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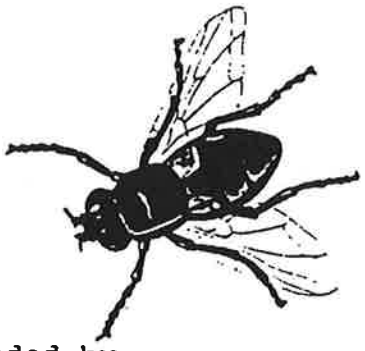

CONTROL OF COMMON HOUSEHOLD PESTS IN ALABAMA

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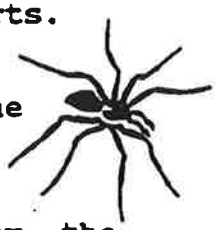
Winter, spring, summer and fall we are surrounded by insects every day. In an average Alabama back yard there may be hundreds of kinds of insects with populations numbering in the millions. Fortunately, most insects do not adversely impact on man. Many are tiny, visible only under a microscope, living and dying in a minute world far from the scrutiny of man. Many are beneficial, pollinating our plants, eating other pests, or just providing their share in the balance of nature. A few are pests with the potential to cause property damage, foul our food and on a rare occasion, cause illness or death. This outline is designed to aid persons concerned with household pests. It does not contain information on every pest, but it does include common examples of the main groups most often found in homes.

PEST OVERVIEW

General Habits. Pests in our home are often there for the same reasons we are: to find food, water and shelter. These are the basics of life and we often, unknowingly, provide all three of these requirements to pests.

General Identification. Most of the pests that invade homes are insects. In general, adult insects have 6 legs, 2 pairs of wings and three body parts. The first body part, the head, is where most of the sensory structures are found, such as the eyes and antennae. The second body part, the thorax, is where many of the structure by which the insect move are found, such as the legs and wings. The third body part, the abdomen, is where most of the reproductive organs are found. The young or immature stages may either look very similar to the adult stage, or may be worm-like in appearance, bearing no resemblance to the adult stage.

Other urban pests that are related to the insects include the spiders mites and ticks. They differ from their cousins, the insects, in that they have 8 legs, and two body parts. The first body part, the **cephalothorax** is where the sensory structures and the legs are found. Wings are absent. The second body part, the **abdomen**, is where the reproductive organs are and in spiders where the web making organs are.



General Control. When an insect problem does occur, the homeowner should take time to find out 1) what type of insect it is, 2) estimate the number present, 3) locate where they are living or coming from and 4) consider the factors that may be contributing to the problem. With this information, a good control strategy can be formulated. A homeowner may discover that the intruder is just an incidental pest and that no control measures are needed. If the infestation is more serious, they may obtain control simply by removing a water source, food source or access route in the home. In some cases, insecticides will be needed.

There is no one insecticide product that can control all pest problems, but there are many products available for homeowners. Since the number of chemical brands is so large , the insecticides recommended in this outline are usually given by their common chemical name. One can usually find the right chemical in supermarkets, garden supply stores, or feed and seed stores by looking at the label on the containers. Not every chemical or product available for use is listed in this outline. Thus, the presence of one chemical or product and not another in no way implies an endorsement. Also, anyone using an insecticide should be cautioned to read and follow the label directions before they treat. Remember, the key to effective control is not so much what one uses but how they use it. Think of strategies for control. Insecticides should be incorporated into a control plan more as a last resort than a first priority.

ANTS

General Habits. Ants are one of the most common and fascinating insects found in and around homes. Like many of their close relatives, the bees and wasps, ants are social insects. In fact the social nature of ants has developed to including some types that tend other insects like cattle for food, while others grow gardens of fungi to feed the colony.

Usually an ant colony consists of a queen, males and sterile workers. A colony begins when a new queen and king fly from an established colony and mate. After the mating flight, the male soon dies while the queen finds a suitable nesting site, sheds her wings and lays eggs. The queen cares for the eggs until they hatch and the first worker ants mature. Afterward, the queen

only lays eggs while the workers care for all other aspects of the colony. When the colony gets large, sexually mature males and females with wings are produced to leave and start new colonies.

