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Household Insect Pest Guide

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Household Insect Pest Guide

By Brandon Frederick

M.S. Entomology Graduate Student UNL

For



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Pest Cockroaches

Order *Blattodea*

German Cockroach, *Blattella germanica*



Fig. 1 Image courtesy of Department of Entomology, University of Nebraska-Lincoln

Description: Size: 0.4-0.6 inches long. A distinguishing characteristic of this species is the presence of 2 dark brown stripes on the upper back (pronotum) of the adults. This species does not fly. This is the most common pest species of cockroach in households. They can reproduce rapidly, maturing in a little over 3 months. Females carry the egg cases (ootheca) at the end of their abdomens. They only release them just prior to hatching. Access to water and food sources are essential for the survival of this species in the human household. German cockroaches are most common in kitchens and bathrooms, but may be found anywhere in a house with large infestations.

Harm: This insect can transmit pathogens on its body. Asthma has been associated with cockroach infestations. Psychological stress is also caused by living in homes with infestations.

Control: To control cockroaches, elimination of what they need to survive is essential. What cockroaches survive on is access to food, water, shelter and warmth. You can eliminate these by keeping all food in sealed, airtight containers. This includes pet food. Dog and cat food bowls should only be placed out long enough for the pets to eat their meals. Any leftover food should be put away. All dirty

dishes should be washed immediately after use. Open bags of pet food should be transferred into an airtight container. Water sources should be eliminated. These include dripping leaking faucets and pipes, houseplant saucers, beverages left out in open containers and pet water dishes can be put on risers to get them off of the floor. De-cluttering the home can reduce the amount of shelter for this insect. Caulking cracks in walls around baseboards and window sills will also reduce shelter.

Pesticides will likely be needed to eradicate this pest once established, but maybe ineffective if access to food and water is still present. Although insecticides are available for home use, a professional exterminator is best suited for infestations by this species. The use of sticky traps placed throughout the home can indicate where this species is most prevalent and this where bait will be most effective. Poisonous cockroach baits are effective for this species. After eradication is complete, sticky traps can be used to monitor for reinfestation.

Brown-banded Cockroach, *Supella longipalpa*



Fig. 2 Image courtesy of Department of Entomology, University of Nebraska-Lincoln

Description: 0.5 inches long. A distinguishing characteristic of this species is the presence of lighter bands across the abdomen of the species. The males will fly when disturbed. These insects mature in 8-31 weeks. Females carry the egg case for about a day before attaching them to protected

areas in walls, ceilings and other areas. Eggs hatch after 37-108 days. The development of this species is strongly dependent on temperature. This species can be found in warm dry locations.

Harm: This insect can transmit pathogens on its body. Asthma has been associated with cockroach infestations. Psychological stress is also caused by living in homes with infestations.

Control: To control cockroaches, elimination of what they need to survive is essential. What cockroaches survive is access to food, water, shelter and warmth. You can eliminate these by keeping all food in sealed, airtight containers. This includes pet food. Dog and cat food bowls should only be placed out long enough for the pets to eat their meals. Any leftover food should be put away. Open bags of pet food should be transferred into an airtight container. All dirty dishes should be washed immediately after use. Water sources should be eliminated. These include dripping leaking faucets and pipes, houseplant saucers, beverages left out in open containers and pet water dishes can be put on risers to get them off of the floor. Decluttering the home can reduce the amount of shelter for this insect. Caulking cracks in walls around baseboards and window sills will also reduce shelter.

Pesticides will likely be needed to eradicate this pest once established, but maybe ineffective if access to food and water is still present. Although insecticides are available for home use, a professional exterminator is best suited for infestations by this species. The use of sticky traps placed throughout the home can indicate where this species is most prevalent and this where bait will be most effective. Poisonous cockroach baits are effective for this species. **Follow up insecticide applications will be necessary due to the egg laying behavior of this species.** After eradication is complete, sticky traps can be used to monitor for re-infestation.

