

Analysis of samples of Glossina morsitans caught
at Lusulu, October 1964.

A summary of results is given in tabular form below; fat content is estimated as chloroform-soluble solids; haematin was measured colorimetrically after extraction of abdomens in dilute NaOH and values have been expressed as $\log(\mu\text{g} + 1)$ in order to render the variance independent of the mean; size measurements were made on the wing vein, and wing fray categories were reduced to 3 in view of the small numbers available for some of the samples. There were no significant differences between flies caught on the flyround and flies caught on the bait ox in respect of size and age and the figures given represent pooled results.

<u>Site.</u>	Fat Content		Haematin Content		Size	Wingfray		
	Bait Ox	Flyround	Bait Ox	Flyround		I	II	III
<u>Brachystegia</u>	1.78	2.33	0.55	0.80	1.413±.0668	34	23	4
<u>Mopane</u>	1.71	2.01	0.74	0.81	1.397±.0082	22	5	5
<u>Riverine</u>	1.43	1.89	0.43	0.51	1.399±.0056	43	20	7
<u>Combretum</u>	1.29	1.63	0.39	0.61	1.391±.0053	44	27	7
F	4.08	5.63	3.48	2.81	2.76			-
	-	-	-	-	-			6.76
								d. of f. = 6
P	.01	.01	.05-.01	.05	.05			0.1
n₂	102	130	102	130	241			

The values for the variance ratio (F) indicate that there is a significant difference between sites in respect of each of the variates measured, and the ranking of values shows surprising uniformity; the Brachystegia and mopane flies show predominantly high values, the Combretum flies low, with the riverine flies generally intermediate. This is all the more surprising in view of the fact that 3 essentially different aspects of "physiological well-being" are being measured:

- (i) haematin content reflects the time elapsed since the last blood meal, i.e. how long the fly has been looking for a meal;
- (ii) fat content reflects the success of the fly in obtaining regular meals during the last 3 - 4 hunger cycles;
- (iii) the size of flies reflects the well-being of the maternal fly during the period preceding larviposition.

Each of these measurements agree in pointing to Brachystegia and, surprisingly, mopane as the most favourable parts of the general environment, despite the leafless nature of these woodlands in October. This does, I think, sufficiently answer Mr. Ford's original suggestion, that the flies in this area were "lost" from the proper "habitat".

The second interesting feature of the results is the fact that a difference in size can be demonstrated between the different regions. This can only mean that the amount of interchange of members between the different populations (separated only by some few miles) must be quite small.


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