University of Florida Book of Insect Records
Chapter 10 *Least Specific Sucker of Vertebrate Blood*

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The tsetse fly Glossina palpalis *(Diptera: Glossinidae) probably has no match among haematophagous insects in its vertebrate host range. According to Jordan et al. (1962) this fly can feed on any vertebrate it contacts. It is also not responsive to host derived odors presently being evaluated as olfactory baits and incorporated in trapping technology strategies for tsetse flies (Williemse and Taken 1994).*

Haematophagy or the utilization of blood as food occurs in six insect orders. The order Diptera (true flies) has the largest number of haematophagous species and includes endoparasitic and ectoparasitic forms (Lehane 1991). The ectoparasites include those that stay permanently on their hosts and those that are off their hosts except when feeding. Those ectoparasites that stay off their hosts, range from most to least host specific with regard to both their host locating (trailing) and host preference patterns. According to Askew (1971) tsetse flies are not at all restricted in their choice of hosts but different species have different habitat preferences and are classified into three major ecological groupings on the basis of habitat preferences: open savanna or grassland [*morsitans* species group] dense humid forests associated with water bodies [*palpalis*]; and other forests [*fusca*].

Methods

Vertebrate host specificity of haematophagous insects was obtained from medical and veterinary entomology textbooks and journals. Help in finding a champion was obtained from the ENTOMO-L Bulletin Board.

Results

Stomoxys calcitrans was a candidate on the basis of being a cosmopolitan livestock pest and attacking up to 30 different species among mammals, birds, reptiles, and even amphibians (Bishop 1913, Surcouf 1923, Hoskins 1933, Hafez & Gammal-Eddin 1959, Greenberg 1971). According to Jordan et al. (1961 and 1962), *Glossina palpalis* has a wider range of acceptable hosts than any other species in West Africa. Species of the *palpalis* group of tsetse flies feed on any vertebrate they encounter ranging from mammals and reptiles to birds (Weitz 1963, 1971; Harwood & James 1979). Information on feeding habits and preferences by tsetse flies relies on identifying blood meals of wild caught tsetse flies using the precipitin test described by Weitz (1956). Weitz and Glasgow (1956) observed that the host range for *G. palpalis fuscipes* in East Africa included mammals, with birds and reptiles having equal importance and even suggested that lungfish (*Protopterus* sp.*)* could be a source of blood meals. Nash (1948) in West Africa, compared *G. palpalis* to *G. tachinoides* and observed that *G. palpalis* will fly higher and hunt for hosts in dense undergrowth. Williemse and Taken (1994) state that tsetse flies of the *palpalis* group are not responsive to the conventional vertebrate host derived odor cues that tsetse flies of the *morsitans* group readily respond to.

Discussion

The least host specific vertebrate blood sucker should be an insect documented to feed on any available vertebrate host. Greenberg (1971) dis-

cussed *Glossina* spp. as vectors of trypanosomes, having bimodal flight activity, etc., but did not attempt to categorize tsetse fly hosts in the same way as he did for *Stomoxys calcitrans* and other flies. *G. palpalis* is probably least specialized in host selectivity as there is no limit documented for vertebrate species that it can feed on (Weitz & Glasgow 1956; Jordan et al. 1961, 1962; Weitz 1963). This tsetse fly generally feeds while inside dense humid forest habitats where trailing hosts by olfaction would be arduous. Under such circumstances, it would be advantageous to compromise by feeding on any vertebrate host encountered by sight rather than by relying on olfactory cues.

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