Meeting of the Panels of Experts
on
Ecological, Technical and Development Aspects
of the Programme for the Control of African Animal
Trypanosomiasis and Related Development

Rome, Italy
1 - 3 December, 1993

The influence of tsetse distributions on settlement and land utilisation in Zimbabwe with reference to the EC-funded Regional Tsetse and Trypanosomiasis Control Programme (RTTCP) of Malawi, Mozambique, Zambia and Zimbabwe

Desmond F. Lovemore

Zimbabwe's Zambezi and Southeast tsetse fly belts have been major causes of concern to those responsible for her agricultural industry over the years, especially in the context of draught and ranching. Firstly, this has been due to the danger of cattle contracting trypanosomiasis at the interfaces between the farming areas and areas of infestation (there are approximately 400 000 head of cattle depastured along these interfaces, excluding the 60 000 head located within the infested areas themselves). Secondly, and of greater importance, has been the propensity of these fly-belts to spread back into areas which were infested prior to the great rinderpest panzootic of 1896 (generally the areas lying below the 1 067 m (3 500') contour). There are in excess of 1 000 000 head of cattle in these areas, excluding those referred to above. The ability of the infestations to expand have been demonstrated many times over the years as the brief historical account, given below, shows.

Following the rinderpest epizootic which caused the almost total decimation of the respective populations of the natural food hosts of the tsetse, the infestation within Zimbabwe as a whole was rapidly reduced to a few small foci within the Zambezi drainage. Tsetse disappeared completely from the area south of the central watershed. However, the natural food hosts recovered relatively rapidly closely followed by tsetse in the case of the Zambezi drainage area. It was not until the early 'fifties though that tsetse reappeared in the southeast of the country following expansion of the Mozambique fly-belt (Robertson and Kluge, 1968).

The rate of reinfestation within the Zambezi drainage was described by Chorley (1954) as follows :

> "To give some idea of the rapidity with which the insect has spread, it may be mentioned that between the years 1918 and 1928, the infested area practically doubled, from 9 000 square miles to 18 000 square miles. Between 1908 and 1918 the records are not so reliable, but it is

R 1258/2

probable that the infested area doubled during this period also. In 1931, the infested area covered over 20 000 square miles and ground was being lost at the alarming rate of over 1 000 square miles a year. The formerly disconnected fly areas have now united to form a vast fly area extending from the Wankie district in the west to the Darwin district in the northeast."

Chorley recorded also that cattle began dying from trypanosomiasis in the Gwai river area (eastern Hwange) in 1918/1919. Some commercial farmers were forced off the land in the late 'twenties and early 'thirties in the Chegutu and Kadoma areas following the loss of all their stock. In addition, the disease occurred on the Chinhoyi commonage (central Makonde) during the late 'twenties.

The spread of the Zambezi fly-belt had been contained by the early 'forties. Unfortunately, however, it was not possible to maintain the control measures at a sufficiently high level to hold the position during the latter years of the Second World War and the immediate post-war period. As a result the fly-belt began spreading again. Communal Land in western Hurungwe was overrun and the then newly developed Karoi Commercial Farming Area in central Hurungwe was jeopardised. Other problem areas of consequence within the Zambezi drainage were Gokwe, Mudzi, Mutoko and Nyanga districts.

Control was regained, only to be lost once more in 1960 when game elimination operations were terminated as a result of public pressure. The Zambezi fly-belt began expanding rapidly at a number of points along the tsetse front, particularly in Gokwe and Binga districts. Bovine trypanosomiasis reappeared in areas which had been clear for more than twenty years. In particular, the southwestern part of Lupane district and the eastern part of Hwange district were affected. In addition, outbreaks occurred in eastern Gokwe and Kadoma and Chegutu districts and in Hurungwe district, the northern half of Makonde district and Guruve district. It was also about this time that the Southeast fly-belt began giving cause for concern. It was gradually expanding southwards towards the South African border and westwards within the Mwenezi and Chiredzi districts.

