The Distribution of Tsetse Flies and the Disease They Transmit to Humans in Zimbabwe

by

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There are two areas of tsetse infestation in Zimbabwe. The one, known as the Zambezi fly-belt, lies across the north of the country between the Mlibizi river in the west and the Gairezi river, which forms part of the border between Zimbabwe and Mozambique, in the east. The other, known as the South-east fly-belt, is situated in the south-east of the country. It is currently confined to the immediate border region within the Honde river drainage (see Map 1.)

The extent of the Zambezi fly-belt is 62,900 km² and its length is 850 km as measured along the southern limit-line. In the case of the South-east belt its present extent is minimal. It did, however, cover an area of 5,700 km² prior to the commencement of control measures carried out during the period 1962 – 1971 (Robertson et al, 1972).
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**Table 1.** Confirmed cases of Human Trypanosomiasis related to the Zambezi fly-belt, Zimbabwe, for the area east of the Sanyati River, 1st October, 1963 to 30th September, 1982

<table>
<thead>
<tr>
<th>Area</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kariba lake shore (Sanyati River)</td>
<td>11</td>
</tr>
<tr>
<td>Kariba-Chewore River</td>
<td>8</td>
</tr>
<tr>
<td>Rekomitje Research Station</td>
<td>0</td>
</tr>
<tr>
<td>Kanyemba</td>
<td>0</td>
</tr>
<tr>
<td>Angwa-Hunyani drainage north of Mashumbi Pools</td>
<td>1</td>
</tr>
<tr>
<td>Hunyani River between escarpment and Mashumbi Pools</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td>14</td>
</tr>
</tbody>
</table>

Glossina morsitans morsitans Westw. is the basic species of the Zambezi fly-belt with Glossina pallidipes Aust. occurring in conjunction with it. In varying density, west of the Musengezi river, although in the southern extremity of the western third of the fly-belt, it is probably absent. Despite the presence of extensive areas of suitable habitat, only one G. pallidipes has ever been found east of the Musengezi river during the many surveys carried out since the early fifties. This was taken near the point where the Ruensu river leaves Zimbabwe.

Only G. morsitans has been recorded in the South-east fly-belt in recent years. G. pallidipes was however, taken frequently in the region in the past and in view of its reported existence a little to the east in Mozambique, it should be regarded as being present.

Human trypanosomiasis presents a relatively minor problem in Zimbabwe. Cases of the disease occur sporadically and only in very small numbers (see Table 1). The incidence of the disease seems to have declined in recent years, although the unsettled conditions of the latter years of the Liberation War (1976 to early 1980) might have obscured the true position.

The infections are usually contracted in one or other of a number of situations within the Zambezi drainage from where the disease has been recorded from time to time over the years, to the extent they have come to be termed rather loosely “sleeping sickness foci”. These “foci” are very broadly speaking the area lying immediately along the Zambezi river between Kariba and the Chewore river, the Kanyemba area, the Angwa-Hunyani drainage north of Mashumbi Pools and the Hunyani river area between the Zambezi escarpment and Mashumbi Pools. A case has also been recorded at Rekomitje Research Station.

An important “focus” during the middle sixties and early seventies was the Kariba lake shore area between the Sanyati river and Kariba township. The number of cases recorded annually rose significantly, some of which proved fatal. The problem was attributed to increased man/fly contact as a result of greater human activity in the area in conjunction with a spectacular build-up in tsetse density which occurred soon after the lake reached full capacity in 1963. This was believed to be due to the influence of the new water body on the immediate surrounding vegetation. Mopane trees (Colophospermum mopane) and other deciduous tree species began retaining their leaves for the greater part of the dry season and preferred host animal species were attracted in some numbers by the green grass area developing along the water’s edge. Considerable concern was shown by Government for the problem, which led to the mounting of a large-scale knapsack spraying operation in 1972. No cases have been recorded since.

Other than a few cases within the Ume drainage, below the Zambezi escarpment, in 1960 and a case on Paradise Island, Lake Kariba, in 1976, there has been no indication of human trypanosomiasis in the area of the Zambezi fly-belt lying to the west of the Sanyati
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The limited distribution of human trypanosomiasis in Zimbabwe in relation to the extent of the fly-belts now and previously has been the cause of considerable speculation over the years. The need for a “healthy carrier” to initiate and even maintain a focus of infection was propounded by Blair (1939) and more recently reiterated by him (Blair et al., 1968). On the other hand the game animal reservoir would seem the more likely source of the infection (Mackenzie and Boyt, 1974). The real puzzle, though, is why the disease recurs in the same localities time after time, albeit there might be long intervals between cases and seldom appears in new situations elsewhere in the fly-belts. Apter’s assessment in Mulligan and Potts (1970) that the epidemiology of human trypanosomiasis due to Trypanosoma rhodesiense is dependent upon a complex inter-relationship between the tsetse fly, reservoir animal hosts, man and climate suggests an explanation to this enigma. There is need for considerably more investigation into this interesting problem than has been conducted to date.

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REFERENCES