Oriental Cockroach/Water Bug, *Blatta orientalis*



Fig. 3 Image courtesy of Department of Entomology, University of Nebraska-Lincoln

Description: 1 inch in length. This large species is very dark brown, nearly black in coloration. Adult males have wings but do not fly. Adult females have only small wing pads. This species matures after 24-130 weeks. Females carry the egg case for about 1 day before depositing it in a protected area near a food source. Eggs hatch after about 2 months. This species is most commonly found in basements and cool moist areas. Floor drains, sewers, around leaky pipes and clothes washing machines are common places to encounter this species. It is uncommon to find this species in dry and warm areas of the home.

Harm: This insect can transmit pathogens on its body. Asthma has been associated with cockroach infestations. Psychological stress is also caused by living in homes with infestations.

Control: To control cockroaches, elimination of what they need to survive is essential. What cockroaches need to survive is access to food, water, shelter and warmth. You can eliminate these by keeping all food in sealed, airtight containers. This includes pet food. Dog and cat food bowls should only be placed out long enough for the pets to eat their meals. Any leftover food should be put away. Open bags

of pet food should be transferred into an airtight container. All dirty dishes should be washed immediately after use. Water sources should be eliminated. These include dripping leaking faucets and pipes, houseplant saucers, beverages left out in open containers and pet water dishes can be put on risers to get them off of the floor. De-cluttering the home can reduce the amount of shelter for this insect. Caulking cracks in walls around baseboards and window sills will also reduce shelter. Covering floor drains with screen to exclude this species can help.

Pesticides will likely be needed to eradicate this pest once established, but maybe ineffective if access to food and water is still present. The use of sticky traps placed throughout the home can indicate where this species is most prevalent and this where bait will be most effective. Poisonous cockroach baits are effective for this species. As this species often comes in from outdoors, a perimeter spray can help prevent re-infestations. **Follow up insecticide applications will be necessary due to the egg laying behavior of this species.** After eradication is complete, sticky traps can be used to monitor for re-infestation.

American Cockroach, *Periplaneta americana*



Fig. 4 Image courtesy of Department of Entomology, University of Nebraska-Lincoln

Description: 1.5 inches in length. This is the largest cockroach species encountered in manmade structures. This species is reddish brown with a yellow edged pronotum. Both sexes have full wings as

adult, but so not readily fly. It can take 600 days to develop from egg to adult . The adult then lives around 400 more days. Females deposit egg cases, sometimes gluing them, in hidden moist areas. This species is not commonly found in households. It is considered a peridomestic pest, more likely to be found in large buildings such as restaurants, grocery stores, university buildings and large commercial buildings rather than single family homes. This species does sometimes enter homes through sewer lines.

Harm: This insect can transmit pathogens on its body. Asthma has been associated with cockroach infestations. Psychological stress is also caused by living in homes with infestations.

Control: To control cockroaches, elimination of what they need to survive is essential. What cockroaches survive is access to food, water, shelter and warmth. You can eliminate these by keeping all food in sealed, airtight containers. This includes pet food. Dog and cat food bowls should only be placed out long enough for the pets to eat their meals. Any leftover food should be put away. Open bags of pet food should be transferred into an airtight container. All dirty dishes should be washed immediately after use. Water sources should be eliminated. These include dripping leaking faucets and pipes, houseplant saucers, beverages left out in open containers and pet water dishes can be put on risers to get them off of the floor. De-cluttering the home can reduce the amount of shelter for this insect. Caulking cracks in walls around baseboards and window sills will also reduce shelter. Covering floor drains with screen to exclude this species can help.

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Non-Pest Cockroaches

Wood Cockroach, *Parcoblatta* spp.



Fig. 5 Image courtesy of Department of Entomology, University of Nebraska-Lincoln

Description: Around 1 inch in length. Wings of the male are dark brown with a pale margin. The females are wingless. This is not a pest species that infests human dwellings, but instead sometimes enters them without becoming established. The males can fly and are attracted to lights. This can cause them to fly into homes at night through open windows or doors that are not properly screened. This is more likely to happen if the home is in a wooded area or has wooden shake tiles as a roof. They sometimes come into homes in firewood.

Harm: As these are accidental invaders, they pose little risk.