In 1964/65, extensive and costly control measures were commenced in both the north and southeast of the country. The objectives in each case were to regain control of the fly-belts and then to contain them by preferred natural food hosts-free and cattle-free fenced corridors (Cockbill, 1964).

The measures proved successful to the extent that it was possible to report in 1975 that, other than the worsening problem in the northeast of the country (where tsetse were spreading from Mozambique through Darwin and Rushinga districts towards Shamva district, but where very little could be done to arrest the advance because of the war situation which prevailed on both sides of the border), the country-wide position was considered to be satisfactory (Lovemore, 1975). For all intents and purposes the objectives set in 1964 had been attained.

A great deal more, in fact, had been achieved, namely : a considerable area of land had been reclaimed on the infested side of the control corridor at the western end of the Zambezi fly-belt; the Zambezi fly-belt had been split in two at the eastern end of Lake Kariba; virtually the entire infested area in Mudzi and Nyanga

R1258/3

districts had been cleared of tsetse; and the Southeast fly-belt had been driven completely out of Zimbabwe and back into Mozambique to a depth of at least 90 kilometres.

Unfortunately, the successes were short lived. In the face of an intensification of the Liberation War in Zimbabwe in the second half of the 'seventies, it became impossible to maintain the control corridors efficiently. As a result, the Zambezi fly-belt began expanding yet again. Tsetse flies broke through the corridors in several places and a considerable area of land reclaimed during the period 1964-1974 was lost, especially in the northeast. In addition, large areas of Mudzi and Nyanga districts were reinfested. On the other hand, in the southeast of the country, there was no detectable change. It would seem that the fly-belt had been pushed sufficiently far back from the Zimbabwe border, in Mozambique to ensure the status quo in this region. Pleasingly this very satisfactory position holds to this day.

The significance of this ebb and flow of the Zimbabwe fly-belts to the agricultural industry and settled areas was clearly stated by Cockbill (1982) as follows :

> "In Zimbabwe, where agriculture and particularly stock raising are of major economic importance, the control of the tsetse fly, leading to its total eradication is a task of national importance. If control measures were suspended or became ineffective, tsetse could again spread to its ecological limits and occupy about half of Zimbabwe as they did before 1896. If this were to happen, about a third of the national herd would be threatened with disaster. Capital losses would involve not only animals, but also the cost of buildings, dairies, dips, crushes and fences ancillary to livestock production. Rural society would become disorganised and demoralised by large-scale cattle losses."

In order to achieve permanency, Zimbabwe adopted a policy of progressive tsetse eradication during the 'seventies, which was subsequently endorsed by the new Government at Independence. It was considered economically unacceptable that reclamation operations should have to be repeated time and time again, as had been the case up until then and for that matter more recently. It was decided, therefore, that the ultimate goal should be eradication of tsetse flies from within Zimbabwe. It was with this in mind that Zimbabwe joined the RTTCP. In the light of her experience in the southeast of the country, there was a clear need to be able to work in Mozambique if eradication was to be achieved. Similarly, there was also a need to work in Zambia for the same reason. Already, there has been considerable positive discussion between the three countries on the subject.

The policy of progressive tsetse eradication does, of course, necessitate operating over all land categories within the infested area, including the various forms of agricultural land, wildlife land and forest land. There can be no exceptions if the long term objective is to be achieved. Whilst this presented no real problem in earlier years, more recently there has been some resistance from the wildlife authorities and conservation organisations concerning national parks and game reserves. There is also, quite rightly, concern about the unsettled areas of Communal Land and other areas designated for settlement where, it is feared, spontaneous, unplanned settlement will follow clearance of tsetse flies. There is a considerable demand for land from outside of these areas due to a burgeoning population in Zimbabwe (this has increased from

about 2.5 million people in the 'fifties to more than 10 million now) and there is already a very strong migration of people towards these areas. The people seeking land are either those who have already got land in the more heavily settled central areas of the country, but are looking for more productive land and people who have had no access to land previously. However, whether it is the activities of the Branch of Tsetse and Trypanosomiasis Control of the Department of Veterinary Services which are drawing people to these areas or simply a natural movement of people who would move there irrespective of whether the areas had been cleared of tsetse flies or not is a moot point. There are a number of examples in Zimbabwe where people have settled successfully in quite heavily infested areas. Gokwe district is a particularly good example, where, when it was discovered that cotton grew well in that district in the early 'sixties, people literally poured into the area despite the presence of tsetse flies and prospered. Irrespective of which side is correct though, it is essential that these areas are settled on a planned, sustainable basis. This is imperative, if these areas are not to be turned into a wasteland as could so easily happen.