Ants can live in a wide variety of places. Carpenter ants dig galleries in moist wood while other species may live in cavities of plants or the wall of buildings. However most ants nest in the ground.

General Identification. One of the most distinguishing characteristics of ants is their constricted waist (pedicel) between their thorax and abdomen and their elbowed antennae. When they are winged, the front wings are larger than the back wings. Sometimes winged ants are confused with winged termites. By contrast, termites have a broad waist, antennae like a string of beads and all wings of equal size.

General Control. First, it is best to try and find the nest site by following the trail of foraging ants. Then apply one of the following insecticides (according to label instructions) directly in to the nest, along the trail traveled by the workers or in a barrier strip around the outside perimeter of the structure: propoxur, diazinon, chlorpyrifos, bendiocarb, pyrethroids or carbaryl. Often, liquid and non-liquid (granules, dusts) are available for these insecticides. Non-liquid applications to the nest may be the best treatment as liquids (drenches) can sometime disturb the colony, creating satellite mounds. There are also several baits formulations. Baits often work well because the workers feed it directly to the queen. For most ants baits with hydramethylnon (Combat) can be used. For fire ants, baits such as Affirm, Amdro, or Logic are available. If you use baits, place them out of the reach of children and pets.

COCKROACHES

General Habits. Cockroaches are one of the oldest insect groups on earth. Scientists estimate that the first cockroaches were around about 350 million years ago. Since that time, cockroaches have seen the dinosaurs come and go, survived 5 ice-ages and have become one of man's most annoying pests. They often hide in dark, sheltered places where they can pick-up and spread germs.

General Identification. Cockroaches have a broad flattened shape. Most adults have wings. Young cockroaches look like the adults except they are smaller and have no wings.

General Control. Care and planning are needed to control cockroaches in the home. Try to prevent cockroaches from entering the home. Keep window and door screens in good repair.

Check cardboard boxes and bags for cockroaches from the store before bringing them in. Store foods in sealed containers. Remove all food crumbs and garbage to containers with tightly fitting lids. Make sure all plumbing leaks and other moisture problems are fixed. Overall, keeping a home clean and in good repair will make it less favorable for cockroaches.

To effectively control cockroaches with insecticides it is necessary to put the chemical where the insect are. Depending on the roach, they may be living outdoors, coming inside to feed, or indoors all the time.

Outdoors. If possible, remove wood piles, mulch or debris from around the house. Remove any pet food and dishes after the pets have finished eating. Keep screens in good repair and seal any large cracks in the foundation especially around pipes. Don't forget to check the attic for entry points. Finally keep garbage in sealed containers. For chemical control, perimeter treatments with different formulations of diazinon, carbaryl, chlorpyrifos, malathion or propoxur can be used. Baits or powders may be useful near potential points of entry in locations that are dry.

Indoors. Many cockroaches harbor around kitchen and bathroom areas. Chemical treatments around sinks, toilet bowls, cabinets and appliances are usually effective. Look for chemicals discussed in outdoor treatments that are also labeled for indoor use. There are also baits (Combat and Max) that are very effective for roach control.

FABRIC PESTS

General Habits. Fabric pests refers to insects that eat cotton or woolen goods, including clothes moths, carpet beetles or general pests like crickets. Often the insects are attracted to fabrics stained with materials such as milk, soft drinks, juice, beer, urine and human sweat. With clothes moths and carpet beetles it is normally the immature larvae that causes the damage. With crickets, all stages can feed on fabrics.

General Identification. Unfortunately, the first thing we usually notice with fabric pest is their damage. If you see signs of damage or insects flying from areas where stored or isolated natural fabrics are, such as carpets under beds, closets or trunks, check the enclosed items closely for more pests. Moths will most often be on the items in the caterpillar stage or enclosed in a case of material from the garment. Beetles may be on the floor areas, especially in cracks and edges. They can be in either the adult form or larval form that looks like a hairy caterpillar. Crickets will also be found in the floor area.