Control: Ensuring window screening is not damaged and cracks to the outdoors are caulked will exclude this species from the home. Yellow lights designed to be non-insect attracting can also be used to replace outdoor lighting that may be attractive to this species.

Termites

Infraorder *Isoptera*



Fig. 6 Image courtesy of **Department of Entomology, University of Nebraska-Lincoln**

Description: Around 0.25 inches in length. These social insects have several different appearances. The workers are pale white with small heads. Soldiers are pale white with large yellow heads. Alates, winged forms, are dark in coloration and have long wings. Termites can be distinguished from ants by the fact that the antennae of ants are elbowed whereas the antennae of termites are straight. Termites also lack the waist in the middle of their body that ants possess. Queens are the large egg layer of the colony, but these are rarely encountered. These insects eat wood in the landscape and the home. They can go unseen as they generally stay within the tunnels they create with the exception of the alate form. Damage is what usually gives away their presence. Sawdust like feces is found sometimes outside of infested boards after being pushed out of small holes by the termites. Mud tubes on, or leading to, wood can also indicate the presence of termites.

Harm: Structural damage caused by this species can be severe and dangerous to the occupants.

Control: Keeping wood debris away from foundations can help prevent infestations. Having a professional exterminator handle this pest is best as it is difficult to access this species due to their cryptic lifestyle.

Pest Ants

Family Formicidae

Carpenter Ant, *Camponotus spp.*



Fig. 6 Image courtesy of Department of Entomology, University of Nebraska-Lincoln

Description: 0.25 to 0.5 inches in length. These are large ants. Two different species may be encountered in Nebraska. *Camponotus pennsylvanicus*, is the larger, more common black species. *Camponotus sayi*, is a less common, smaller reddish-brown species. These species nest in wood, but do not eat it. They feed on insects, meats, fats and sweets. The wood this species is found in is usually moist and often decaying before the ants take up residences. This often occurs around window sills, soffits and leaking water lines. Sawdust can be found around entrance holes.

Harm: This species does not typically damage sound wood, but its presence indicates wet wood present in structures. If found a professional should inspect the property for water damage.

Control: Removal of decaying wood from the nearby landscape may help prevent this species. The best prevention is to eradicate moisture sources. Leaky roofs, bathtubs, pipes and gutters should be fixed. Baits can be used with this species. Damaged and moist wood must be removed from the structure along with the colony.

Odorous House Ant, *Tapinoma sessile*



Fig. 7 Photo courtesy of <http://www.antweb.org>

Description: 1/16-1/8 inches long. This species is dark brown to black and is said to have the odor of rotten coconuts when crushed. They generally nest in soil under objects. This is the ant most commonly encountered in Nebraska homes. They often form trails of ants and prefer areas with moisture. They are active even in cool temperatures. This species is attracted to sweets in households.

Harm: Can contaminate foods in the home.

Control: Baits designed for sweet loving ants can be used. Baits must be used for two weeks to control the colony.

Small Honey ant, *Prenolepis imparis*



Fig. 8 Photo courtesy of <http://www.antweb.org>

Description: 1/8 of an inch long. These are small ants with coloration golden yellow to brown. These ants also have stiff hairs on their bodies. The abdomen of this species can swell greatly from feeding. These nest in shaded soil and not under objects. These forage forming trails, sometimes entering kitchens looking for sweets.

Harm: May contaminate foods in the home.

Control: Insecticide can be sprayed into the entrance of the colony. Sweet baits can also be used.

Acrobat Ant, *Crematogaster lineolata*



Fig. 9 Photo courtesy of <http://www.antweb.org>

Description: 1/8 of an inch in length. This small, brown to blackish ant lives in decaying wood. It may be found in door and window frames, especially those already damaged by carpenter ants or termites. Nest have also been found in foam insulation. These ants feed on the honeydew produced by aphids.

Harm: Minor, may cause minor damage to foam insulation.

Control: Colony must be directly sprayed, baits are ineffective for this species.

