Abstract of proposed student project (1 page limit. This should mirror the aims page of a grant and CLEARLY indicate the student's role.)

The diversity of parasitic nematodes of the Family Onchocercidae (Order Spirurida, Superfamily Filarioidea) infecting cats in the United States are largely unknown. Nematodes in this Family produce microfilariae which are present in the blood or skin and are ingested by blood-feeding arthropod intermediate hosts which are required intermediate hosts in the nematode's lifecycle. Microfilariae testing of cats is almost never performed due to a rare transient microfilaremia in heartworm infected cats, however 4% (2/50) of sheltered cats in a south Florida shelter were positive for non-endemic or unknown *Dirofilaria* spp. following microfilaria testing. These filarioids infecting shelter cats are of medical and veterinary importance and continued surveillance in high risk populations in Florida and morphological and molecular characterization is needed. Since vector borne diseases are most numerous in the tissues and anatomical location corresponding to site of vector blood feeding, cat ear tips generally discarded from trap-neuter-return programs have the potential to serve as opportunistic samples for microfilariae screening or for further diagnosis of other neglected feline vector borne disease.

Discarded ear tips n=300, from Alachua County and Miami Dade County Shelters will be placed in 15 ml tubes with 1ml of antibiotic treated media, and shipped to the UFCVM parasitology lab. They will be cut into several sections, and incubated in original media for 24 hours at 37C. Following incubation, ear tips will be retained, media will be filtered through 3um nucleopore filters to recover microfilariae for microscopic and molecular examination, and media mixed back with ear tips fragments for potential processing for other feline VBD.

Microfilariae will be recovered and evaluated morphologically by Modified Knott's. Species of any recovered microfilariae will be verified by PCR. In instances where microfilariae are not recovered in media, a small section of the ear tip will be evaluated by PCR (established filariid laboratory PCR protocols).

Sample size is based on a 4% prevalence (2/50) cats from a South Florida shelter were positive by modified Knott's for microfilariae *Dirofilaria* spp. (Hays et al., 2020).

The student will be responsible for processing ear tips (some may be collected prior to the May 2023 FVSP program start), evaluating microfilariae and performing DNA extractions and PCR.