

### Swarming Silverfish in Your School?

#### General Info:

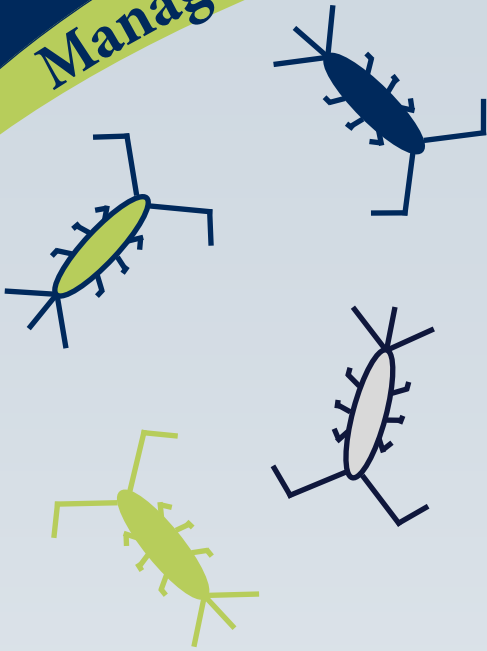
Silverfish are one of the most common pests in Utah schools. Silverfish are active at night and avoid light. This habit often makes them go unnoticed. However, with a monitoring program silverfish are readily detected on traps. Silverfish feed on both plant and animal material. They like paper, books and book bindings, wallpaper, wallpaper paste, glue, gummed labels and envelopes, linen, artificial silk, starched materials, stored foods, dried meat and other cellulose products. They can also be cannibalistic and like protein-based foods such as dead insects, etc. In Utah schools, silverfish favor areas around soda/water vending machines and where paper products are stored.

#### What do they look like?

Silverfish are teardrop shaped, wingless, covered in silver plates (scales) and they move in a somewhat fishlike motion. They have two antennae and three long filamentous appendages at the end of their body. The immature forms generally are pale and lack scales, but take on a gray color as they age. The adult's size varies between species but is generally between 1/2 to 3/4" long.

#### Life Cycle

Silverfish generally prefer a warm (70-85°F) and humid environment, but some species will tolerate dry areas. They hide and lay eggs in areas where food and harborage (cracks, crevices, clutter) are available. Adults can live for more than 3 years depending on temperature, humidity, available food and harborage. Silverfish can live for more than a year without food.



**Above:**  
Figure 1. Silverfish caught on pest monitor. (Seth Drury, USU)

**Right:**  
Figure 2. Common silverfish (Christian Fischer, Wikipedia)



#### Did You Know?

- Silverfish can be cannibalistic.
- Silverfish do not have wings.
- During courting the male silverfish will do a dance with his head and antennae.
- They can survive for weeks without food and water, and more than 300 days if water is available.
- In schools, silverfish favor areas around soda/water machines and in paper-cluttered rooms and closets.
- Silverfish never stop molting in their lifetime, and will molt every 2 to 3 weeks.



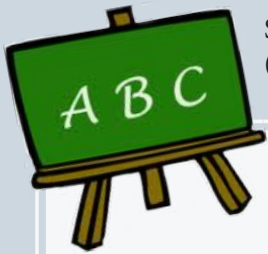
**Above:**  
Figure 3. Firebrat (left) (Clemson University, Cooperative Extension Slide Series, Bugwood.org) and silverfish (right) (Christian Fischer, Wikipedia).

### Firebrats: the Heat-Loving Relative:

Firebrats are a close relative of silverfish, and both are types of bristletails. Firebrats are similar in appearance to silverfish, but appear brown or gray with brown markings and antennae that are longer than their body. They can potentially be just as harmful to household products as silverfish due to their similar diets.

Firebrats have a similar life cycle to silverfish, and temperature, humidity, food and harborage are critical. Newly hatched firebrats will take about 2 to 4 months to develop into adults under nominal conditions. They usually live 1 to 2.5 years, much shorter than silverfish.

One primary difference between firebrats and silverfish is that firebrats prefer a much hotter environment. Firebrats prefer areas more than 90°F ambient temperature. For this reason you can often find firebrats in areas like boiler rooms, laundry rooms, around ovens, vending machines, furnaces, bakeries, etc.



## Managing Silverfish with Integrated Pest Management

Silverfish and firebrats are evidence of excessive moisture. Controls should be focused on moisture reduction and food and harborage reduction. In schools, these pests commonly occur near vending machines, libraries, art rooms, closets with stored paper, in damp/moist areas, and areas with heat. In Utah, silverfish have been detected on monitors in almost all rooms within a school.

### Monitoring

- Use pest monitors (sticky traps) in areas of preferred habitat and food availability.

### Habitat Modification/Exclusion/Sanitation

- Reduce moisture by fixing leaky plumbing, etc., by using a dehumidifier, ventilating via an open window, or circulating air with a fan.
- Remove or store potential food sources in plastic, sealable containers. (See food list above.)
- Minimize clutter and clean up all potential food sources.
- Vacuum regularly.
- Seal all cracks and crevices in areas with silverfish to reduce harborage and reproduction sites.

### Chemical Control

- Chemical control alone will not eliminate silverfish. Chemicals must be combined with the methods outlined above to be effective.
- Clean and apply inorganic dusts (boric acid, silica gel, diatomaceous earth) to cracks, crevices or wall voids, or under appliances, etc., where children do not have access.



For more info, check out:

**Clemson Univ.: Silverfish & Firebrats**  
<http://media.clemson.edu/public/esps/pdfs/hs20.pdf>

**UC Davis: Silverfish & Firebrats**  
<http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7475.html>

**Penn State Univ.: Silverfish & Firebrats**  
<http://ento.psu.edu/extension/factsheets/bristletails-silverfish-and-firebrats>

