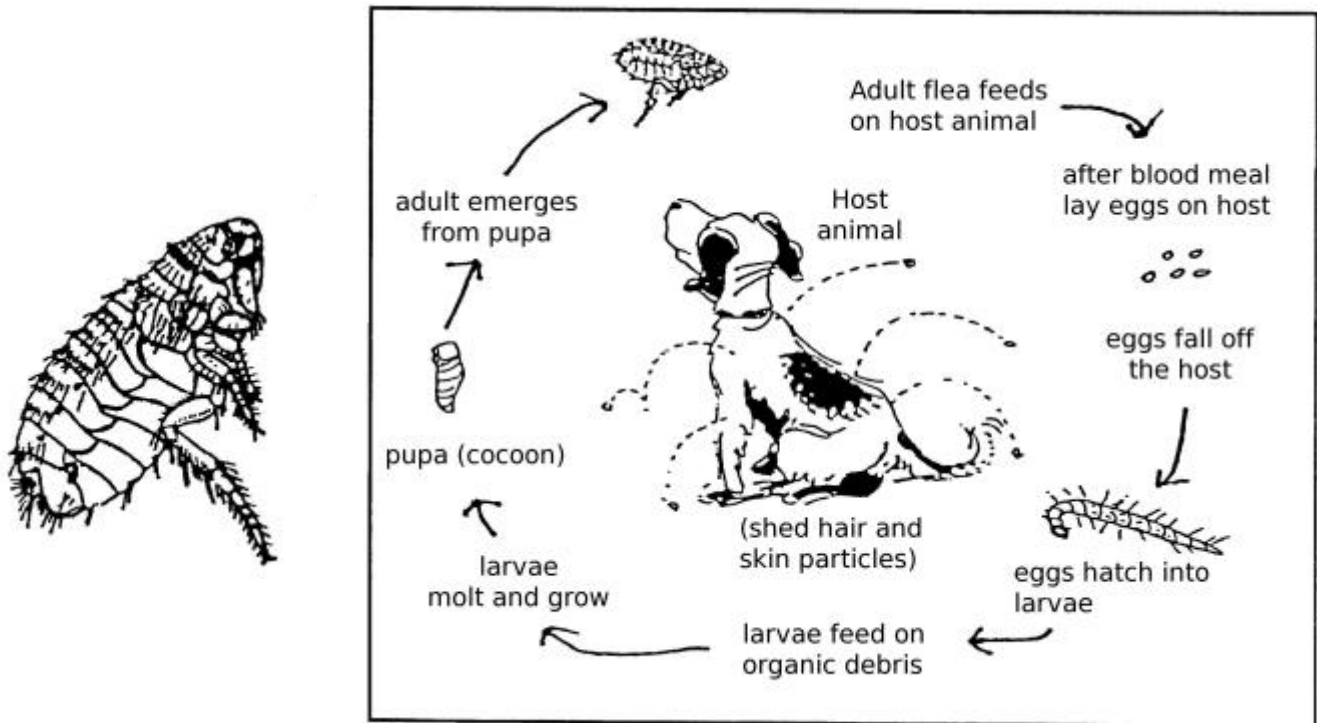


Fleas

Ctenocephalides species and others;

Family: Pulicidae (and others)



Description and Injury

Fleas are small insects, about $\frac{1}{4}$ inch in length, laterally flattened, and brown to black or gray in color. They are wingless, and have long hind legs for jumping. Fleas have sucking mouthparts, and as adults, feed on the blood of mammals or birds. Many species are very annoying because of their bites, and a few act as vectors for disease. Some people and pets are known to develop allergic reactions to flea bites.

Fleas become pests when they get into our houses. Fleas in houses are usually linked with a pet or a visiting cat or dog. Cat fleas (*Ctenocephalides felis*), and dog fleas (*Ctenocephalides canis*) are the species most often found in houses. Wild animals have fleas also, and if such animals are living in the homes, fleas may become a problem. Flea problems often occur when the host animal had been absent for a period of time, such as when the family goes on vacation, taking or boarding the pet. Fleas may also be driven into the house during prolonged periods of wet weather.

Behavior and Ecology

Each species of flea has one or two kinds of animals it prefers, although when hungry, it will attack a wide variety of warm-blooded animals, sometimes including humans. Adult fleas live on the blood of the animals, and must have a blood meal to reproduce.

Cat and dog fleas periodically jump on and off the host. When the host is removed for a period of time, they are left without food. Hungry adult fleas often attack on the first warm-blooded animal that comes in the door, often biting people around the ankles. In addition, vibrations are known to promote emergence of new adults from pupae; walking across the floor may trigger emergence.

Life History

Female fleas lay eggs, usually on the host. However, the eggs are not attached to the host, and soon fall off and develop on the ground or in the host's nest or resting place. The eggs hatch in 2 to 12 days under favorable conditions (65-80 degrees F, and at least 70% relative humidity). The young larvae are tiny, whitish, and legless, with bristly hairs. They have a well-developed head capsule with chewing mouthparts. Flea larvae feed on organic debris (hair and shed skin of the animal), their own cast skins, and on the feces of adult fleas. Thus they are often found in pet resting places. Larvae tend to avoid light by burrowing down into carpeting, or hiding under pet bedding. The larval stage may last from 4 to 24 days in the summertime, 21 to 200 days under less favorable conditions.