To ensure correct use of land freed from tsetse flies in Zimbabwe a national coordinating committee for tsetse control has been established recently. It was considered that such a committee would greatly facilitate the linking of land-use planning and tsetse control activities more closely. Such a committee existed in earlier years, but fell into abeyance during the latter part of the Liberation War and unfortunately was never recalled. The need for this type of committee was emphasised in the proposal for Phase II of the RTTCP. In particular, the Financing Agreement for this phase, which was concluded on 17th July, 1992, contains the following two relevant special conditions :

1. "2.4.7 The participant Government each undertakes to establish a National Coordinating Committee within three months from the date of signing of the Financing Agreement. Each Government also undertakes to appoint to the committee a senior Chairperson of wide experience with a nationally recognized scientific/technical background of rural development issues; other senior representatives of ministries and departments involved with protection of the environment, natural resources and rural development will also be nominated."

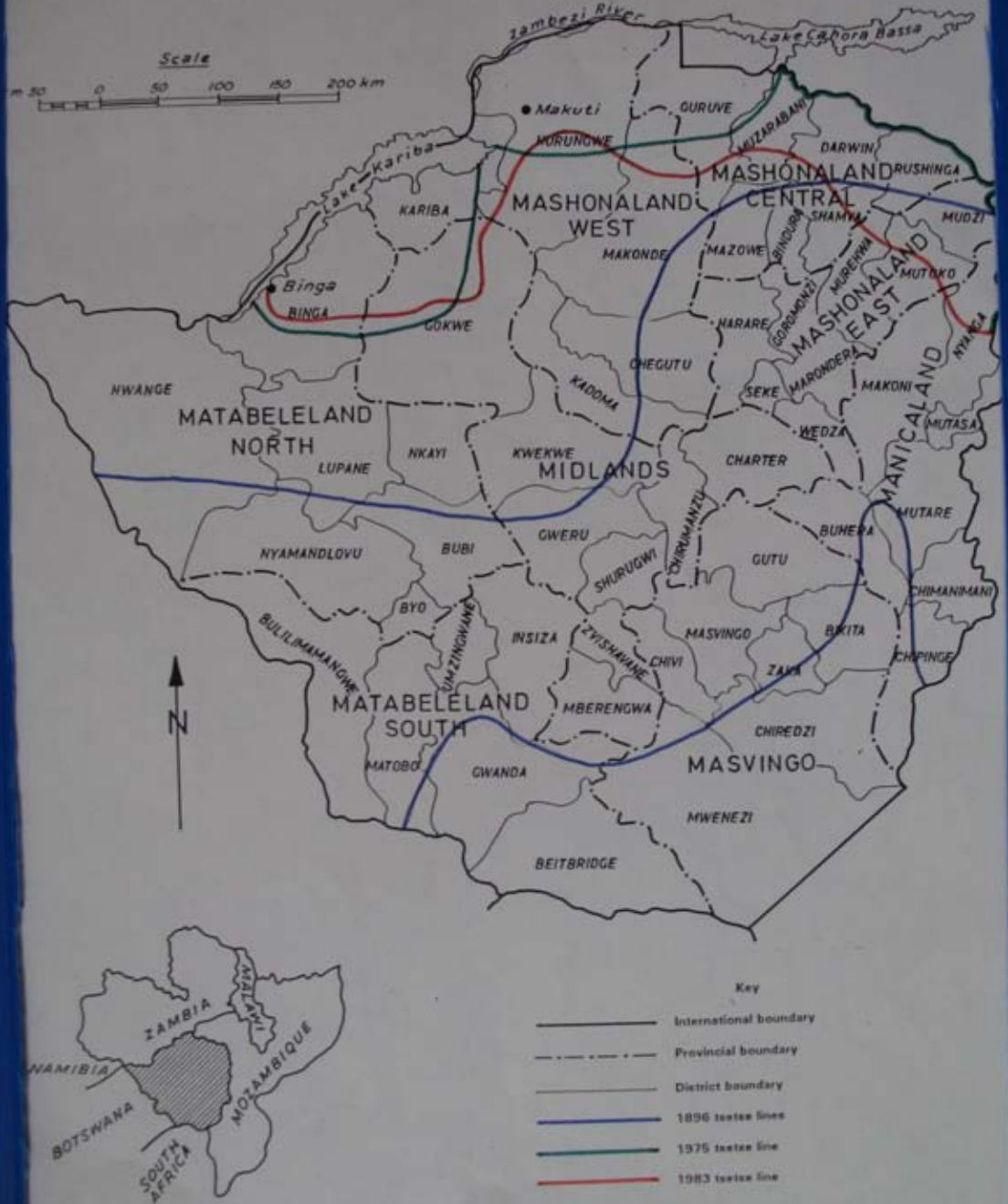
2. "2.4.8 Each Government will mandate its National Coordinating Committee to formulate and oversee implementation of land-use plans in areas cleared of tsetse by the Programme's operations. These plans will be included in the national strategic plan for tsetse control and rural development."

