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SILVERFISH

Silverfish normally live outdoors under rocks, bark and leaf mold, in the nests of birds and mammals and in ant and termite nests. However, many occur in homes and are considered a pest -- or at least a nuisance -- by homeowners.

Silverfish are not often seen by homeowners, because they are nocturnal and can run very swiftly. Occasionally, they are found in bathtubs. They crawl in seeking food or moisture and can't climb out. These insects prefer vegetable matter with a high carbohydrate and protein content. However, indoors they will feed on almost anything. A partial list includes dried beef, flour, starch, paper, gum, glue, cotton, linen, rayon, silk, sugar, molds and breakfast cereals. They can go for up to 1 year without food, so sanitation alone will not eliminate an infestation, although it may prevent new ones from starting.

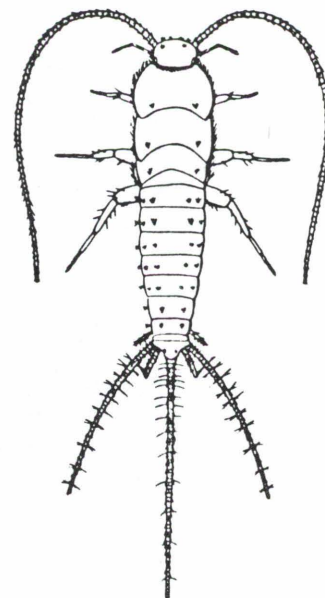
Adults lay eggs in small groups containing a few to 50 eggs. The eggs are very small and deposited in cracks and crevices. A female normally lays less than 100 eggs during her lifespan of 2 to 8 years. Under ideal conditions, the eggs hatch in 2 weeks, but may take up to 2 months to hatch.

The young nymphs are very much like the adults except for size. Several years are required before they are sexually mature, and they must mate after each molt if viable eggs are to be produced. Populations do not build up rapidly because of their slow development rate and the small number of eggs laid. A large infestation usually means the house has been infested for some time.

Control. Residual insecticides (use an aerosol) will help to control these pests. Removing old papers, boxes, books, and clothes from the attic to basement will help remove food and hiding places. Moth crystals placed in boxes in the attic will also help. -- Robinson



INSECT NOTES



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FIREWOOD INSECTS

There are several species of insects that commonly infest firewood logs. Although these beetles, ants, flies, and spiders rarely infest houses, they can generate questions from homeowners. Let's go over some of those questions.

Q: What are those "chewing sounds" coming from my woodpile?

A: Sometimes you can stand close to a stack of firewood logs (hardwood or softwood) and hear the distinct sound of something (lots of things!) chewing. After a little prying away of the bark you find lots of small to large insect larvae feeding just under the bark. Panic! The wood pile will be eaten in a week! They will infest the house! They will eat the house! Relax. None of that will happen.

The beetles that are feeding just under the bark or within the wood will not shift to feeding on structural wood. The household wood is too dry for those larvae to eat.

Q: Should I consider spraying my woodpile with an insecticide to kill the insects in the wood or around the logs?

A: There are a variety of insects that infest dead and down logs in the wood. These insects include: ants (especially carpenter ants), spiders, flies, wasps, bark beetles, and longhorned beetles. These insects can and often do) remain once the logs are divided, hauled away, and stacked behind your house. The insects are no threat to the firewood, your house, or your health. So, it is not necessary (or advisable) to use any kind of insecticide on the wood pile.

Q: What are the most common insect pests associated with firewood?

A: Carpenter ants. Usually associated with softwoods (pine). Colonies may be formed in wood that is on the bottom of the pile, contacting the ground. They will not become established in the house if a few are accidentally brought in with a log.

Spiders, wasps, flies. Often spend the winter hiding under bark outside. When brought inside and warmed up, these critters become active (don't we all!).

Bark beetles. Live in bark as larvae. The adults may emerge in great numbers in the house and collect (and die) at windows.

Longhorned beetles. Are often found under the bark or in the log. You can actually hear these fellows feeding and may find some of the "sawdust" they produce. The adults may emerge from firewood kept in the house for a long time. They will not infest the house.

Q: What about old house borer ("wood borer") and termites? Will they move from firewood to my house?

A: An insect that is not found in firewood is the old house borer. This common pest of structural timber does not occur in firewood, and can not infest houses from firewood. Termites rarely infest firewood -- unless you leave it in place for a long time (several years).

Q: What can I do to get rid of the insects that attack my firewood?