When fully grown, the larva spins a silken cocoon and enters the pupal or resting stage. The pupal stage usually lasts 5 to 14 days, but if the stimuli for emergence are absent, fleas may remain in the pupal stage for prolonged periods of time. The adult cat and dog fleas emerge from the pupae, and often crawl up on blades of grass outdoors, or onto furniture, draperies or the like indoors, and wait for a host to pass. They jump quickly onto the host and begin feeding. Adults of the cat flea and dog flea are long-lived; they may live for a year or more, with periodic feeding.

Monitoring

A few relatively simple observations can help determine the extent of a flea problem. Keep an eye on your pet and watch for how much it scratches. Note if and when fleas attempt to bite people. Determine where fleas are active by walking through suspect areas wearing white socks (tuck in pant legs), which allows you to see the fleas as they try to bite. Write down your observations.

Or, if you suspect fleas are present, place a shallow pan of water, containing a little dishwashing detergent or vegetable oil, on the floor, and place a gooseneck lamp with the light about 6 inches above the liquid surface. Adult fleas try to leap toward the light at night, and fall into the liquid and drown. There are also commercial lighted flea traps available. A good monitoring tool, these traps also help to remove fleas.

Use a flea comb to comb your pets regularly. The flea comb removes fleas from a pet, but doesn't kill them. Inspect the comb after each pass over the pet, and dip the comb into a bowl of warm soapy water (or a glass of water with a squirt of dish detergent), or pull captured fleas from the comb and drop them into the container of soapy water to drown them. Keeping records of flea activity will help you determine if a population is increasing.

Management

Prevent wild animals, especially rodents, from getting into and nesting in houses or other buildings.

Establish a pet sleeping area in the home that can be cleaned easily and regularly. Restrict pets' access to bedrooms, attics, or basements where cleaning is difficult. Regularly remove and wash all pet bedding.

In the home, fleas can often be controlled by good housekeeping practices. Keeping the home clean may be more important than keeping the pet clean. Fleas, as eggs, larvae, and pupae, may spend 90% of their time off the pet, on the carpet or furniture. Thoroughly clean all areas of the house with a vacuum cleaner - include carpets, rugs, upholstered furniture and other items on which eggs or larvae may be present. This will help to pick up any shed hair or skin particles from the pets (which the flea larvae feed on) as well as to vacuum up any larvae or eggs. Seal and discard vacuum bags soon after use, or empty the contents into another bag, seal and discard. Vacuuming on a weekly basis is recommended, but may be needed more frequently during late summer and fall when flea populations normally increase. Steam cleaning of carpets and rugs to kill eggs and larval fleas may be helpful. Professional house cleaning or rug shampooing services are available in many areas.

Use a flea comb regularly to remove fleas from pets. If needed, bathe pets with a flea killing soap or with flea

shampoo, or treat with a flea formulation when flea populations start to build. For use of flea collars for pets, contact your veterinarian. Evidence indicates that ultrasonic collars and other devices do not work.

The Insect Growth Regulators methoprene and hydroprene (for professional applicators only) can be useful in breaking the flea life cycle, and are not known to be harmful to people or pets. When a flea larva ingests or comes in contact with methoprene, it still grows normally, and spins a cocoon, but does not pupate. Therefore, no adults emerge from the cocoon. Adult fleas are not affected by the growth regulator, but when they die, they will not be replaced by newly maturing adults. However, because adults are not affected, an insect growth regulator alone will not control existing flea problems.

D-limonene, a citrus peel extract, is a natural fast-acting adult killer that leaves no toxic residues. Products with D-limonene plus linalool control both adults and larvae. **DO NOT USE THESE PRODUCTS ON CATS, AS SOME CATS HAVE ADVERSE REACTIONS.** Only use products on pets that are labeled for use on the animal. **Home Remedies (see note)**** such as the use of herbal flea repellents are also available.

During the summer if your pet is housed outdoors, it may also be necessary to control fleas in the yard or under the house. Spot treatments to pet resting areas are often sufficient. Keeping the lawn trimmed can help to create a drier, more hostile environment for flea larvae, and can facilitate the penetration of pesticide applications. Formulations registered in New York State in 2009 for flea control **outdoors** include: bifenthrin, cyfluthrin, deltamethrin, esfenvalerate, lambda-cyhalothrin, and permethrin.

When above methods are not enough, choices are: (1) to treat indoor areas with a registered insecticide, or (2) to seek the help of a pest control company. Household insecticides registered for flea control **indoors** include: bifenthrin, deltamethrin, diatomaceous earth, lambda-cyhalothrin, and permethrin. **WHEN USING ANY PESTICIDE BE SURE TO READ THE LABEL BEFORE EACH USE AND FOLLOW THE MANUFACTURER'S DIRECTIONS CAREFULLY AND THOROUGHLY.**

Consider using a professional pest control service for large flea populations, or when the above procedures fail to solve the problem. Cooperate with the company to help identify pet sleeping and resting areas and routes of travel. Remove toys and other items from the floor so that all floor areas can be treated. You must take care of treating or getting your pet treated at the same time.

*6/1972 Prepared by: Carolyn Klass, Sr. Extension Associate, Dept. of Entomology, Cornell University
Revised 10/2004. Updated 12/2009.*

****HOME REMEDIES** - Mentions of these remedies are **not** endorsements by Cornell University of any product or procedure. They are not recommendations for use, either express or implied. Neither Cornell University, nor its employees or agents, are responsible for any injury or damage to person or property arising out of the use of this information.

This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are still possible. Some materials mentioned may no longer be available and some uses may no longer be legal. All pesticides distributed, sold or applied in New York State must be registered with the New York State Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional DEC office. READ THE LABEL BEFORE APPLYING ANY PESTICIDE.