

coastal areas. We have one record of *A. cantator* taken in Orono.

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### PREDATION OF ADULT SAND FLIES (DIPTERA: PSYCHODIDAE)<sup>1</sup>

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Records on the predation of adult phlebotomine sand flies have been very limited, and all definitive results have been derived from laboratory studies. In the Old World, the gecko *Tarentola mauritanica*, and the toad *Bufo bufo gargarizans* have been seen to feed on sand flies (Adler and Theodor, 1935; Feng and Chung, 1940). Another Old World record of adult sand fly predation is that reported by Schülze (1919), in which he noted that engorged *Phlebotomus papatasii* apparently were fed upon by a reduviid bug, *Ploiaria domestica*. New World sand fly predators include

the lizards *Sceloporus occidentalis*, *Gerrhonotus multicarinatus* and *Phrynosoma coronatum* (Chaniotis, 1967). We have observed the geckos *Thecadactylus rapicaudus* and *Gonotodes abogularis fuscus* feed on Panamanian sand flies in the laboratory. The toad, *Bufo boreas halophilus*, also was reported to feed on sand flies under laboratory conditions in California (Anderson and Ayala, 1968).

We had the opportunity recently to observe predation of sand flies in primary forests near the villages of Achiote and Quebrada Bonita, Colon Province, Panama. Blood-engorged sand flies were being collected from a horse used as a bait animal shortly after sunset. Sand flies are not strong fliers. Those that were not collected, after having fed on the horse, escaped by making short hopping flights near the surface of the forest floor litter. A small cricket, *Anaxipha gracilis*, aggressively preyed on the blood-engorged flies in the leaf litter. Also, this species of cricket has been seen actively and successfully foraging for flies on the horse. The same cricket has been collected in castor oil traps, used for sand fly collections, baited with dogs and hamsters. *A. gracilis* appears to be a very common cricket in Panama and may contribute significantly to sand fly predation in nature.

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