

Occasional Invaders

Learning Objectives:

After completion of the study of Occasional Invaders, the trainee should be able to:

- Identify key occasional invaders.
- Identify the key features in the life cycle, habitat and appearance of miscellaneous invaders.
- Discuss integrated pest management procedures for common miscellaneous invaders.

Occasional invaders are pests that do not usually live and breed inside buildings but can wander or migrate seasonally into structures. Some of these pests are associated with trees, shrubs, mulch or other habitats conducive to pest development. Others are attracted to lights at night. Some are dislodged from preferred habitats by management procedures that make the environment unsatisfactory. Environmental extremes such as excessive rainfall, drought, temperature changes or poor drainage around a building may stimulate pest movement indoors.

Many of these pests can be managed by eliminating conditions near the structure that allow them to build up to large numbers. Generally, sanitation or basic landscaping will help eliminate pest-infested sites near structures. Also, pest exclusion, using caulking, weather-stripping, screening of vents and lighting location can solve many problems with occasional invaders.

Mites

Clover Mite

Like other mites and hard ticks, the clover mite passes through four stages in its life cycle: egg, larva, nymph, and adult. The female lays bright red eggs in foundation cracks, under bark, and other protective locations. The newly hatched larvae move to clovers and other plants to feed. After a short feeding period, the larvae return to protected areas to molt. They feed and molt three times before becoming adults. They suck juices from their host plants but do little damage.

The clover mite, although about the size of a pinhead, is one of the larger mite species. The color may vary from brown to pale orange, but when seen in a structure, they are typically blood red. This species is characterized by its two front legs extending forward as long or longer than its body. Like other mites, this species has eight legs.

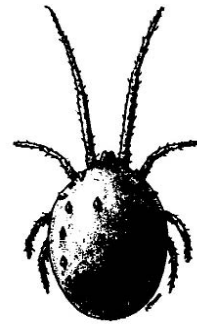


Figure 6-1. Clover mite

The clover mite problem exists over much of the country. In only a few of the southeastern states do structures seem to be free of invasion by these pests. Outdoors, this species feeds on a variety of herbaceous plants, especially alfalfa and clover. The clover mite most frequently becomes an annoying household pest in housing developments where new lawns have been established and where there is a heavy growth of well-fertilized vegetation next to the foundation.

The feeding activity of these mites seldom causes extensive damage. The problem arises when the host plant dries up or is removed. The mite seeks a new host and will enter a structure through window orifices, doorsills and any other available openings. This pest enters structures in massive numbers in the fall and early winter months. The mites are searching for hibernating sites in response to prevailing cooler temperatures and a decrease in the succulence of host plants. Adults are capable of overwintering within a structure. A second migratory period may occur in the spring. This is a movement from hibernating sites to a food source.

The clover mite does not bite man and normally does not feed on plants in a structure. The problem arises from their mere presence. A heavy migration may result in several hundred thousand mites entering a structure. These mites get into clothing, beds, and food. It is nearly impossible to remove them, and if crushed, they will stain surfaces red.

Mite Management

In areas where clover mites are a recurring problem, it is advisable to set up a program to prevent them from entering the home. Once inside they can be killed with certain sprays, but they are more likely to show up again. Prevention can be obtained through chemical and cultural practices.

Home invasion is more likely to occur when grass and shrubbery grow against foundation walls. Since it is difficult for these mites to crawl across rough surfaces, a barrier 18 to 24 inches wide of pea gravel or bare soil along foundation walls will stop many of them. A chemical barrier may also be sprayed adjacent to the foundation. If possible, the inside of the foundation wall should be treated. Most of the miticides with longer residual activities are effective, but check label carefully to insure the chemical selected is registered for this use.

