

RECORDS OF SANDFLIES (DIPTERA: PSYCHODIDAE:  
PHLEBOTOMINAE) FEEDING ON AMPHIBIA, WITH A  
NEW RECORD FROM THE KRUGER NATIONAL PARK

H. H. BRAACK

*Addo Elephant National Park*  
*P. Bag X 6027*  
*Port Elizabeth*  
*6000*

I. H. DAVIDSON and J. A. LEDGER

*South African Institute for Medical Research*  
*P.O. Box 1038*  
*Johannesburg*  
*2000*

D. J. LEWIS

*British Museum (Nat. Hist.)*  
*Cromwell Road*  
*London SW7 5BD*

An early record of a sandfly feeding on an amphibian is that of Howlett (1913, *Indian J. med. Res.* 1: 34-38) who wrote "I have twice seen a sandfly apparently biting the head of the common toad *Bufo melanostictus*". Lewis (1978, *Bull. Br. Mus. nat. Hist. (Ent.)* 37 (6): 217-343) considers that the sandfly may have been *Sergentomyia (Grassomyia) indica* Theodor. Feng & Chung (1940, *Chinese med. J. Suppl.* 3: 198-210), Feng & Chao (1943, *Chinese med. J.* 62: 210-217) and Feng (1951, *Peking nat. Hist. Bull.* 19: 327-334) document the development of *Trypanosoma bocagei* in the toad *Bufo b. gargarizans*, transmitted by the sandfly *S. (Neophlebotomus) squamirostris* (Newstead 1923, *Ann. trop. Med. Parasit.* 17: 531). Lewis & Kirk (1951, *Bull. ent. Res.* 41: 563-375) records "on one occasion in August at 10 p.m. females [of *S. (Grassomyia) squamipleuris* (Newstead 1912, *Bull. ent. Res.* 3: 361-367) ] were found feeding on the heads of frogs, probably *Rana (Ptychadena) floweri*, which were half submerged in a pool of rain water. Other *P. squamipleuris* were floating on the water or standing on wet mud". Chaniotis (1967, *J. med. Ent.* 4: 224-225) was able to show that *Lutzomyia vexator occidentis* (Fairchild & Hertig, 1957, *Ann. ent. Soc. Amer.* 50: 325-334) and *L. californica* (Fairchild & Hertig, *idem*) will feed on the western toad *Bufo boreas* in the laboratory. Recently Ayala (1970, *J. Protozool.* 17: 370-373) has proved that *L.v. occidentis* is also capable, in the laboratory, of transmitting *Trypanosoma bufophlebotominae* from infected to uninfected toads.

In May 1975 at Bobomene Anthrax Camp in the Kruger National Park (grid ref. 2231 Ac), north eastern Transvaal, five *Bufo pusillus* were collected. Three of these were in a drain hole and two were "free roaming". Small flies were noticed sitting on their backs and appeared to be sucking blood (Fig. 1). On collection, some of the flies were accidentally squashed and it was evident that they had been sucking blood. Three other frog species, *Phrynobatrachus natalensis*, *Arthroleptis stenodactylus* and *Ptychadena superciliaris* were in the immediate vicinity, none of which had flies feeding on them. The flies have been identified as *Sergentomyia* (*Grassomyia*) *squamipleuris*, the maxilla of the female of which has no lateral maxillary teeth and vestigial ventrals (Lewis & Lane 1976, *Syst. Ent.* 1: 53-60), and resembles that of the related *S. indica* which was illustrated by Lewis & Dyce (1976, *J. Aust. ent. Soc.* 15: 207-217). The maxilla can have little or no anchoring effect, and these two species seem unsuited to feeding habitually on any but soft-skinned animals.

There are at present six recognised species, five from the Afrotropical Region and one from the Oriental Region, of *Grassomyia* which is a widespread subgenus. *S. squamirostris* has maxillae of the normal type (Lewis 1975, *Trans. R. ent. Soc. Lond.* 126: 497-532), and may feed on both reptiles and amphibians.

Further investigations on the relationship between sandflies and amphibians should reveal interesting details about the transmission of trypanosomes, and possibly other protozoa and viruses.

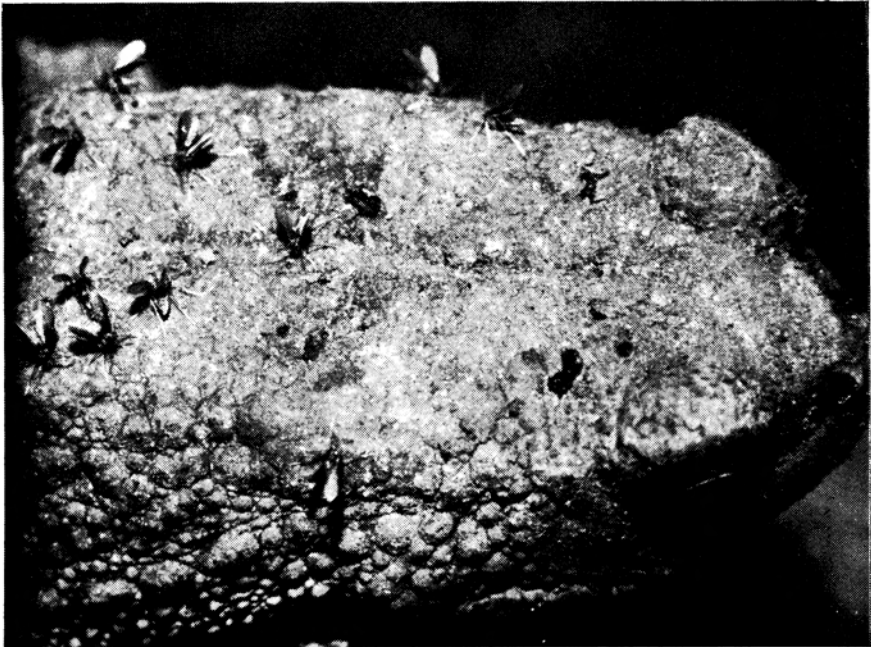


Fig. 1. The sandfly *Sergentomyia squamipleuris* feeding on *Bufo pusillus*.