

## RESEARCH NOTE

# FIRST REPORT OF *CTENOCEPHALIDES FELIS FELIS* ON THE ASIATIC GOLDEN CAT, *CATOPUMA TEMMINCKII* IN THAILAND

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**Abstract.** The cat flea, *Ctenocephalides felis felis* (Siphonaptera: Pulicidae) has been reported to parasitize many species of wild and domestic animals and could serve as a vector of zoonotic pathogens. This is the first report of the presence of cat fleas on the Asiatic Golden Cat, *Catopuma temminckii* (Carnivora: Felidae), quarantined in Khao Pratabchang Wildlife and Breeding Center, Ratchaburi Province, Thailand. The findings of this report may be helpful in evaluating the potential risks associated with increased contact between wild and domestic animals and humans in this region.

**Keywords:** ectoparasite, flea, *Ctenocephalides felis felis*, Asiatic Golden Cat, *Catopuma temminckii*

### INTRODUCTION

Fleas (Insecta, Siphonaptera) are small, wingless, laterally compressed, highly specialized insects. Adult fleas are obligate hematophagous ectoparasites of warm-blooded vertebrates. About 94 % of flea species infest mammals and 6% infest birds (Lewis, 1993).

The cat flea, *Ctenocephalides felis felis*, is found worldwide and has been reported to parasitize many species of wild and

domestic animals (Lewis, 1972; Yeruham *et al*, 1996). Besides causing a severe nuisance and irritation to humans and animals, the cat flea is also responsible for allergic dermatitis (Rust and Dryden, 1997). It has also been identified as the intermediate host for filarids and cestodes (Dryden and Rust, 1994). *C. felis felis* can serve as a vector for murine typhus and has been implicated in transmission of the causative agent of cat scratch disease, *Bartonella henselae* (Bitam *et al*, 2010).

The Asiatic Golden Cat, *Catopuma temminckii*, is a medium-sized wild cat of Southeast Asia, ranging from Nepal and parts of China to Peninsular Malaysia and Sumatra. It is also known as Temminck's Golden Cat. It is listed as "vulnerable" on the International Union for the Conservation of Nature's (IUCN) Red List of

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Threatened Species, and is considered at high risk for extinction in the wild.

We report Asiatic Golden Cats infested with the cat fleas, *C. felis felis*, providing valuable information regarding the risks associated with increased contact between wild animals and domestic animals and people in the region.

#### MATERIALS AND METHODS

Asiatic Golden Cats confiscated from illegal wildlife trade in southern Thailand were quarantined in Khao Pratubchang Wildlife Conservation and Breeding Center in Ratchaburi Province, Thailand. For ectoparasite examination, three cats were restrained and anesthetized. They were then put on a table and combed with a fine tooth comb to dislodge the ectoparasites. Collection of the ectoparasites was made either by hand picking or by using a fine pointed forceps. The collected ectoparasites were preserved in 70% ethanol. All preserved fleas were later mounted in Hoyer's medium for identification (Krantz, 1978). The fleas were identified to species level using available taxonomic keys (Hopkins, 1961; Furman and Catts, 1982).

#### RESULTS

Fleas were the only ectoparasites recovered on the Asiatic Golden Cats examined. They were identified as *Ctenocephalides felis felis*. Most of them were extracted from the dorsal and abdominal regions of the cats with an infestation rate of 66.7%. The number of fleas recovered and the average number of fleas per host are shown in Table 1.

#### DISCUSSION

The presence of *C. felis felis* on the

Table 1

Number of fleas recovered from Asiatic Golden Cats in Khao Pratabchang Wildlife and Breeding Center, Ratchaburi Province, Thailand.

Asiatic Golden Cat No.	Sex	No. of fleas recovered
1	Male	20
2	Male	14
3	Female	-
Total		34
Infestation rate (%)		66.7%
Average number of fleas/host		11.33

(-), no fleas collected from the animal

Asiatic Golden Cat, *Catopuma temminckii* is reported here for the first time in Thailand. This species is commonly found on domesticated felids, *Felis catus*, throughout the world (Rust and Dryden, 1997). They are also found on non-domesticated felids, such as bobcats, *Lynx rufus* and Florida panthers, *Puma concolor*, in North America (Forrester, 1992) and on the jaguar, *Panthera onca*, in Brazil (Linardi and Guimaraes, 2000). Besides infesting felids, *C. felis felis* can infest a wide variety of other animals, such as dogs, goats, sheep, cattle, horses, poultry, rabbits, coyotes, red and grey foxes, skunks, raccoons, opossums, ferrets, rodents, jackals, koalas and mongooses (Rust and Dryden, 1997). With a large number of alternative hosts, several of which often live close to humans and domestic animals, it is likely flea infested wild animals could serve as sources of reinfestation (Dryden and Rust, 1994).

Ectoparasites on animals confiscated by local regulatory agencies may be used for monitoring vectors of zoonotic pathogens (Torres-Mejia and de la Fuente,

2006). During holding animals mix with other wild animals or have contact with domestic animals with diseases or parasites. The findings of this study show the presence of fleas on wild cats, *Catopuma temminckii*. This information is helpful to evaluate the potential risks associated with increased contact between wild animals and domestic animals and humans in this region.

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#### REFERENCES

- Bitam I, Dittmar K, Parola P, Whiting MF, Raoult D. Fleas and flea-borne diseases. *Int J Infect Dis* 2010; 14: e667-76.
- Dryden DW, Rust MK. The cat flea: biology ecology and control. *Vet Parasitol* 1994; 52: 1-19.
- Forrester DJ. Parasites and diseases of wild mammals in Florida. Gainesville: Florida University Press, 1992.
- Furman DP, Catts PE. Manual of medical entomology. 4<sup>th</sup> ed. Cambridge: Cambridge University Press, 1982.
- Hopkins GHE. Siphonaptera. *Insects Micronesia* 1961; 14: 91-107.
- Krantz GW. A manual of acarology. 2<sup>nd</sup> ed. Corvallis: Oregon State University Bookstores, 1978.
- Lewis RE. Fleas (Siphonaptera). In: Lane RP, Crosskey RW, eds. Medical insects and arachnids. London: Chapman & Hall, 1993: 529-75.
- Lewis RE. Notes on the geographic distribution and host preferences in the order Siphonaptera Part 1 Pulicidae. *J Med Entomol* 1972; 9: 511-20.
- Linardi PM, Guimaraes LR. Sifonapteros do Brasil. Sao Paulo, Brazil: FAPESP, 2000.
- Rust MK, Dryden MW. The biology, ecology and management of the cat flea. *Annu Rev Entomol* 1997; 42: 451-73.
- Torres-Mejia AM, de la Fuente J. Risks associated with ectoparasites of wild mammals in the Department of Quindío, Colombia. *Intern J Appl Res Vet Med* 2006; 4: 187-92.
- Yeruham I, Rosen S, Braverman Y. *Ctenocephalides felis* flea infestation in horses. *Vet Parasitol* 1996; 62: 341-3.