Insects

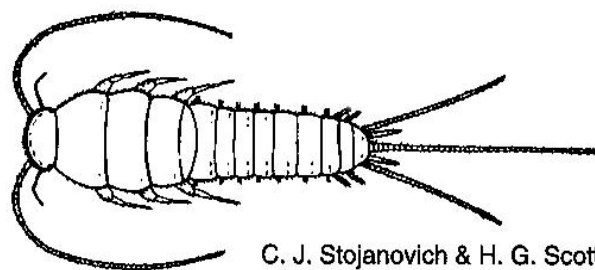
Silverfish and Firebrats

Silverfish and firebrats are flattened insects that are broad near the head and tapered toward the rear of the abdomen. They are wingless, covered with scales and have long antennae. They have three long slender appendages at the rear of the body. These structures give these insects the common name "bristletails." These insects develop without metamorphosis and they have chewing mouthparts. These insects make up the order Thysanura, which are among the most primitive insects.

Silverfish are covered with silvery-gray or tannish gray scales. Silverfish live in damp areas indoors or out, usually underneath boxes, boards and debris.

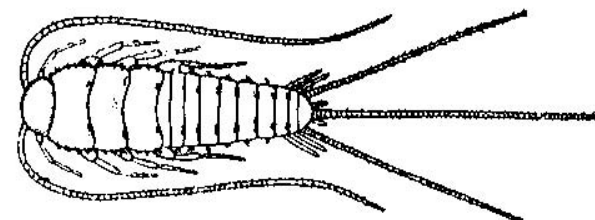
Firebrats have mottled tan and gray scales, which often rub off to show a yellowish colored body wall. Firebrats prefer very warm areas indoors where temperatures are 90 degrees F or above. They are usually found near heating units, fireplaces and steam or hot water pipes if the areas are not too dry.

Silverfish and firebrats feed upon starchy and proteinaceous materials such as natural fabrics, rayon, highly refined paper, glue and paste, books and linens. They frequently leave yellowish stains on the materials they feed upon.



C. J. Stojanovich & H. G. Scott

Figure 6-2. Silverfish



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USDHEW, PHS, CDC

Figure 6-3. Firebrat

Silverfish and Firebrat Management

Due to their nocturnal habits, silverfish and firebrats are often not noticed during the day. If possible, make observations or surveys of silverfish or firebrats during the night using a flashlight. They may also be monitored with sticky traps. These insects may go unnoticed until populations get large or damage becomes severe. Control may be difficult because it is hard to locate the infestation sources.

Keep silverfish and firebrats from entering buildings by caulking or otherwise closing outside openings. Caulk cracks and fill other openings inside to eliminate hiding places. Moisture attracts these insects, so it is important to repair leaking pipes and drains and insulate water pipes to prevent water condensation. Wherever possible, eliminate sources of food; store flour, cereals and similar items in tightly sealed containers.

Labeled sprays or dusts should be applied to all potential hiding places, such as cracks and crevices in basements, cupboards, closets, behind baseboards, wooden partitions and around water pipes. Dusts are useful for treating wall voids, crawlspaces and attics and for use in dry areas where visible residues are not objectionable. Space sprays may be useful especially in attics. Occasionally, it may be necessary to treat the plant mulch around the outside of the building. In this case, use a formulation

other than an oil base spray to avoid plant injury. Consult pesticide labels, Arkansas Extension Service recommendations or pesticide dealers for insecticides recommended for silverfish and firebrat control. Follow the label directions.

Centipedes and Millipedes

Centipedes are flattened, many segmented arthropods that have two body regions (head and abdomen). They have one pair of legs on each body segment, and one pair of long antennae. The claws of the appendages of the first abdominal segment contain poison glands. Their poison functions to paralyze their prey. Centipedes are predatory and feed on small insects and other related animals. Only one species, the house centipede, commonly lives indoors. Most species live outdoors in moist areas found under leaves, stones and debris.

Millipedes like centipedes are arthropods, but they are not insects. They are worm-like in appearance and the body is divided into two regions (head and abdomen). They have one pair of short antennae and most of the body segments bear two pairs of legs. They characteristically roll or curl up into a ball when disturbed.

