

Article 12

THE RESTING BEHAVIOUR OF GLOSSINA MORSITANS IN  
THE LATE DRY SEASON.

An investigation of the resting sites of G.morsitans was carried out on the Busi river, near Lusulu, Sebungwe, from 16th to 28th October, 1961.

The vegetation in the site of the experiment is of the alluvial type. Dominant upper species are Acacia albida, A.galpinnii and Diospyros mespiliformis, with Sapium bussei, Popowia obovata, Grewia spp., Croton megalobotrys and Vangueria randii as the major under storey species.

During the period of the investigation mean daily temperatures were approaching the seasonal maximum 36.5°C being the highest figure recorded with a whirling psychrometer. Under these conditions, the under storey vegetation is practically leafless and shade is provided only by the upper storey trees.

METHOD:

The method of marking, searching for, and recording flies was the same as that used in the investigation of G.pallidipes resting behaviour at Rekomitjie and has been described in previous reports.

RESULTS:

(1) Overall Preference:

Of a total of 1875 fed flies marked during the experiment, only 28% were females, a figure which is low compared with that of 62% for G.pallidipes in November. However 12% of the female flies marked and 17% of the males were observed resting on the day they were marked and their positions recorded.

A particular preference for the boles of the larger trees was found to be exercised by G.morsitans during the period of the experiment. Of 296 flies observed, 10.8% were resting on the branches and stems of the under storey trees and shrubs and 89.2% on the boles of the upper storey trees. More flies were seen on boles than branches at all times of day. This preference for boles was more marked among male flies than it was among the female flies. 92% of the male flies observed were on boles and 80% of the female flies. The fact that a slightly lower proportion of the female flies marked, compared with the males, were observed in resting sites may be partially explained by this, since marked flies would be more easily visible on boles than they would on the branches of the thicket species.

(2) Diurnal Variations:

A diurnal pattern of resting behaviour was not as clear as that found with G.pallidipes, but indications of similar changes in preference for certain sites was noted during the course of the experiment.

Of the 32 flies observed on branches, 72% were found between 0515 and 1215 hours. Of the 264 on boles, 77% were observed between 1216 and 1845 hours. The figures also indicate that the branch type of site is more favoured between 1546 and 1845, i.e., the last period of tsetse activity, than it is between 1216 and 1545 hours, the hot-tset period of the day. Of the total number observed on branches 6% only were seen in the latter time period, 22% in the former.

(3) Temperature and Resting Behaviour:

It is not unlikely that temperature is one of the major controlling factors in the choice of resting site. Jack and Williams (1937) found that at a temperature between 30 and 35°C the phototropic reaction of G.morsitans to light is reversed, and it has been suggested (Pilson and Leggate in press) that this negative phototropism tends to bring resting flies into areas of deepest shade available, viz. that provided by boles and rot holes.

During the present experiment, 30°C was reached, on an average, between 0915 and 0945 hours, and 34.8°C was maintained between 1345 and 1515 hours. The temperatures fell to 28.6°C only in the last half hour of tsetse activity, i.e., between 1815 and 1845 hours. These figures indicate that over the major period of the day flies would be expected to show a preference for the bole type of site where patches of deep shade are comparatively large. It is interesting to note, in connection with the use of boles as resting sites by G.morsitans, that the most favoured site was on the boles of Diospyros mespiliformis, a species which has particularly dark bark.

Comparing the behaviour of G.moristans with that of G.pallidipes, it would appear that the reversal of the light reaction of the former species tends to take place at a lower temperature than it does in the latter. During the G.pallidipes investigations at Rekomitjie, the temperature rose to 30°C between 0815 and 0845, i.e., about an hour earlier than in the present investigation, and 35°C at approximately the same time; yet between 1046 and 1245 hours comparatively more G.pallidipes were seen on branches than either in the rot hole or on boles. It is possible, however, that the high proportion of male flies in the G.morsitans figures may, to some extent, account for the apparently earlier movement of flies

In both species it has been noted that male flies show a stronger preference for boles than do the females. A higher proportion of G. pallidipes males were seen on boles between 0945 and 1345 than were female flies, and in the present investigation 10.5% of the male flies marked and only 5.8% of the females were seen on boles in the period 0846 - 1215 hours.

(4) Height Preference:

The distribution of resting G. morsitans at various heights above ground level shows a rather similar pattern to that found for G. pallidipes. Over the coolest period of the day, i.e., between 0515 and 1215 more flies were observed above 6ft. than at other heights. When the temperature was higher, i.e., later on in the day, the majority of flies were seen at heights under 6 ft. However the marked concentration of resting G. pallidipes at heights below 3 ft. during the late afternoon was not noted in the present investigation of G. morsitans.

DISCUSSION AND SUMMARY:

The resting behaviour of G. morsitans, on the basis of the late dry season investigation here described, does not appear to differ to any major extent from the behaviour of G. pallidipes.

A particularly strong preference of G. morsitans for the boles of larger trees was noted, but, as explained above, this may be due in part to the fact that most of the data refers to the behaviour of male flies.

No rot holes, comparable to the one found to be a favoured resting site of G. pallidipes, were available in the G. morsitans experimental site, but a preference for trees, such as Diospyros mespiliformis with convoluted lower trunks and dark bark was shown by G. morsitans.

Data on the resting behaviour of G. morsitans during the other seasons of the year is being compiled.

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