

## ADVANTAGE PEST MANAGEMENT

Mobile: 0438 796 440

Office: 4128 7623



Fleas are wingless insects, 1/16 to 1/8-inch (1.5 to 3.3 mm) long, that are agile, usually dark colored (for example, the reddish-brown of the cat flea), with tube-like mouth parts adapted to feeding on the blood of their hosts. Their legs are long, the hind pair well adapted for jumping; a flea can jump vertically up to 7 in (18 cm) and horizontally up to 13 in (33 cm),<sup>[3]</sup> making the flea one of the best jumpers of all known animals (relative to body size). If humans had the jumping power of a flea, a 1.8-m (6-ft) person could make a jump 90 m (295 ft) long and 49 m (160 ft) high.

Researchers with the University of Cambridge in England found that fleas take off from their tibiae and tarsi (the insect equivalent of feet) and not their trochantera, or knees.<sup>[4]</sup> It has been known that fleas do not use direct muscle power, but instead use the muscle to store energy in a protein named **resilin** before releasing it rapidly (like a human using a bow and arrow), with researchers using high-speed video technology and mathematical models to discover where the spring action actually happens.<sup>[4]</sup>

Their bodies are laterally compressed, permitting easy movement through the hairs or feathers on the host's body (or in the case of humans, under clothing). The flea body is hard, polished, and covered with many hairs and short spines directed backward,<sup>[5]</sup> which also assist its movements on the host. The tough body is able to withstand great pressure, likely an adaptation to survive attempts to eliminate them by mashing or scratching. Even hard squeezing between the fingers is normally insufficient to kill a flea.

Fleas lay tiny, white, oval-shaped eggs better viewed through a loupe or magnifying glass. The larva is small and pale, has bristles covering its worm-like body, lacks eyes, and has mouth parts adapted to chewing. The larvae feed on various organic matter, especially the feces of mature fleas. The adult flea's diet consists solely of fresh blood.<sup>[6]</sup> In the pupal phase, the insect is enclosed in a silken, debris-covered cocoon.

## Life cycle and habitat

---

Fleas are holometabolous insects, going through the four lifecycle stages of egg, larva, pupa, and imago (adult). Adult fleas must feed on blood before they can become capable of reproduction.<sup>[5]</sup> Flea populations are distributed with about 50% eggs, 35% larvae, 10% pupae, and 5% adults.<sup>[3]</sup>

### **Eggs**

The flea life cycle begins when the female lays after feeding. Eggs are laid in batches of up to 20 or so, usually on the host itself, which means that the eggs can easily roll onto the ground. Because of this, areas where the host rests and sleeps become one of the primary habitats of eggs and developing fleas. The eggs take around two days to two weeks to hatch.<sup>[3]</sup>

### **Larvae**

Flea larvae emerge from the eggs to feed on any available organic material such as dead insects, feces, and vegetable matter. In laboratory studies, some dietary diversity seems necessary for proper larval development. Blood-only diets allow only 12% of larvae to mature, whereas blood and yeast or dog chow diets allow almost all larvae to mature.<sup>[7]</sup> They are blind and avoid sunlight,

keeping to dark places such as sand, cracks and crevices, and bedding.<sup>[8]</sup>

## **Pupae**

Given an adequate supply of food, larvae pupate and weave silken cocoons within 1–2 weeks after three larval stages. After another week or two, the adult fleas are fully developed and ready to emerge. They may remain resting during this period until they receive a signal that a host is near - vibrations (including sound), heat, and carbon dioxide are all stimuli indicating the probable presence of a host. Fleas are known to overwinter in the larval or pupal stages.

## **Adult flea**

Once the flea reaches adulthood, its primary goal is to find blood and then to reproduce.<sup>[9]</sup> Its total life span can be as long one and one-half years in ideal conditions. Female fleas can lay 5000 or more eggs over their life, allowing for phenomenal growth rates. Average 30–90 days.

A flea might live a year and a half under ideal conditions. These include the right temperature, food supply, and humidity. Generally speaking, an adult flea only lives for 2 or 3 months. Without a host for food a flea's life might be as short as a few days. With ample food supply, the adult flea will often live up to 100 days.

Newly emerged adult fleas live only about one week if a blood meal is not obtained. However, completely developed adult fleas can live for several months without eating, so long as they do not emerge from their puparia. Optimum temperatures for the flea's life cycle are 21 °C to 30 °C (70 °F to 85 °F) and optimum humidity is 70%.