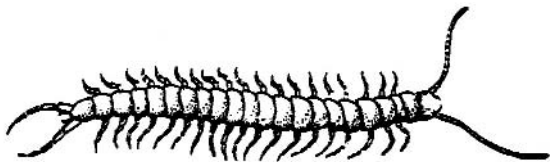


Figure 6-4. Centipede



Figure 6-5. Millipede

Their food consists of decaying vegetable matter, tender roots and green leaves. Large numbers of millipedes are usually associated with large amounts of decaying vegetable matter such as leaves, logs, brush, mulch or grass in combination with ample moisture. Large numbers of millipedes often occur in Arkansas during wet springs that follow mild winters. Millipedes are most common inside homes or other buildings when heavy population pressure, adverse weather, or lack of food causes them to migrate indoors.

Centipede and Millipede Management

Reduction of centipede numbers outside can usually be achieved by removing harborage such as rocks, boards and decaying vegetation. Removing harborage and decaying vegetable matter will also help reduce millipede numbers. Along with cleaning up the area, treating outside foundations and a 12 to 18 inch swath bordering the house with approved insecticides will normally eliminate millipedes.

Springtails

The springtails are a primitive group of insects that on occasion may be of some concern to the homeowner. They are delicate, wingless, soft-bodied insects that typically measure less than 1/16 inch in length. The next to last segment of the body bears a forked appendage that can be pulled under the abdomen and released in a spring-like fashion enabling the insect to jump several inches. The color of the adults may vary from white to blue.

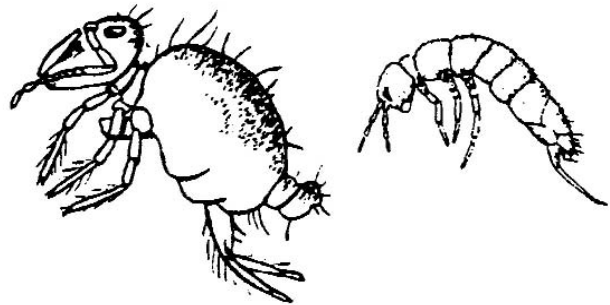


Figure 6-6. Springtails: rounded form (l), elongated form (r)

Although these are among the most common and universally distributed of all insects, relatively little is known about their life history. Springtails may pass through several generations a year and can build up to tremendous numbers in a short period of time. Large populations are typically encountered during the late spring months when temperatures are warm and moisture is plentiful.

These insects feed on decaying plant and animal matter, fungi, algae, bacteria and living plants. They may become pests in mushroom cellars, occasionally damage greenhouse plants and destroy germinating seeds. However, unless populations are large and conditions are ideal, the feeding of springtails is rarely a problem.

Adequate moisture is critical to springtail development. Common habitats include under loose bark, in leaf litter and in lawns or any other areas associated with decaying organic matter. Springtails may breed in a variety of conditions including flowerpots, planters in basements, around kitchen sinks, and similar areas. Massive numbers of these pests may emerge from lawns in the spring and become temporary pests around swimming pools.

Elimination of dark, moist areas of concealment will greatly aid in control of springtails. Residual sprays should be applied to surfaces where springtails occur.

Earwigs

Earwigs are a common group of insects characterized by a flattened, elongated, parallel sided body and a pair of forcep-like appendages on the end of the abdomen. Some species are wingless, but others have a short pair of leathery forewings that cover the first few abdominal segments. These insects are generally brown to reddish brown in color and range from 1/4 to 1/2 inch in length. The pinchers are typically larger and more curved in the males than in the females. Although the pinchers are well developed in most species, they are incapable of penetrating the skin. These structures are used in courtship and defense.

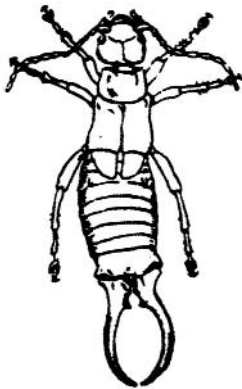


Figure 6-7. Earwig

The female typically forms a hollow nest two to three inches below the surface of the ground or beneath rocks, boards, beside sidewalks, in leaf litter or other similar locations. Most species exhibit some social tendencies. The female stays with and guards the eggs and first larval instars. After the first molt, the immature stage leaves the nest. Most species have only one generation per year and overwinter in either the egg or adult stage.