General Control. Keeping clothes and carpets as clean as possible will reduce the incidence of fabric pests. Periodically vacuuming closet floors and clothes that are not worn frequently

will also help. Valuable clothing or clothing that will not be worn for a long time should be kept in protective storage. Tight closets, trunks, or clothes bags with moth balls such as PDB (paradichlorobenzene) or naphthalene flakes will prevent feeding by these insects. In some cases, carpets and clothing can be treated with light insecticide sprays containing a combination of pyrethrins or other insecticides such diazinon, propoxur or chlorpyrifos. However, check the label carefully for precautions before applying any chemical to fabrics. In severe infestations, fumigation by a licensed exterminator may be necessary. All clothing exposed to insecticides should be dry cleaned before wearing.

FLEAS

General Habits. Perhaps no insect has had as great of an influence on the history of man as the flea. In the middle ages, fleas transmitted the plague from diseased rats to humans, killing 1/4 of the world population at the time: over 25 million people. Today, with modern medicine, the plague is no longer a serious problem, but fleas still are. Fleas still transmit organisms such as tapeworm, murine typhus and cause allergic reactions to man and his pets.

The female flea must have a blood meal in order to lay fertile eggs. Females will deposit 4 to 8 eggs on the pet or in the pet's bedding following each blood meal and may lay several hundred eggs in her lifetime. The eggs roll from the pet and lodge in carpet or cracks in the floor where they hatch in about 10 days. Larval fleas spend their days feeding on dried blood, animal hair and other organic debris they find on the carpet and floor. After a week to several months the larvae spin a cocoon. Adults normally emerge from the cocoon after 1 or 2 weeks, but if they do not sense an animal, they can stay in the cocoon for up to two years! This is why people are sometimes attacked by large numbers of fleas when they move into a house that has been unoccupied for a long time.

General Identification. Adult fleas are small (approximately 1/16" to 1/8"), wingless and brownish-black to black. Often they are found on the pet, especially under the legs near the body or around the tail. Immature fleas are small, white, worm-like creatures that live deep in carpets or cracks on floors. They are rarely seen.

General Control. Because of their habits fleas are more difficult to control than many other urban pests. To control fleas, a multiple and simultaneous control plan is needed.

1. Treat the pet. The owner should check with their veterinarian for the treatment that is best for the animal. Often, a hot soapy bath will kill fleas on the animal. If possible, keep the animal in the suds at least 10 minutes. If

just soap and water is not working, the owner can try shampoos containing insecticides such as lindane, carbaryl, or pyrethrins. A relatively new insecticide for pets is methoprene. Methoprene disrupts the breeding cycle of adult fleas feeding on an animal and is one of the least toxic products for pests available. Insecticide powders can also be used. If the fleas on the animal are very bad, the pet may have to be dipped for fleas by a veterinarian. Once the animal has been treated, then the homeowner can move to the next stages of treatment.

2. Vacuum the house. Before any insecticide is sprayed, the floors, carpet, furniture and any other areas were the pet has access should be vacuumed. Since fleas can live and emerge from vacuum cleaners, the bag should be disposed of immediately. Vacuuming should be concentrated around the areas where the pet spends a lot of time. Pet bedding should be replace or washed in hot water.

3. Treat indoors. Direct treatments to areas where animals spend a great deal of time. Selectively treat carpets and furniture with formulations of chemicals which will not stain or damage carpets or fabrics. Try treating a small inconspicuous spot to check for staining. Keep pets away from treated areas until they are dry. There are a number of products for indoor flea control. Common insecticides for fleas include chlorpyrifos, methoprene and pyrethrins such as resmethrin.

4. Treat outdoors. As indoors, concentrate on areas where animals spend most of their time. As with most outdoor urban pest, formulations of insecticides such as diazinon, chlorpyrifos propoxur and malathion should be effective against fleas.

These steps may need to be repeated at 2 or 3 times per month for one or two months before good control is obtained. If all control attempts fail, call a reputable pest control operator. Pest control operators usually have access to better chemical for control.

FLIES

General Habits. The flies are a large group of insects containing a number of species that have been great tormentors of man. Like the fleas, flies such as mosquitoes bite man and can transmit a variety of diseases such as malaria and yellow fever. Like the cockroaches, house flies live in filth and can transfer germs to areas where people live. Fortunately, most serious flies problems are monitored and kept under control by state and private concerns. However, because many flies may have a life cycle of only one or two weeks, they can quickly become a problem around homes if the proper conditions exist.