Also, as further explanation to the establishment of the committee, the following was also stated in the proposal for the RTTCP Phase II :

"Tsetse and trypanosomiasis control/eradication is an integral part of rural development and not the end in itself as might sometimes appear to be the case. It is essential, therefore, that those authorities responsible for rural development in the Member Countries should participate in the planning process and monitoring of this activity to ensure that land cleared of tsetse flies is used wisely subsequently. National coordinating committees will be established for this purpose. In particular,

R1258/6

MAP 1 EXTENT OF THE TSETSE REINVASION IN ZIMBABWE IN 1983



government departments concerned with human populations, land-use planning, agriculture, domestic livestock, wildlife, forests, conservation of natural resources and possibly roads and water development will be represented. However, it is not envisaged that these committees would be engaged in implementation of tsetse and trypanosomiasis control/eradication operations, but rather that their main task would be coordination of these activities with land-use planning of the areas scheduled for tsetse clearance. More especially, they are seen as the linchpin for the preparation of the respective national comprehensive strategic plans which will form the basis of the long-term plan for the common fly-belt. Membership of these committees should engender greater understanding of the tsetse and trypanosomiasis problem amongst those government departments involved in rural development and, consequentially, a feeling of responsibility towards the RTTCP."

In conclusion, the real concern is whether the land-use planning can be timeously completed and then successfully implemented.

References

COCKBILL, G. F. (1964). "A second review of the tsetse and trypanosomiasis position in Southern Rhodesia, 1964"' a cyclostyled report by the Branch of Tsetse and Trypanosomiasis Control, Department of Veterinary Services, Southern Rhodesia.

COCKBILL, G. F. (1982). "A report on the tsetse and trypanosomiasis situation in Zimbabwe"; a xeroxed report prepared for the Commission of the European Communities, September, 1982

CHORLEY, J. K. (1954). "A review of tsetse and trypanosomiasis in Southern Rhodesia, 1954"; a cyclostyled report of the Branch of Tsetse Control, Department of Research and Specialist Services, Southern Rhodesia

LOVEMORE, D. F. (1975). "A note on tsetse and trypanosomiasis control in Rhodesia during the year ended 30th September, 1975 prepared for the Director of Veterinary Services for inclusion in his 1975 annual report"; a cyclostyled note of the Branch of Tsetse and Trypanosomiasis Control, Department of Veterinary Services, Rhodesia.

ROBERTSON, A. G. and KLUGE, E. B. (1968). "The use of insecticide in arresting an advance of *Glossina morsitans* Westwood in the southeast lowveld of Rhodesia"; *Proc. Trans. Rhod. Sci. Assoc.*, **53**, 17-37