During the day, the nymphs and adults can be found under logs, rocks, boards, beside sidewalks, in leaf litter and other similar locations. Most species are active and forage at night, chiefly feeding on decaying organic matter, various plant parts and dead insects. Some species are predatory and feed on earthworms and other insects. A few species are occasionally of economic significance as greenhouse, garden and agricultural pests.

Earwigs are typically outdoor species; however, a few may occasionally enter the home, especially during warm weather. They typically do not feed or breed within structures, but because of their relatively large size and fearsome looking forceps, they are of considerable concern to the homeowners.

Earwig Management

The most effective control for an errant earwig or two in the home is purely mechanical. A folded newspaper, fly swatter, broom and dustpan provide quick and inexpensive control. For severe indoor infestations, insecticide sprays should be used only for spot treatment.

Proper scheduling of outdoor applications may increase the efficiency of control. Application of residual insecticides should be made late in the afternoon or early evening because earwigs are active at night. The material should be applied in a band treatment around the entire perimeter of the structure as specified on the insecticide label. It may also be necessary to treat the base of mulched shrubbery or flowerbeds. Because of the high reproductive potential and habitat of earwigs, it is likely that insecticide applications will have to be repeated regularly to achieve a satisfactory degree of control.

Glass jars or tin cans baited with fish or cat food can be buried level with the ground line for use as pitfall traps. The earwigs cannot climb the sides of the container and are trapped. The trap can be cleaned periodically and the trapped earwigs destroyed.

Crickets

Field Crickets

Field crickets have large heads, long thread-like antennae that extend up to 1/2 inch past the tip of the abdomen, and females have spear-like ovipositors (egg laying devices). The hind legs are

well developed for jumping. The adults vary considerably in color, ranging from dark brown to gray to black, with a body length from 3/5 to 1 inch.

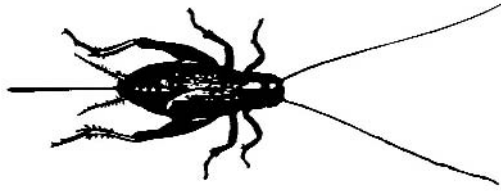


Figure 6-8a. Field cricket

Besides being a household and entryway pest, the field cricket is of considerable importance as an agricultural pest. In many states, they damage seedling cotton plants. They are also occasionally of some importance as a pest of alfalfa, tomatoes, cucurbits, peas, beans, strawberries and others, feeding mainly on the fruiting bodies of these crops.

In Arkansas, the field cricket overwinters as nymphs. The total developmental period in the summer months occupies 9 to 14 weeks.

The field cricket causes the most problems in the adult stage. In many areas, massive numbers of adults develop in the late summer. These adults fly, frequently moving out of lawns or agricultural areas, and are attracted readily to lights around homes, gas stations, supermarkets, motels, and any other illuminated areas. Outside, crickets are pests mainly because of their large numbers. It is not uncommon for the areas beneath streetlights to become slippery where cars have crushed massive numbers of these pests. They may occasionally feed on ornamental plants around the home, but most feeding damage results when the cricket enters the structure. They occasionally eat holes in paper and rubber products and in cotton, linen, woolen or fur garments, especially when these are soiled with perspiration or food. Even nylon, wood, plastic and leather goods can be damaged.

Camel or Cave Crickets

This humpbacked insect is more closely related to katydids than to crickets. It is mottled brown and wingless with very long legs and antennae. Cave crickets are often compared to spiders, but the resemblance is only superficial. Cave crickets prefer dark damp or cool places like basements, crawl-spaces and garages. They seldom cause damage.