Little Black Ant, *Monomorium minimum*



Fig. 10 Photo courtesy of <http://www.antweb.org>

Description: 1/32-1/16 of an inch in length. These very small black ants nest in soil, but may also nest in the masonry or woodwork of a structure. These ants are omnivorous and sometimes invade homes.

Harm: May get into food in household.

Control: Baits can be used, also sprays and dusts can be used directly on the colony.

Thief Ant/Grease Ant, *Solenopsis molesta*



Fig. 11 Photo courtesy of <http://www.antweb.org>

Description: 1/32-1/16 in length. This yellow ant often lives around other ants and act as predators on their broods. These are omnivorous, although they prefer protein and greasy food over sweet foods. This ant can sometimes be found nesting in cupboards and cracks.

Harm: Can get into food kept in the house.

Control: Colony must be found and sprayed. Baits are ineffective.

Pest Flies

Blow Flies

Black Blow Fly, *Phormia regina*



Fig. 11 Photo from http://en.wikipedia.org/wiki/Phormia_regina#mediaviewer/File:Another_phormia.jpg

Blue Bottle Fly, *Calliphora vomitoria*



Fig. 12 Image courtesy of **Department of Entomology, University of Nebraska-Lincoln** Photo by Leon Higley, UNL Entomology

Green Bottle Fly, *Phaenicia sericata*



Fig. 12 Image courtesy of **Department of Entomology, University of Nebraska-Lincoln** Photo by Leon Higley, UNL Entomology

Description: Up to 5/8 of an inch in length. These are large metallic flies that come in shades of bronze, green and blue. These flies feed on dead animals, feces and garbage. These flies are very common in the summer months and sometime enter the home by chance. If a large number of blow flies are found in the home, they are likely developing from maggots in or near the home.

Harm: May transmit pathogens to humans by physically touching decaying animal matter and then landing on foods.

Control: Keeping a tight lid on all garbage cans will help. Ensuring window and door screens have no tears will keep this fly from entering the home. Checking mouse traps daily, if present and discarding of any dead mice in an outside trash can with a tight fitting lid will prevent this pest fly as well. Sticky fly strips hung indoors near windows will help catch these flies and they can always be swatted with a flyswatter.

Cluster Fly, *Pollenia rudis*



Fig. 13 Photo by Steve Jacobs courtesy of Penn State University Entomology

Description: 0.3-0.4 inches in length. These tan, gray and black flies have golden hairs present on their bodies. These flies do not feed on trash or feces, but instead lay their eggs on, and parasitize earthworms. These flies use human dwellings for protection from the cold during the fall and winter. These are more of a nuisance than a true pest.

Harm: May transmit pathogens to humans by physically touching decaying animal matter and then landing on foods.

Control: Ensuring window and door screens have no tears will keep this fly from entering the home. Sticky fly strips hung indoors will help catch these flies and they can always be swatted with a flyswatter.

House fly, *Musca domestica*



Fig. 13 Photograph by Jim Kalisch, University of Nebraska-Lincoln.

Description: 1/4 inch in length. These are the most well known of pest flies. These common flies are gray with 4 black strips and have red eyes. House flies are extremely fast developing flies and can complete their life cycles in as little as 7 days under optimal conditions. These flies feed on animal waste, human foods and garbage. These flies lay their eggs on these same food sources.

Harm: May transmit pathogens to humans by physically touching decaying animal matter and then landing on foods.

Control: Keeping a tight lid on all garbage cans will help. Be sure to dispose of food waste properly. Keep outdoor trash cans away from doors and windows can help prevent them from entering the house. Ensuring window and door screens have no tears will keep this fly from entering the home. Sticky fly strips hung indoors will help catch these flies and they can always be swatted with a flyswatter.

Little House Fly, *Fannia canicularis*



Fig. 14 Photo from http://upload.wikimedia.org/wikipedia/commons/f/f4/Fannia_canicularis.jpg

Description: 0.15-0.25 of an inch in length. These flies are similar to the common housefly but smaller and more slender. These flies have the behavior of slowly flying in circles in the center of a room, often around light fixtures. This behavior can be useful in identifying this species.

