



## CAT FLEA

*Ctenocephalides felis*

### DESCRIPTION

Fleas are small insects (under 1/4 inch) and are dark brown in color. They lack wings and are extremely narrow side to side, which enables them to move easily through the body hairs. Their last pair of legs is modified for jumping. They have numerous spines and hairs on their body, and their mouthparts are adapted for piercing the skin and sucking blood. The whisker-like spines on and near the head are important characteristics used in the identification of fleas. The cat flea, *Ctenocephalides felis*, is the most common type of flea submitted to Penn State for identification and the primary flea found on cats and dogs. It will attack other animals and humans as well.

### LIFE CYCLE

The life cycle of a flea consists of four stages: the egg, the larva, the pupa, and the adult. Eggs are deposited either on the pet, in the pet's bedding, or in cracks and crevices of floors. Eggs placed on the pet are not firmly attached and soon fall off. In about a week, the eggs hatch into immature fleas called larvae. Flea larvae are very different from adult fleas. They are wormlike, lack legs, and do not feed on fresh blood, but live on organic matter, including dried particles of blood and excrement voided by the adult fleas. In about 12 days, the larvae are fully grown and change to the pupal stage which then changes into the adult flea. Adults feed more than once a day on fresh animal blood. They may live as long as a year and in some cases, even longer.

Fleas may be present, though unnoticed, all year in the house but frequently become troublesome following return from a vacation. Fleas inside an empty house soon become extremely hungry. When the vacationers return, they are greeted by these neglected fleas who now make their presence known by biting avidly. Flea bites on humans are generally most prevalent on the ankles and lower portion of the legs.

### PUBLIC HEALTH IMPORTANCE

Fleas can transmit a number of diseases to man, most important of which is plague. In the 14th Century, this disease, known as the "Black Death", killed a quarter of the population of Europe (some 25 million people). In 1665, an epidemic in London killed 70,000 persons out of a total population of 460,000.



Figure 1. Adult cat flea.

In 1900, the plague came to North America. From 1900 to 1925, 432 cases were reported in the United States. There have been no epidemics of plague reported in the United States since 1925, but plague is present in the wild rodent populations of the western states, and generally a few cases of plague, in humans, occur each year from this source. In 1980, nine cases of plague were reported (five from New Mexico, two from California and two from Nevada).

Murine typhus, a disease primarily affecting rats and mice, can be transmitted to man by infected fleas. When a flea feeds, it usually defecates at the same time, and it is believed that the transmission of the murine typhus pathogen occurs by scratching the infected feces into the wound. About 40 cases of murine typhus are reported each year in the United States.

### MANAGEMENT

Historically, treatment of pets was accomplished in a number of ways. The most common treatment involved the use of **shampoos** which contained an insecticide. This treatment was effective for only adult fleas that were on the pet when the shampoo was applied and was usually a good way to "clean" a pet prior to transporting them from one location to another (i.e., from a boarding kennel to your home). **Dusts** containing an insecticide provided longer residual effect against fleas on pets. The dusts were sprinkled onto the animal, thoroughly rubbed into the coat and any excess was brushed out. Flea **sprays** were as effective in reducing or

repelling fleas from pets. They also had a longer residual effect than shampoos but, like dusts, must be applied on a regular basis as described on the container label.

More recently, several types of insecticides, which are given orally as a **systemic** treatment to pets in tablet or capsule form, has shown promise in controlling flea infestations. These products are prescribed by veterinarians and either kill the adults which take a blood meal from the treated animal, or render the fleas unable to reproduce viable offspring hence eliminating future generations. Currently, the most widely used treatment is referred to as a **spot-on** and involves the application of a small amount of liquid insecticide to the pet between the shoulder blades. This application remains effective for up to a month and will kill adult, biting fleas. These last two options (systemic and spot-on) are perhaps the best choice for most pets and pet owners.

A number of insecticides are labeled for control of fleas in residences. These materials are sprayed onto carpets and into cracks and crevices throughout the building. The benefit of using these materials is that they provide an immediate reduction in the numbers of adult, biting fleas. Unfortunately, most of the effective materials can only be purchased by certified professionals.

Homeowners can have an impact on the numbers of fleas within their homes without the use of pesticides, by thoroughly vacuuming all pet bedding, carpets, floors and upholstered furniture on a daily basis for several weeks. The vacuum cleaner bag should be disposed of after each vacuuming to prevent the adult fleas from crawling out of the cleaner. This is a good method for individuals with known insecticidal sensitivities and allergies and, if used in combination with the systemic and spot-on treatments for pets, will significantly reduce or eliminate flea populations.

## WARNING

Pesticides are poisonous. Read and follow directions and safety precautions on labels. Handle carefully and store in original labeled containers out of the reach of children, pets, and livestock. Dispose of empty containers right away, in a safe manner and place. Do not contaminate forage, streams, or ponds.

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