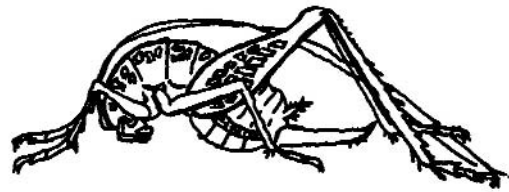


Figure 6-8b. Camel cricket

Cricket Management

The key to managing crickets inside is exclusion. Seal cracks and other openings from the outside that provide access. Caulk or otherwise seal cracks and crevices inside the building that provide hiding places. Behind or under heavy furniture and appliances or in other inaccessible areas, try removing crickets using a strong vacuum cleaner. Weeds and debris around the outside of the building should be removed to eliminate attractive habitats. Change outside lighting to sodium vapor lights or yellow incandescent lights that are less attractive to crickets and other insects. Where possible with commercial lighting, have the light source away from the building and shining towards the building. Crickets will move towards the light source. Garbage and other refuse that serve as food should be stored in containers with tight lids and elevated off the ground on platforms or bricks.

Insecticides should be used only when exclusion and sanitation cannot accomplish control quickly enough to stop the damage within a reasonable time. Use an insecticide registered for indoor use as a spot spray in cracks and crevices and other areas where crickets may hide. Sorptive powders may also be blown into inaccessible areas. Apply a perimeter spray around the building or in other outdoor areas if crickets cannot be controlled through sanitation. Avoid using outdoor spray materials in indoor areas unless the label states this is permissible. Insecticide-impregnated baits or granular formulations of certain materials may also be used outdoors. Granules are suitable in lawns and other areas subject to moisture or frequent watering. Avoid the use of baits or granules if children or pets can gain access to them.

Cricket infestations are usually seasonal. Most often problems occur during the fall as evenings become cooler and the insects seek buildings for warmth and shelter. Because of this, applications of long-residual insecticides are not usually needed indoors for adequate control.

If a large number of crickets are killed due to insecticide applications, the pest control operator should consider cleaning up the dead crickets and disposing of them. This is to avoid potential adverse effects to pets and birds eating the dead crickets. There have been documented poisonings to cats and birds eating insecticide-killed crickets. Dispose of crickets in a manner that will not pose a threat to pets or birds, such as placing the crickets in a plastic bag and placing the bag in the trash collection.

Booklice (Psocids)

Booklice are small, soft-bodied insects. Most are less than 1/4 inch in length. Some outdoor species have wings, but home-infesting species do not. Booklice have chewing mouthparts and elongated antennae. They are usually almost colorless when young but obtain some coloring when mature. Living specimens can be recognized by their small size and erratic movements when running.

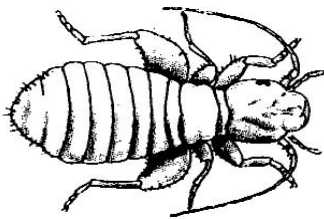


Figure 6-9. Booklouse

There are over 150 species of booklice in the United States, but only a few are normally encountered in homes or businesses. These indoor species feed mainly on fungi and live in humid environments. Large populations may build up in new housing tracts, due to the use of green lumber in wall voids, attics and other enclosed situations. This usually results in sweating, high humidity and the development of fungi. These infestations soon become widespread within the building; however, as soon as the building is heated, the lumber and surrounding areas dry out and reinfestation seldom occurs.

Localized infestations may result from leaky roofs and plumbing, damp basements and crawl-spaces. Booklice infestations could indicate a moisture problem in the building. Several species of booklice are also associated with and feed on bird nests, bee and wasp nests, paste in book bindings, dead insects and various cereal products.

Booklice Management

Sanitation is the first step to booklice control. Sanitation refers to the removal or elimination of sources of excessive moisture. If infestations are widespread, it is likely the source of infestation is originating within wall voids or other enclosed situations. In this case, little can be done. It should be emphasized that this situation will be rectified when the heat is turned on in the fall. If bird nests, cereals or cereal products or other vegetable matter are the source of infestation, these should also be removed and destroyed.

Insecticidal control mainly consists of applying residual insecticides to the infested areas; however, space sprays are reportedly effective in garages, attics, etc. Preferably, the insecticide used should not be readily inactivated by high amounts of moisture. If the infestation is widespread within the wall voids, these insecticides can be applied around baseboards, windowsills and other areas where the booklice emerge from the walls. Booklice can cause serious problems in libraries, box manufacturing plants and food storage plants. Treatments to consider for these areas include residual sprays, space sprays and ULV treatments. Treatments must be applied according to label directions and care should be used when applying in food and food container areas.

