use visual sightings of the insects and their damage to help determine where you believe silverfish or firebrats are a problem.

- Monitor silverfish and firebrats with traps placed in suspected areas. One option is to use sticky board traps. You can also use small glass jars as traps. Wrap the outside of the jar with masking tape so the insects can climb into the jars, but can't climb out again.

Silverfish and firebrats are associated with damp conditions. Any corrective action that reduces moisture will reduce silverfish or firebrat numbers.

- Repair leaky pipes.
- Ventilate closed rooms.
- Dry out damp areas with a fan or dehumidifier

Methods that remove food sources or exclude insects from favorable sites are also important.

- Remove old papers, books, boxes, and other clutter to reduce potential hiding areas and food sources.
- Vacuum lint that accumulates in cracks and crevices.
- Caulk or seal cracks and crevices, including those found in walls, to limit hiding places.
- Repair or remove any loose wallpaper.

Additionally, if you have small, infested articles, you can freeze them for several days.

Insecticidal Management

Insecticides are normally not necessary for silverfish and firebrat management. However, if large numbers are discovered, it may be desirable to supplement nonchemical methods with an insecticide treatment.

- Before buying and again before using any insecticide product, read the label carefully. Be sure the product you intend to use is labeled for the particular site you wish to apply it. The label is the final authority on how you may legally use any pesticide.

Some of the chemical options include:

- Apply dusts, such as amorphous silica gel, to cracks, crevices, or tunnels. Dusts should be applied to areas that are generally inaccessible to students and staff.

- Spray residual spot treatments along baseboards, cracks and crevices, and other areas where silverfish or firebrats are found. Synthetic pyrethroids are effective insecticides against silverfish and firebrats.

To obtain additional copies of this publication, contact the Minnesota Department of Agriculture at 651-296-7673.

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