Harm: May transmit pathogens to humans by physically touching decaying plant or animal matter and then landing on foods.

Control: Keeping a tight lid on all garbage cans will help. Be sure to dispose of food waste properly. Keep outdoor trash cans away from doors and windows can help prevent them from entering the house. Ensuring window and door screens have no tears will keep this fly from entering the home. Sticky fly strips hung indoors will help catch these flies and they can always be swatted with a flyswatter.

Phorid Fly AKA Humpbacked fly and Scuttle fly, *Megaselia sp.*



Fig. 15 Image courtesy of the USDA Agricultural Research Center http://en.wikipedia.org/wiki/Phoridae#mediaviewer/File:Phorid_fly2.jpg

Description: 1/64-1/4 of an inch in length. These small flies are often confused with fruit flies. While they are a similar size, fruit flies readily fly when disturbed, whereas phorid flies often stay and the surface of the object they are on and run around rather than fly. This fly feeds of decaying plant and animal matter. They can be disease vectors by crawling on food items after being on decaying matter.

Harm: May transmit pathogens to humans by physically touching decaying plant and animal matter and then landing on foods.

Control: Removal of food sources will eliminate this pest. Ensuring that spoiling foods are not left inside the home is essential. A tight fitting trash can lid should be used in and outside the home. Checking mouse traps daily for dead mice is necessary if mouse traps are being used.

Moth Fly AKA Drain Fly, Family *Psychodidae*



Fig. 16 Photo by Steve Jacobs courtesy of Penn State University Entomology

Description: 1/6-1/5 of an inch in length. These small, slow flying flies, resemble furry moths but are in fact a type of fly. The larvae of this group feed on the bacterial sludge that develops in sewer pipes and drains.

Harm: May transmit pathogens to humans by physically transmitting dangerous bacteria from drains and sewer pipes to foods by landing on them.

Control: Cleaning drains with a brush and ammonia or bleach will eliminate the food source of this insect. Very hot water can also be used to flush the drain pipe producing the flies. This will kill the fly larvae and reduce the bacterial load in the upper portion of the pipe.

Fruit Fly, *Drosophila spp.*



Fig. 17 Photo from [http://upload.wikimedia.org/wikipedia/commons/4/4c/Drosophila_melanogaster_-_side_\(aka\).jpg](http://upload.wikimedia.org/wikipedia/commons/4/4c/Drosophila_melanogaster_-_side_(aka).jpg)

Description: 1/8 of an inch in length. Generally have red eyes and a tan and black body. These small flies readily take flight when disturbed. The female lays eggs on fermenting and decomposing fruit and vegetable matter.

Harm: May transmit harmful bacteria physically by landing on foods.

Control: Throw away spoiling fruits and vegetables. If produce can be, keep it in the refrigerator. Keeping a tight lid on all garbage cans will help. Be sure to dispose of food waste properly. Keep outdoor trash cans away from doors and windows can help prevent them from entering the house. Ensuring window and door screens have no tears will keep this fly from entering the home. Sticky fly strips hung indoors will help catch these flies.

Mosquitoes

Family Culicidae



Fig. 18 Photo from CDC by William Brogdon via <http://lancaster.unl.edu/pest/flies.shtml>

