

THE RECLAMATION OF LAND FROM TSETSE AND ITS
RELATION TO NATIVE SETTLEMENT IN THE URUNGWE
NATIVE RESERVE AND SPECIAL NATIVE AREAS.

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Contents.

1. Introduction.
2. The Tsetse Situation in the Urungwe Area.
3. The Place of Settlement in Reclamation.
4. Conclusion.
5. References.

Appendix. The Kanyati Native Purchase Area.

1. Introduction.

It is hoped that this report will help to clarify some of the problems involved in the Urungwe Reserve and Special Native Areas where settlement is taking place in a proclaimed tsetse area and where cooperation between all departments involved is essential for the efficient administration of the area. It is perhaps inevitable that the requirements of good land husbandry and tsetse reclamation methods should clash at times but it is the aim of this report to reduce these occasions to a minimum.

2. The Tsetse Situation in the Urungwe District. (Adapted in part from (1).)

Tsetse, spreading south from the Zambesi Valley and east from the Sanyati Valley, invaded the Western Part of the Urungwe Native Reserve in about 1924. Game destruction operations were commenced in 1931 under the control of the native commissioner. A European Ranger was stationed in the area in 1933 and hunting operations were intensified. The tsetse was gradually driven back from the Reserve, the eastern half of the Reserve being considered free from tsetse by 1941. Tsetse could at this time be caught close to the western boundary of the Reserve. Movement of natives with their stock into the Reserve from the Crown Land to the east commenced in 1940 and was complete by the end of the year. The number of cattle in the Reserve increased during this period from a little over 250 to over 6000 and finally increased to about 8000. These were all concentrated in the eastern half of the Reserve and instructions were issued that they were not to graze in the western half of the Reserve. It was later discovered that there was practically no control over the movement of stock in the Reserve. No cases of animal trypanosomiasis occurred among these cattle until February 1950 when two outbreaks occurred resulting in the death of some 500 head of cattle. Cattle at the infected kraals were treated by the Veterinary Department and the outbreak was apparently brought under control. In 1951 a decision was made to erect three fences, a farm fence running along the eastern border of the Reserve, a game fence along the western, northern and southern boundaries of the Reserve and a rough cattle fence running approximately north and south through the middle of the Reserve. These fences were not completed until late

purely temporary, a sudden and extensive outbreak occurring during the second half of 1951. At the end of the year there was a big increase in the number of deaths attributable to the disease and for the first half of 1952 deaths averaged some 300 per month. The total deaths for 1952 exceeded 2300. The Urungwe native Reserve was proclaimed a tsetse are in 1952, game destruction operations were intensified and an entomologist stationed in the area.

Entomological surveys showed that some heavy concentrations of tsetse existed just west of the Reserve boundaries and that occasional tsetse could be picked up over wide areas of the eastern half of the Reserve. In 1952 a decision was taken to abandon the Reserve as a cattle area. The removal of the remaining 5600 head in the Reserve and on the North and North west was carried out in August and September.

Since 1952 intensive game destruction operations have been carried out within the Reserve and the Special Native Areas and Native Purchase area to the west of the Reserve. That these operations have achieved considerable success has been demonstrated - (a) By the decline in the incidence of animal trypanosomiasis on the European farms bordering the Urungwe Native Reserve, (b) By the great decline in the numbers of tsetse caught at all the traffic control gates in the area and (c) By the decline in numbers of tsetse caught on fly rounds and on survey work throughout the area.

The present tsetse situation in the area may be summarised as follows:-

1. Tsetse are absent from the Eastern half of the Urungwe Native Reserve.
2. Within the Western half of the Reserve tsetse are found very occasionally in the Zwipani region of the Kanyati River system. Tsetse caught at the Badze Gate in the Southern part of the Reserve are probably carried by native traffic from the Kenyongo Region of the Special Native Area. The occurrence of occasional tsetse within the Western half of the Reserve is to be expected until the operations have reached a more advanced stage in the Special Native Areas to the west.

In the Special Native Areas the density of tsetse has been greatly reduced by game destruction operations over the

cannot be expected until the reclamation of the Sanyati drainage system is undertaken as a whole. Very heavy populations of G. morsitans are present on the Sebungwe side of the Sanyati and as the river is an inadequate barrier to tsetse it would be unreasonable to expect total eradication on the east without also reclaiming the west bank.