Ground Beetles

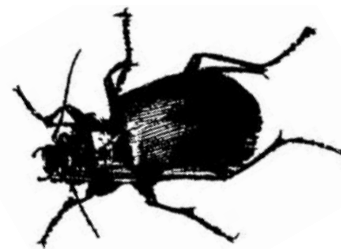


Figure 6-10. Ground beetle

These nimble, soil-inhabiting species occur in a wide range of sizes and colors. The smaller forms may be about 1/8 inch long, while the large species are an inch or more in length. The colors vary greatly from brown or black to metallic red and green. Ground beetles prey upon other insects and related animals in the soil. They may invade buildings through windows, doors or cracks leading to basements. Most do not stay in dry areas. Ground beetles do not damage household structures or fabrics. They are generally considered harmless to

man. However, they can become a nuisance where moisture is difficult to control. The beetles are attracted to lights, and many homeowners mistake them for roaches.

Boxelder Bug

Boxelder bugs often become household pests when they invade structures, crawling into any cracks and crevices they can find. Eventually, some may get into wall voids. Although they do not bite man or damage buildings, furnishings, clothing or food, they can stain curtains and walls with fecal material and they will leave a stain when crushed. However, their mere presence can be a nuisance when crawling and flying about rooms.

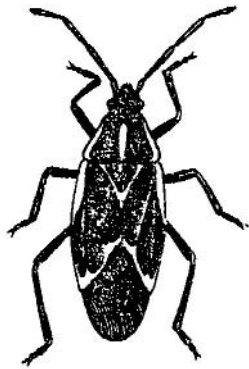


Figure 6-11. Boxelder bug

Adult boxelder bugs are about 1/2 inch long, dark brown to black, with conspicuous red markings on their backs. The young, or nymphs, are wingless but generally similar in shape to the adults. The smaller nymphs are solid bright red, but the older nymphs have some black markings.

Adults come out of winter hibernation in early spring, mate and lay eggs on trees, leaves, grasses, shrubs and stones. Eggs hatch in about two weeks into small, bright red nymphs. Studies on nymphs in cages has shown that they feed on a wide variety of plants including maple, ash, oak, boxelder, tree-of-heaven, mulberry, honey locust, goldenrain tree and numerous other species of plants.

By mid to late summer, they develop into adults and lay eggs for a second brood. Large numbers of nymphs can often be observed in late summer on host plants. After appearing, the second brood adults begin to seek winter quarters. This is when they move into homes or buildings, entering into foundations and pushing into cracks. Many get into

walls, attics and under shingles. During the coldest part of winter, the insects are inactive, but during warm days, some will move around inside and outside of a house, especially on walls facing south.

The first warm days of spring bring the bugs out of their protective wintering place in preparation for outdoor activity. Unless they are bothersome, there is a little point in treatment at this time. Those trapped in the home will die during the spring. Boxelder bugs are more common during dry summers. During wet weather, small nymphs are easily drowned. This insect is difficult to control in the adult stage and frequently requires repeated insecticidal applications to ensure contact kill. An insect with similar appearance and habits is the redshouldered stink bug; however, the redshouldered stink bug is almost totally black with red markings on the outer margins of the midsection.

Once inside or when entering buildings enmasse, vacuuming is often the best management method. The vacuum bag needs to be removed from the machine after collecting the bugs. Place the vacuum bag in a plastic garbage bag, and be sure it is tightly closed. Then place the plastic bag in the trash for collection.

Prevention of future infestations involves removal of host trees. This is often not pleasant to the owner, but it is the only way to avoid future infestations of boxelder or redshouldered bugs.

Elm Leaf Beetle

The elm leaf beetle is primarily an ornamental pest feeding solely on elm trees. They prefer to feed on the Siberian elm (*Ulmus pumila*), also called the Chinese elm, over other elm species. The true Chinese elm (*U. parvifolia*) is seldom attacked and the American elm (*U. americana*) seldom suffers significant damage from beetles. However, it can become a household pest. The elm leaf beetle overwinters as an adult beetle, frequently in homes, and sheds in protected places outdoors. Adults are about 1/4 inch long, yellowish to olive green, with a black stripe on the outer edge of the wing cover. In the spring, the beetles leave their over-wintering quarters, fly to nearby elms, mate, and begin laying eggs.