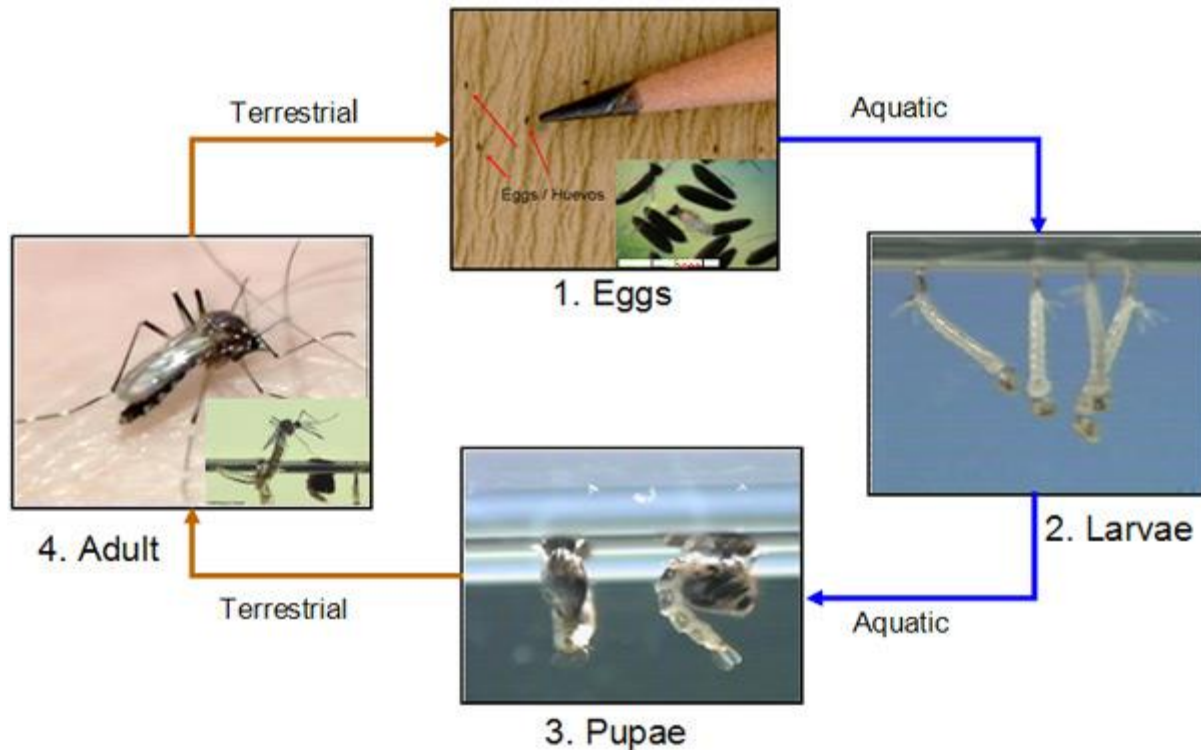


Fig. 19 from Life Cycle of the Mosquito. pic from http://www.cdc.gov/Dengue/entomologyEcology/m_lifecycle.html

Description: Vary in size up to around 0.5 inches. Around 50 species of mosquitoes are present in Nebraska. These small members of the fly Order (Diptera), are slender and long legged parasites. The life cycle of this group starts when eggs are laid in/on the surface of standing water. The larva hatch and live in the water breathing through siphons on the end of their body that they expose to the water air interface. These molt into curled pupae which then turn into adult mosquitoes. Adult males generally feed on nectar, only adult females take blood meals. Females use their long piercing mouthparts to pierce the skin of their hosts.

Harm: Mosquitoes are the vectors of many diseases worldwide, including malaria, dengue, yellow fever, chikungunya and West Nile virus. The most common disease transmitting mosquito species in Nebraska is *Culex tarsalis*. This species can transmit West Nile virus. Mosquitoes are also vectors of the dog heartworm, *Dirofilaria immitis*. This internal parasite lives within dogs, and sometimes cats. The

worm takes up residence in the heart of their host where they can grow up to 12 inches in length. These parasites can lead to death if not properly treated.

Control: One of the best way to reduce the number if mosquitoes is to reduce the standing water that they use to lay eggs. Properly dispose of old tires, dump children's pools out when not in use, remove flower pot saucers and anything else that can collect rainwater. Insecticides containing *Bacillus thuringiensis israelensis* can be used in standing water to kill mosquito larvae without harming other non-fly wildlife. Keeping vegetation cut low will reduce the amount of locations that adults rest. Long sleeved shirts and pants can also reduce the amounts of mosquito bites. Intact window screening can prevent mosquitoes from entering the home.

Effective repellents include those containing DEET and Picaridin have been found to be most effective. The plant Citrosa germanium is sometimes advertised as a mosquito repellent plant. These plants are ineffective as repellents. Other ineffective controls include bug zappers, ultrasonic devices and mosquito traps.