A helpful picture of the tsetse situation in the Urungwe can be obtained by regarding the Sanyati Basin and the low mopane country of the Sebungwe to the west as the "home" territory of the tsetse whence it extends up the tributary river systems into the generally less favourable "marginal" country of the Urungwe. In normal circumstances the fly density is low in these marginal areas but certain small areas occur where conditions approximate more closely to those of the "home" territory - such as the Rengwe and Kapondo areas in the Urungwe, both of which are at quite low altitudes bordering on mopane country. It is known that tsetse populations undergo great periodic fluctuations in density which may have some correlation with climatic factors. At peak years it is possible that the limits of distribution may expand more into the "marginal" areas. So far the control measures in the Urungwe have been mainly aimed at making these marginal areas unsuitable for tsetse habitation. However plans are in course of preparation for the reclamation of the entire Sanyati Drainage system. When this is undertaken the actual "home" territory of the tsetse will be attacked. When tsetse are eliminated in these latter areas their elimination in the marginal areas will be considerably simplified.

The control of tsetse in the Urungwe Native Reserve and Special Native Areas cannot therefore be considered as a series of isolated problems but must be viewed against the background of the Sanyati drainage system as a whole.

The tsetse involved in the Urungwe Reserve and Special Native areas is G. morsitans Westwood. The other important Rhodesian species, Glossina pallidipes Austen is known to occur on the Sanyati and on the tributaries of the Sanyati in the Sebungwe but does not appear to be established in the Urungwe area above the escarpment.

3. The Place of Settlement in Reclamation.

Even within a fly belt the density of G. morsitans is

far from uniform but tends to be concentrated on "foci". Broadly speaking the foci in the western Urungwe are the river drainage systems bearing evergreen vegetation which forms a "refuge" and breeding site for the tsetse in the hot dry season and from which the tsetse spread out into the surrounding Brachystegia-Julbernardia woodland. Where the vegetational and climatic conditions are particularly suitable such as in alluvial valleys with well developed riverine fringe and with plenty of game very high densities of tsetse may be found locally and such areas may serve as sources of tsetse for the infestation of the surrounding country.

There is much evidence to suggest that G. morsitans is very susceptible to the disturbance of its environment by human activities and settlement. It has been observed, in the Zambesi Valley for example, that within a fly belt native cultivation and settlement of sufficient extent and density results in the exclusion of this tsetse from the settlement areas. These settlements were often in areas which one would consider very favourable for the development of high tsetse populations in the absence of settlement, i.e. "foci."

The necessity for resettling natives in the Urungwe Reserve and Special Native areas therefore offers an excellent opportunity for utilising settlement as an anti tsetse measure, particularly as the danger of the occurrence of human trypanosomiasis is very small. It is clear from the above discussion that from a reclamation point of view the most advantageous type of settlement is settlement on the "foci" in sufficient density to render these areas unsuitable for inhabitation by tsetse. This in effect means settlement along the river systems with the valley bottoms being cultivated. Where the tsetse infestation is very dense it is advisable to remove the evergreen riverine vegetation - however this does not necessitate river bank cultivation.

It is realised that this type of dense settlement on river systems is not the best from a land husbandry point of view, however to quote a Land Development Officer (2) -

"In the west of the Urungwe Reserve and adjoining areas, the lack of large sheets of arable land suggests the unit system as the only one capable of fitting in any gener population over most of the area. Even so experienced observers

have said that the possible overall density in some sections is not likely to be more than about 6 families per square mile and in some hilly parts areas of 10 to 20 square miles may be unfit for settlement.....On the other hand there appears to be certain areas, of hundreds of acres in some cases, inside the reserve or outside, having fertile soil and a profuse natural vegetation, capable of harbouring heavy concentrations of "fly" but also potentially good arable land. For such areas the answer would seem to be a form of block settlement, with dwellings, water points and grazing corridors so dispersed as to overcome the problems of access and erosion. This would have the effect of an intensive settlement while not departing from acceptable standards."

The Rengwe Valley reclamation scheme is illustrative of "block" settlement of high density on a tsetse focus. In this elimination of a high tsetse population was achieved very rapidly by consolidating the results of drainage line bush clearing with locally dense native settlement of approximately 200 families in the 7 square miles of valley bottom. (i.e. approximately 30 families per square mile.)

However in the major part of the Urungwe area such high densities of settlement can only be attained at the expense of good land husbandry and I have therefore attempted to allocate priorities to the various areas involved, from the point of view of reclamation by settlement. As mentioned above the different native areas cannot be considered as independant entities so that measures applied in one area may be dependant for their success on the success of measures applied in adjacent areas.

(A) Urungwe Native Reserve.