A: Use an aerosol to kill insects that emerge from firewood and fly about the house. Strip the bark off firewood when you stack it or at least before you take it into the house. Rotate your wood pile; don't let bottom logs remain for more than a year. -- Robinson.

WHAT'S NEW IN KILLING TERMITES

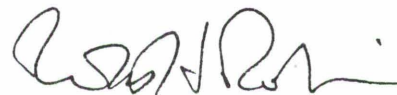
For the past 40 years the most commonly used chemical for preventing or controlling termite (subterranean) infestations has been chlordane. It has been effective in protecting wood from termites for 36 years -- as tested at the USDA Wood Products Laboratory at Gulfport, Mississippi. Although chlordane has come under fire because it caused tumors in one strain of mice, it remains the choice of many homeowners and pest control operators.

In the last few years three new chemicals have been labeled for termite control: Dursban TC, Torpedo, and Dagnet. The first, Dursban TC, is an organophosphate, the active ingredient for second and third is a pyrethroid -- permethrin. These chemicals have been tested by USDA, and have been effective for 6-16 years. They are not available to homeowners, only to pest control operators. The new chemicals are more expensive than chlordane.

The future of termite control will be very different than the past! For the first time, homeowners will choose the termiticide used in and around their house. The length of time the chemical will remain effective and the cost will be important factors to consider. Some Pest Control Operators may not carry all the termiticides, but will have at least two of them. Some Pest Control Operators may decide not to use chlordane because of the potential of law suits due to the suspected tumor-causing effect in mice.

The application methods for termiticides -- regardless of the chemical -- remain the same:

- 1) Treat the soil adjacent to the foundation wall and footing on the outside;
- 2) Treat all porch and patio voids;
- 3) Treat under the slab floor;
- 4) Drill and treat within the block wall (optional). -- Robinson



William H Robinson
Professor Entomology

INSECT SURVEY



Looking for some books which would help you identify common insect problems? My favorites are listed below:



Start your library with four books from the Golden Nature Guide Series (Golden Press, Western Publishing Company, Inc., Racine Wisconsin). Packed with pictures, these small paperbacks are easy to use and contain a surprising amount of useful information. Insects, Butterflies and Moths, Spiders and Their Kin and Insect Pests are available for about \$3 each. For an easy, interesting two-hour review of economic entomology, I highly recommend reading Insect Pests.



Your next purchase should be Insects That Feed on Trees and Shrubs by W. T. Johnson and H. H. Lyon (1976, Cornell University Press, Ithaca, NY). This book is expensive (around \$48) but it is worth it. It contains over 200 color plates and well-written biological information on hundreds of pests of wood ornamentals.

The best reference available for identifying pests of field crops, fruits and vegetables is the old bible of economic entomology, Destructive and Useful Insects by C. L. Metcalf, W. P. Flint and R. L. Metcalf (1962, 4th edition, McGraw-Hill Book Company, Inc., NY). The first one-third of this book is a textbook style coverage of basic entomology. The last two-thirds contain easy-to-use field keys. This book sells for about \$35.

For non-pest insects (the kind people bring in just because they are curious) I recommend A Field Guide to the Insects, number 19 in the Peterson Field Guide Series by D. J. Borror and R. E. White (1970, Houghton Mifflin Company, Boston). The keys in this book are not very useful, but many insects can be identified simply by comparing them to the numerous excellent drawings and color plates. It costs less than \$10 in paperback.

The Gardener's Bug Book by C. Westcott (1973, 4th edition, Doubleday and Company, Inc., Garden City, NY) is a popular guide to hundreds of insect pests of flowers, woody ornamentals and vegetables. A host index and the arrangement of pests into groups by popular name (caterpillars, borers, flies, etc.) makes this a very easy book to use. Current price is about \$15.

For biting and stinging insects, I recommend Pictorial Keys: Arthropods, Reptiles, Birds and Mammals of Public Health Significance (1967) which is available free of charge from the National Communicable Disease Center, Atlanta, Georgia 30333. This book is a spiralbound collection of about 100 picture keys of insects and other animals which bite, sting, or transmit diseases.

Books listed above are good general references. I would be glad to supply additional reference for identifying specific groups of insects (beetles, true bugs, immatures, turf insects, etc.) to anyone interested. Bio Quip Products has the most complete line of insect-related books and supplies I know of. Their catalog is available by writing: Bio Quip Products, P.O. Box 61, Santa Monica, California 90406 or (212)322-6636.