General Identification. Flies are very diverse in appearance and size. One of the best identifying features is that nearly all species of adult flies only have 1 pair of wings.

The immature larvae, called maggots, are often white and worm-like.

General Control. Most flies live in or around decaying organic matter. Flies problems in homes often comes from a point source location, such as improperly contained food or garbage. Outdoors, flies may live in moist areas, compost areas or even in animals that have died near by. Often, if these locations can be identified, the flies problem can be controlled. Keeping food and garbage in sealed containers, and disposing of unwanted material indoors and out as soon as possible are good ideas. Many of the insecticides listed for other insects, such as chlorpyrifos, diazinon and the pyrethroids have formulations that are labeled for flies. Flies are probably the most likely insect homeowners will be confronted with that will have some resistance to insecticides. Whatever insecticide is use, the success of control should be monitored and the chemical should be changed if control is poor.

PANTRY PESTS

General Habits. Many insects, such as cockroaches, ants and flies can be considered pantry pests. However, most entomologists use the term "pantry pest" to refer to certain beetles and moths that eat stored food products. Often these pests are very general feeders and can be found in grain products, pest foods, dried fruits, candy, spices, herbs, seeds and even tobacco. All moth damage is done by the larvae whereas both the adult and larval stages of the beetles attack stored foods. In grain, whether it's stored in large silos or in ones home, these pests destroy about 10% of the worlds production each year. They can enter the home on infested foods, or simply fly into a house from outdoor locations.

General Identification. Beetles. The beetles can lay their eggs directly on the food or in particles of food in cracks and crevices. The eggs are often too small to see. The larvae may either be small white grubs, or brownish with a hairs on the body. The adults will usually be plain brown or black and small, generally less than 1/4". Under normal conditions, the beetles may pass through their life cycle in 6-9 weeks and the adults may live from 8 months to 3 years.

Moths. Moths lay their eggs directly on the food. The larvae are small white to yellowish caterpillars often with a brown or black head and a 1/2" or smaller in length. The adults usually have a dull gray or brownish color on the wings and can be from 1/2" to 1" in length. The moths can go from egg to adult in 6 to 9 weeks. Adults are often short-lived, sometimes only living for one week.

General Control. Keeping foods in containers with tight-fitting lids and keeping shelves clean will help prevent pantry pests problems. Clean food containers periodically and keep them dry. Avoid buying open or damaged packages of food. If food stuffs do become infested, it is often best to just dispose of the contaminated materials. If disposing of the food is not desirable, sometimes insect control can be obtained by heating the food in an oven at 120-140°F for two hours or by freezing for two weeks. Insects in dried fruit can be killed by placing the fruit in boiling water for approximately one minute. Spread the fruit to dry before storing it. To use insecticides around food, great care must be taken. If chemical control is needed, contact your county Extension office for information.

STINGING AND BITING PESTS

General Habits. Some insects and related arthropods such as the spiders and scorpions are pests because they can sting or bite. Some of these pests, including fleas and fire ants have already been mentioned. However, there are a number of others that can be of concern. The most serious of these are the ones (like fire ants) that have some form of venom. The vast majority of bites and stings inflicted by these pests on man only cause local pain and discomfort, but in the few individuals that are extremely allergic to the venom, death may occur.

General Identification. Stinging and biting pests can vary in size and body shape. For example, as was mentioned in the general pest section, insects such as stinging wasps, bees, and ants have three body parts and 6 legs. Spiders have two body parts and eight legs. A common trait is that nearly all of these pest have warning coloration. Warning coloration normally consists of some pattern of yellow, red and black that is highly visible. A good example is the yellow and black bands on many bees and wasps.