There are no foci of tsetse within the boundaries of the Reserve. The requirement of good land husbandry may take priority in the Eastern Half of the Reserve and throughout most of the western half except on the Gache-Gache river system where valley cultivation should be undertaken (this is probably inevitable in any case due to the local terrain). Otherwise in the Western half of the Reserve settlement should be of the greatest density compatible with good land husbandry so that it will form a "buffer" zone between future cattle areas in the eastern part of the Reserve and the Special Native Areas. It must be understood however that

these specifications are dependent on the continuing success of control measures in the adjoining Special Native Areas.

(B) Special Native Areas.

(i) South of the Msukwi-Badze.

This area is almost entirely free from tsetse except for a small area near Ganderowe on the Sanyati. Land husbandry considerations can take priority and the whole of the area south to the Piriwiri River should be assessed for settlement.

(ii) North of the Msukwi to the Fulechi River.

Here tsetse reclamation considerations must take priority at least for the next two years. The Rengwe settlement should be consolidated by settlement particularly in the Kenyongo area and on the Upper Fulechi. The future settlement need not be as dense as that on the Rengwe as rather more marginal areas with sparser tsetse infestation are being dealt with but the settlement should follow the valley bottoms where possible. The clearing of evergreen riverine and termite mound vegetation is to be encouraged, particularly in the Kenyongo area.

(iii) North of the Fulechi to the Kanyati River.

Here again reclamation considerations must take priority. Settlement will probably have to be patchy due to the lack of arable land. Particular attention should be paid to the assessment of settlement possibilities on the Mtoili, Magororo, Dekete River drainages and between the Chiroti and Kanyati rivers near to the Reserve fence. As there is no intention of settling these areas in the next two years the situation can be reassessed later in the light of the Sanyati Reclamation scheme and the results of settlement south of the Fulechi.

Details of the tsetse situation in the Special Native areas on all rivers south of the Magororo are given in (3)

No over all rule can be laid down to cover all settlements in the Special Native areas, each settlement area must be considered separately in the light of local conditions bearing in mind the following considerations.

(a) The scattering of isolated families throughout the bush is of little value from a reclamation point of view and should be avoided.

(b) Any measures which replace tree cover by grass in the settlement areas should be encouraged. Complete clearing is seldom necessary, in most cases a thinning out

of the tree cover will suffice. Stumping is excellent but not essential in the areas under consideration as the regenerated bush would not become favourable for tsetse in less than 5 years by which time the settlement should be well established.

(c) In very lightly infested areas where the riverine trees are tall and clean boled these may be left so long as the riverine shrub layer is removed.

(d) In areas where tsetse are found readily particular attention should be given to the removal of evergreen shade trees such as Diospyros mespiliformis and Tamarindus indica, groves of Acacia nigrescens and the vegetation of termite mounds.

(e) The practice of placing the housing lines along the edges of the valley on the junction between the valley vegetational associations and the surrounding Brachystegia-Julbernardia woodland is excellent from a reclamation point of view as it disturbs the ecotone favoured by the tsetse as a feeding ground.

4. Conclusion.

In conclusion it must be emphasised that the investigations into the reclamation of land from G. morsitans by methods such as bush clearing, native settlement or a combination of the two are as yet in their early stages in Southern Rhodesia and it is hoped that as they proceed further it will be possible to be more specific regarding such matters as the type of vegetation that should be cleared and the minimum effective density of native settlement required in the various areas under consideration. Meanwhile it is important that as much information as possible should be gained from the settlement and reclamation schemes already in progress in the S.W. Urungwe and that a thorough assessment from a land utilisation point of view should be made of the other drainage systems, on which tsetse are to be found in the Special Native Areas and in the Kanyati Native Purchase area to the north.

5. References.

1. "A Review of Tsetse and Trypanosomiasis in Southern Rhodesia. (Trypanosomiasis Committee, Salisbury, 1954.)"
2. R.R. Gladdon, 1956. "Urungwe Native District. Outline Scheme for the Resettlement of Natives in a Tsetse Area 1956 Onwards."
3. R. Goddier, 1957. "A Summary of the Tsetse situation in

APPENDIX.

"THE KANYATI NATIVE PURCHASE AREA."

The present designation of the area north of the Kanyati River to the Zambesi escarpment as a Native Purchase Area precludes the use of organised settlement as a reclamation measure as settlement on a native purchase system would not be of sufficient density to be effective.

Although much of the area is unsuitable for settlement pockets of arable land are to be found, particularly on the Upper Urengi and Honga River drainages and coextensive with areas of high tsetse infestation.

Mainly because of its inaccessibility and the presence of tsetse this area is considered to be unsuitable for a native purchase area. If its designation were changed to that of a Special Native area its reclamation and settlement could be considerably advanced.

In the event of its designation not being changed methods other than reclamation by settlement will have to be adopted for the control of tsetse in the area.