

## **Prevalence of selected pathogens in ectoparasites from feral cats of Central Oklahoma**

Kristin McCay, Department of Entomology and Plant Pathology, Oklahoma State University, Stillwater, OK.

**Introduction:** Feral cats are an important population to study in relation to the health of both humans and domestic animals due to their proximity to residences. While some ectoparasite prevalence studies have been done on stray cat populations, there has not been an investigation into the pathogens these ectoparasites may be carrying. The selected pathogens are *Rickettsia felis*, *Rickettsia typhi*, and *Bartonella spp.* *Rickettsia felis* is common in domesticated cats, while *Rickettsia typhi* and *Bartonella spp.* are more associated with wild animals.

**Purpose:** The purpose of this study was to identify the infection rates of fleas taken from captured stray cats and to compare ectoparasite prevalence rates with a previous study.

**Methods:** The feral cat population studied were those who came through Operation Catnip Stillwater in January and February of 2020 due to COVID-19 shutdown. After anesthetization, ectoparasites were collected from every fourth cat. After identification, the fleas were externally cleaned by a series of washes with 70% ethanol and pathogen-free water. DNA was extracted involving a published protocol. Vials containing the extracted DNA were stored at -20°C until use for PCR and gel electrophoresis in search of selected pathogens. PCR bands were purified and sent to the OSU DNA lab for confirmation of pathogen species.

**Results:** *Ctenocephalides felis* was the only flea species found. The two tick species found were *Amblyomma americanum* and *Ixodes scapularis*. The only mite species collected was *Otodectes cynotis*. 7 fleas from 5 different cats were infected with *Bartonella henselae*. 4 fleas from 4 different cats were infected with *Bartonella clarridgeiae*. An unknown *Bartonella spp.* was detected in 1 flea. 11 fleas from 6 different cats were infected with *Rickettsia felis*, with 7 of them being coinfecting with *B. henselae*.

**Significance:** Ectoparasites were found in the winter months, which reaffirms the need for ectoparasite control products in domestic cats all year round. This study also found two zoonotic flea pathogens circulating in feral cats.

**Keywords:** ectoparasites, feral cats, zoonotic disease, *Rickettsia felis*, *Bartonella spp.*