Management includes vacuuming beetles entering buildings and disposing of the vacuum bag in a sealed, plastic bag. Long-term management

requires either properly scheduled insecticide treatments to the trees or removal of the Siberian elms. The latter is often the best management practice. Inside the home their presence can be an annoyance. On rare occasion, they stain materials or walls. They are not known to damage food, fabrics or other household goods.

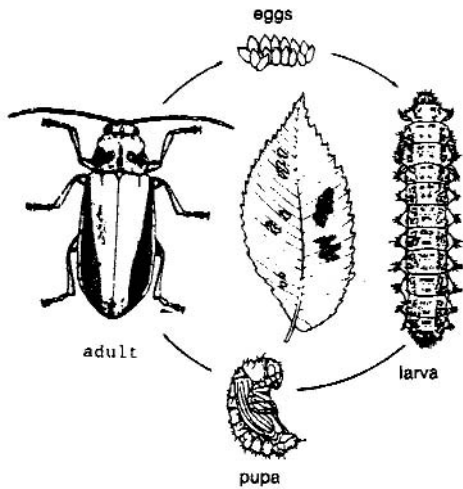


Figure 6-12. Life stages of the elm leaf beetle

Sowbugs and Pillbugs

Sowbugs and pillbugs are common crustacea, belonging to a group of animals called Isopods found throughout Arkansas. They are wingless, oval or slightly elongated arthropods about 1/2 inch in length and slate-gray in color with the body segments appearing as armored plates.

Both pillbugs and sowbugs feed primarily on decaying organic matter although occasionally they damage the roots of green plants. Their normal habitat is outside, but they occasionally wander indoors where they do no damage.

Sowbugs are often called woodlice and possess two tail-like appendages, several pairs of legs and well-developed eyes. They are incapable of rolling into a tight ball. Pillbugs or “roly-polies” lack the tail-like appendages and can roll into a tight ball.

The habits, biology and control of sowbugs and pillbugs are similar. Both animals are slow moving, crawling arthropods. They require high moisture and are most active at night. When resting during the day, they may be found under trash, rocks, boards and decaying vegetation or just beneath the soil surface. A heavy infestation indoors usually

indicates a large population outdoors. Mulches, grass clippings and leaf litter often provide the decaying organic matter these bugs need to survive.

The female carries the eggs in a brood pouch on the underside of her body. Often there are 7 to 200 eggs per brood. The eggs hatch in three to seven weeks, and the young remain in the pouch another six to seven weeks. Once the young leave the pouch, they never return. Some species produce only one brood per year, but others may produce two or more. Individuals may live up to three years.

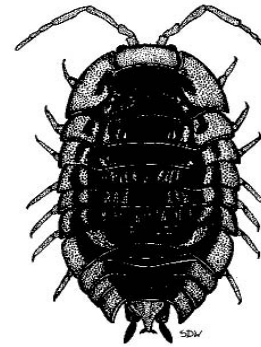


Figure 6-13a. Sowbug

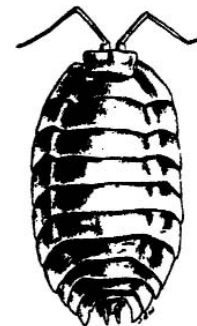


Figure 6-13b. Pillbug

Sowbug and Pillbug Management

Sowbugs and pillbugs cause no damage inside structures. Simple mechanical control, such as a broom and dustpan or a fly swatter, may be adequate. If they become a serious nuisance, elimination of hiding places, food and moisture sources will reduce the infestation. Source reduction outdoors helps considerably. Piles of leaves, grass clippings and fallen fruit should be stored off the ground to eliminate a moist shelter.