Crane Fly

Family Tipulidae



Fig. 19 Image courtesy of Department of Entomology, University of Nebraska-Lincoln

Description: Members of the crane fly family are sometimes confused with mosquitoes. Crane flies can be much larger and present no threat to people. They occasionally enter households accidentally. They can simply be captured and released outside as they can not bite.

Harm: None

Control: They occasionally enter households accidentally. They can simply be captured and released outside as they cannot bite.

Carpet beetles

Family Dermestidae



Fig. 20 Image courtesy of Department of Entomology, University of Nebraska-Lincoln



Fig. 21 Image courtesy of Department of Entomology, University of Nebraska-Lincoln

Description: Adult beetles are approximately 1/10" in length. The most common species encountered are varied carpet beetles, *Anthrenus verbasci*. These are small multi-colored beetles with patches of brown, gray and black. The larvae of this insect feeds on dead insects, wool, leather, feathers, hair and other dried animal products. Adults feed on pollen. Larvae are crawling worms that are covered in tufts of hair.

Harm: May damage household goods made of dried animal products.

Control: Regular cleaning of potential food sources, such laundering wool blankets and vacuuming of rugs will help control these beetles. Items can also be stored in sealed containers to prevent infestation. Taxidermied items can be frozen to kill any larvae.

Others

Silverfish, *Lepisma saccharina*



Fig. 22 Image courtesy of Department of Entomology, University of Nebraska-Lincoln

Firebrat, *Thermobia domestica*



Fig. 23 Image courtesy of **Department of Entomology, University of Nebraska-Lincoln**

Description: 1/4"-1/2" in length. These are small quick moving insects without wings and three appendages protruding from the rear end of the insect and two long antennae on the head. These insects live in cool moist areas (silverfish) or warm, with access to moisture (firebrats). Both feed on proteins, sugars or starches. They can live on fabrics, flour, glue, book bindings and many other food sources. These insects are often found trapped in sinks or bathtubs.

Harm: Mainly a nuisance, but can damage wallpaper, fabrics and stored goods.

Control: Using sticky traps can help identify where these insects reside. Control is best done by drying out the areas where these insects are found.

Bedbugs

Cimex lectularius



Fig. 24 Image courtesy of **Department of Entomology, University of Nebraska-Lincoln**

Description: 3/16" - 1/4" inch in length. Brownish red in coloration. They have long, flat, oval shaped bodies. They may be swollen if they recently fed. Small nymphs may be translucent in color. These insects hide in small cracks and crevices. They can squeeze into tight places, such as the seams of mattresses. These insects come out to feed on humans by piercing the skin and feeding on blood. Females can lay 200-500 eggs in their 6-12 month lives. Their presence can be detected by looking for their feces which appears as small dots of rusty red colored spots on sheets and pillowcases. Rashes, welts and what appear to be bruises can result from bedbug bites.

Harm: Bites can lead to hives, rashes and welts. Scratching due to bites may lead to secondary skin infections. There is also psychological stress that accompanies infestations in the home.

Control: The best control is prevention. Secondhand furniture should be avoided when possible. Newly purchased clothing should be washed immediately. Hotel rooms should be examined for signs of bedbugs before staying in them. If bedbugs are found in a home, they should be treated by a

professional exterminator as soon as possible. Insecticides are largely ineffective on bedbugs. The preferred treatment is heat treatment.

Head Lice

Pediculus humanus capitis



Fig. 25 Image courtesy of Department of Entomology, University of Nebraska-Lincoln

Description: Around 1/10" in length. Small slow crawling insect that infests the hair of humans. Most lice cases in the United States occur in children ages 3-11. Head lice are usually spread through direct contact with a person with lice. Lice feed on human blood by biting the scalp of the host. Eggs are called nits and are glued to the hair shaft. Lice are less common among African-Americans due to differences in hair shaft width and shape.

Harm: Head lice are mainly a nuisance and psychological stressor. Infestations of lice can cause discomfort and itching. Secondary skin infections may be caused due to scratching.

Control: Over the counter medicated shampoos can be used to kill lice. Laundering of bedding, hats and scarves can also be done to eradicate lice on those objects.

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