General Control. Whenever a venomous insect or spider is encountered, it should be left alone if possible. Many of these animals are beneficial to man, as they prey on other insect pests. However, if they do pose a threat, most of the stinging and biting pest are very susceptible to insecticides. For solitary bees, wasps and spiders, spot treatments directly on the pest or the area where they live will usually work. Insecticide formulations containing propoxur, diazinon, carbaryl, chlorpyrifos, or pyrethrins such as resmethrin are often labeled for these pests. The social hornets, yellowjackets and wasps may be more difficult to control. The location of the nests should be done during the day time. Locations vary from in the ground, to wall voids, to high in trees. Treatments should be made at night when insects are more quiet and in their nests. If possible, use a flashlight covered with red cellophane for

lighting. Many of the insecticides just listed are effective for these pests. Certain hornets, yellowjackets and wasps can be controlled with baits containing insecticides such a diazinon. If a direct treatment to the nest is made, it is a good idea to use a product that can reach the nest from a safe distance and that knocks down attacking wasps and hornets on contact.

Sometimes an unwanted colony of honey bees can become establish near a home. Because of the great number of bees that may be in a colony, they can be quite dangerous if provoked. If honey bees are present, the homeowner should contact their county extension agent for information on a local bee keeper that may be willing to remove the bees; or contact a reputable pest control operator that would have the equipment to safely kill the colony.

WOOD DESTROYING PESTS

General Habits. Most wood destroying pests live a cryptobiotic or hidden life. Inside wood, hidden from view, the immature insects eat out pathways that can weaken the wood over time. Eventually, adult forms will emerge from the wood to mate and lay eggs, starting a new group of wood destroying pests. Some species will lay their eggs on or near the wood from which they emerged, while others will fly away to new locations There are many insects that live in or eat wood, but the most serious pests are wood destroying beetles and termites. The termites and some beetles usually attack wood used in the construction of a building. Other types of beetles attack wooden furniture. Termites live in large colonies while the beetles are solitary. Together, the government estimates that the economic value from damage and control of these pests exceeds $750 million each year.

General Identification. Because most wood-destroying pest live a hidden life, identification is difficult. Either the wood they are in has to be opened to find the larvae, or the adults have to be captured when they emerge. In some cases, a trained pest control operator or entomologist can determine the type of insect by the type of damage to the wood. If the wood in question has small holes, sawdust near by, or seems unusually weak, the homeowner may want to contact a professional. May pest control firms will perform termite inspections for free.

General Control. For the homeowner, the best control measures against wood destroying pests are preventative ones. For furniture pests, look for signs of damage, such as small holes, powdery sawdust or water stains before buying an item. Be especially careful if the item is an antique or has been in an unheated warehouse for a period of time.

For termites, survey both the inside and outside of the home looking for potential problem areas. Conditions such as wooden structures touching the ground, wood scraps lying near the

house and water damage from gutters are key signs to potential termite problems. If tubes of mud are seen (about the width of a pencil) running from the soil to wood in the house, an active termite infestation may be present. If a large colony is present, winged adults, called swarmers may be seen in the spring. For nearly all wood destroying pests the control measures are difficult and require the expertise of a professional pest control operator.

SUGGESTED RESOURCE BOOKS

There are many books on insects. Often homeowners can often find good general information in encyclopedias or even in books for children such as the Golden Guide series. Also, many people are not aware of the many state and federal publications they can get for free. However, for those who would like more detailed information on insect identification and the science of entomology, the following list may be helpful.

General Entomology

An Introduction To The Study Of Insects. By Donald J. Borror, Dwight M. Delong and Charles A. Triplehorn. Published by Holt, Rinehart and Wilson, New York, 1981. 827 pages.

Fundamentals Of Entomology. By Richard J. Elzinga. Published by Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1978. 456 pages.

The Insects. By Url Lanham. Published by Columbia University Press, 1967. 292 pages.

Urban Entomology. By Walter Ebling. Published by the University of California, Division of Agricultural Sciences, 1978. 695 pages.

Insect Identification

Simon & Schuster's Guide To Insects. By R. H. Arnett, Jr. and R. L. Jacques, Jr. Published by Simon and Schuster, New York, 1981. 511 pages.

The Audubon Society Field Guide To North American Insects & Spiders. By L. Milne, M. Milne and S. Rayfield. Published by A. A. Knopf, New York, 1980. 989 pages.