Indoor treatment with residual insecticides may kill pillbugs and sowbugs that wander inside. Complete control is difficult to achieve and treatments may not last more than one month.

Usually outdoor treatments are necessary to control sowbugs. Treatments should be to and near foundation walls, around steps or damp areas surrounding the structure. Cracks between sidewalks and the foundation require thorough treatment. Granules or dusts are also useful for treating around foundations and crawl spaces.

Entomophobia: The Fear of Insects

Entomophobia is a term often used to denote a morbid dread or fear of insects or other arthropods. It is considered substantially different from the mental disorder referred to as “delusory parasitosis.” In the case of entomophobia, the person dreads any association whatsoever with the particular class of organism, perhaps for a reason and perhaps not. Having been severely stung by bees or ants when young, a person may avoid with irrational zeal any confrontation with any insect in later years. It matters not that the insect may be quite harmless. To that person, it is a bug to be avoided at all cost.

There is a second type of fear of insects. It is not a manifestation of psychic disturbance. Rather, it is a fear born of ignorance of the facts. It may be due in part or entirely to myth, to absence of knowledge or to misstatement of fact. It can assume proportions of mass hysteria. For example, some may have heard, especially when young, that devils darning needles (adult dragon flies and damsel flies) are poisonous or that “killer bees” are headed into the state.

There is a mental disturbance (psychosis), which includes a fear or dread not necessarily attendant, concerning ectoparasites, which may or may not be successfully dealt with. There are many ramifications of this disorder, up to and including suicide. Those afflicted may or may not be aware of their problem; however, if they seek help, they will generally do so to alleviate the symptoms rather than cure the malady. This disturbance is correctly named “delusory parasitosis.” It is a delusion that one’s body is being attacked or invaded by parasites. This supposed invasion may be external, internal or both.

Persons with feelings of repugnance, imaginary bites and other such feelings must be handled with care. Reasoning and proof of no pest problem seldom satisfies affected persons. These people are sincere in their belief and should be dealt with respectfully. Mental attention is often necessary.

W. G. Waldron has identified certain characteristics or complaints that can immediately lead one to suspect psychotic origins of pest problems. Discussion with the person will frequently disclose some of the following identifying characteristics:

1. The “bugs” are often first noted and described as one color, then later the person changes the color of the culprit.
2. The “bugs” often jump. The person demonstrating this may use a knife blade or metal object to probe an inanimate object they believe to be an insect. If the suspected pest is on a nylon slip of slick fabric, the static electricity developed with this activity may obviously make the object jump. Unfortunately, a simple explanation made to the person in an effort to describe the phenomenon may or may not suffice.
3. The “bugs” may be stated to be infesting the patient’s hair, and the person states that the bugs can be shaken or combed into a sheet, towel or newspaper.
4. “Bites” develop on the skin, usually itch, and cause the person to scratch, even to the point of incurring harsh tissue damage.
5. “Bugs” may come out of such common household items – toothpaste, petroleum jelly or cosmetics.
6. The supposed infestation in a home may become so severe as to literally force the person to move to another location. Unfortunately, the “bugs” usually appear in the new dwelling, or the infestation is reported to go from place to place with the person and even infest other individuals.
7. The patient may be so positive of the infestation and provide such a lucid description that the family will stoutly support the conviction, even though not afflicted.

8. The supposed “infestation” may have lasted two or three months or longer. Arthropod infestations actually last this long.
9. One should not let this lead him astray, since there is the possibility that there has been an original and very real arthropod infestation. Such infestations could have receded and may have been the trigger for delusion.

With respect to the pest control operator’s role in handling an entomophobia or delusory parasitosis case, it is first essential that one make a thorough

inspection to actually determine the absence of any pests and then to convey this immediately and firmly to the patient. This is needed immediately, so as not to delay medical or psychiatric treatment, and firmly, so as to leave no lingering doubt in the patient’s mind. The definitive inspection should be conducted by the most qualified member of a firm.

Some experts suggest using ingenuity and good IPM techniques in homes or offices where there are complaints about “paper mites” or “invisible biting insects.” It is important to follow the above recommendations for inspecting to rule out minute insects.