CULEX ERRATICUS: A HOST FOR *DIROFILARIA IMMITIS*

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Many species of mosquitoes have been incriminated as vectors of canine dirofilariasis (Ludlam et al. 1970), and the primary vector varies with geographic region (Villavaso and Steelman 1970). In a study designed to identify potential vectors of dirofilariasis in Payne County, Oklahoma, two methods were used to trap feral mosquitoes during the 1983 mosquito season. Light traps and a dirofilaremic-dog-baited screen trap, both types augmented with CO_2 (dry ice), were set three or more times/week from May to October in an endemic focus of dirofilariasis in Stillwater, Oklahoma. Weather permitting, traps were set from 1830 to 0630 hr in a residential area and in nearby woods where mosquito breeding sites were abundant. Mosquitoes collected in light traps were identified, sorted and stored frozen in an aqueous solution of Tween 80 and glycerin (Bemrick and Sandhoml 1966) for later examination. Those trapped in the dog-baited cage were collected with a vacuum cleaner adapted for the purpose; they were maintained alive (with free access to sucrose-soaked cotton balls) in the laboratory until they died or for a maximum of 21 days. Cages were checked three times daily and dead mosquitoes were removed and dissected immediately or were stored in the freezing solution for later examination. Major results of this study reported elsewhere (Afolabi et al. 1988) included capture of more than 39,000 mosquitoes representing 23 species belonging to seven genera; of these, eight species, including *Culex erraticus* (Dyar and Knab), were found to harbor third-stage filariids that were morphologically indistinguishable from *Dirofilaria immitis* (Leidy). This is the first report of development of *D. immitis* in this species.

Six hundred and twenty-seven *Cx. erraticus* were captured in the light traps, 144 of them were dissected and none contained filariids. The 387 specimens captured in the dog-baited enclosure were all dissected, and 29 (7.5%) harbored filariids and 22 (5.7%) contained third-stage larvae. Infective larvae were recovered in the head and proboscis approximately 12–14 days after capture. Although relatively few *Cx. erraticus* contained filariids, quite a large percentage (75.9%) of those infected supported development of *D. immitis* (22/29) through two molts.

Even though it is not a good mammal feeder, *Cx. erraticus* fed on the dirofilaremic dog, and many lived long enough for the parasite to develop to the infective stage. Furthermore, *Cx. erraticus* clearly has the ability to withstand extremely hot weather in Oklahoma; it was captured during a drought when populations of other mosquito species were low. In July, August and September, *Cx. erraticus* accounted for almost 50% of the mosquitoes trapped. At an extreme, one week in early to mid-August, only 361 mosquitoes were captured in light traps and 223 (64.5%) were *Cx. erraticus*.

We have not attempted to demonstrate that *Cx. erraticus* can serve as a vector of *Dirofilaria immitis*. Nevertheless, our findings suggest that potential exists for this largely ornithophilic species to support the parasite when they feed on dirofilaremic dogs. We speculate that *Cx. erraticus* may serve a role in transmission of *D. immitis* infection in periods of drought when important vector species are not present. The apparent tolerance of *Cx. erraticus* for *D. immitis* infection and its abundance during hot, dry months when most other mosquito species do not thrive suggest that its potential as a vector should be assessed.

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