Xenopsylla sp. rat flea

Habitat

Xenopsylla sp inhabits tropical and subtropical habitats, although it has been reported in the temperate zone as well. *Xenopsylla sp* is rarely found in cold areas since it requires a tropical/subtropical climate to pupate. Fleas are prevalent in many major cities. Species of *Rattus* typically found in city sewer systems and other human related habitats are excellent hosts for them.Seaports and other rat-infested areas are also common habitats for *them.*

Fleas are nidiculous parasites; they live in the host's nest. Clothing, beds and couches make perfect homes for many of these fleas. Fleas only attach to the host while they are sucking blood; at other times they are free-living in the host's nest.

Physical Description

Adult *Xenopsylla sp* are about 1.5 to 4mm in length and have a laterally compressed body. Like all fleas they adults are wingless. Adults vary from light brown to dark brown in order to camouflage themselves in the host's fur. Adult *Xenopsylla* lack both genal and pronotal ctendium (combs of bristles in the front and back). Males and females are sexually dimorphic. Females have dark-colored spermatheca that resemble small sacs, a distinguishing characteristic of this species. Males have complex genitalia that are easily distinguishable from the females'. Larvae are 4.5 mm long and resemble worms; they are slender, white, eyeless, and legless. Each has fourteen bristled segments. During the last larval instar, they molt and form cocoons that are silky and covered in debris from surroundings.

Other Physical Features ectothermic bilateral symmetry

- **Sexual Dimorphism** sexes shaped differently
  - **Range length** 1.5 to 4 mm **&** 0.06 to 0.16 in

Development

Fleas are holometabolous, which means they go through four life-cycle stages: egg (embryo), larva, pupa, and adult (imago). Eggs normally incubate for about two to twelve days. *Xenopsylla cheopis* passes through three molts during the larval stage, which usually lasts about nine to fifteen days, but can last up to 200 days in unfavorable conditions. Next, the larva spins a silk cocoon where it remains until it is finished pupating. During the pupal stage the flea's development rate is greatly affected by its surroundings. Changes in temperature and humidity outside the cocoon can inhibit emerging for up to a full year.

- **Development - Life Cycle** metamorphosis

Reproduction

No information is available on the mating systems of these fleas.

After copulating with a male the female is ready to lay her eggs. She does this at frequent intervals while feeding. *Xenopsylla sp* prefers temperatures of 65 to 80°F with about 70% humidity for egg laying. Higher or lower temperatures inhibit females from laying their eggs. Eggs usually do not hatch on the hosts, rather on their nests since fleas are nidiculous parasites (they live on host's nests).

- **Key Reproductive Features** iteroparous ,year-round breeding sexual fertilization internal oviparous
- **Breeding season**
  These fleas breed year round, as long as the temperature and humidity favor egg-laying.

Xenopsylla sp is distinct from other fleas in that it has a very large egg. Studies demonstrate that eggs of them obtain extra nutrients from their mother, hence explaining the abnormally large egg. Once eggs are laid, however, they receive no further support from their parents.

- **Parental Investment** pre-fertilization provisioning protecting female

Lifespan/Longevity

An adult can survive up to 100 days in temperatures of 45 to 50°F. Maximum life span is 376 days. A long life span increases survival rates of *Xenopsylla sp*, thus resulting in greater a chance of transmitting pathogens.

- **Range lifespan**
  Status: wild
  376 (high) days

Communication and Perception

Fleas have a pygidium, a sensory organ on their dorsal side, which detects vibrations and air currents. Pupae use these signals to time their emergence from their cocoons. Not much is known about how these fleas communicate with one another.

- **Primary Diet**
- carnivore

- sanguivore
- **Animal Foods**
- blood
- **Other Foods**
- detritus

- **Negative Impacts**
- injures humans

- carries human disease

  - household pest

Life cycle

There are four stages in a flea's life. The first stage is the egg stage. Microscopic white eggs fall easily from the female to the ground or from the animal she lays on. If they are laid on an animal, they soon fall off in the dust or in the animals bedding. If the eggs do fall immediately on the ground, then they fall into crevices on the floor where they will be safe until they hatch one to ten days later (depending on the environment that they live in, it may take longer to hatch). They hatch into a larva that looks very similar to a worm and is about two millimeters long. It only has a small body and a mouth part. At this stage, the flea does not drink blood; instead it eats dead skin cells, flea droppings, and other smaller parasites lying around them in the dust. When the larva is mature it makes a silken cocoon around itself and pupates. The flea remains a pupa from one week to six months changing in a process called metamorphosis. When the flea emerges, it begins the final cycle, called the adult stage. A flea can now suck blood from host and mate with other fleas. A single female flea can mate once and lay eggs every day with up to 50 eggs per day. Experimentally, it has been shown that the fleas flourish in dry climatic conditions with temperatures of 20–25 °C (68–77 °F).[2] They can live up to a year and can stay in the cocoon stage for up to a year if the conditions are not favourable.

Control

In order to prevent an oriental rat flea infestation from making its way into your home, reduce the number of places rats and rodents can hide. This includes getting rid of garbage and other potential food sources.

Always wear gloves when treating small animals like squirrels or rats.Take precautions when preparing meat to prevent disease from being transferred through infected fluids.

Fleas are fond of campsites and hiking trails, so use repellents to keep them away. It is also essential to keep your pets clean. If they are infected with fleas, have a vet treat

them immediately so that they do not transfer the fleas indoors or onto humans or other animals.

A pest management professional has the education, equipment and skills necessary to effectively address a oriental rat flea problem. Finding and treating the oriental rat fleas can be challenging, especially if they are spread throughout your house. A pest management professional provides their expertise to identify the pest problem and determine the best possible solution to resolve the oriental rat flea infestation.