

## ANNUAL REPORT OF THE CHIEF ENTOMOLOGIST, 1928.

TSETSE FLY.1. Operations in Lomagundi District.

Owing to extension of the operations it is not possible to make a just comparison between the number of animals destroyed during the past year and the year before. Actually comparatively few animals have been destroyed in the old area and although some slight invasion appears to have occurred across the Angwa river game has on the whole been very scarce. This is particularly the case towards the Hunyani river.

Direct inspection with bait oxen extending over months has revealed odd flies in the old area but less even than in 1927. The odd flies taken were almost all associated with kaffir footpaths and kraals near traffic routes. No flies at all have been taken between the Myume and Hunyani rivers although the areas has been very carefully searched.

It appears probable that the old area is now as clear of tsetse as it is possible to make it whilst fly exists in numbers immediately north of the old north (now middle) fence. Flies are at present bound to be carried in occasionally by travelling natives and bicycles from the fly areas.

The improvement in the position on the formerly affected farms, which was recorded in 1927, has been more than maintained. On the east side of the Hunyani river all the farms reported free from Trypanosomiasis in 1927 have remained free and even on the northernmost farm nearest the definite fly area, five spans of oxen are now at work and reported in good health. This farm was formerly the worst affected of all. Three cases of Trypanosomiasis in cattle on this farm were recorded early in the year but two were probably old "recovered" cases. There is some traffic to this farm from the fly area.

Between the Hunyani and Angwa rivers, directly south of the fenced zone, one farm has shown little if any improvement, a fact very difficult to explain as direct inspections of an intensive nature carried out in 1927 and during the past year have failed to reveal tsetse fly either on the farm or in the vicinity. On no other farms in this area have cases been recorded in animals which have not been off the farms and are not under suspicion of having been exposed to tsetse fly elsewhere.

Close and prolonged inspection with bait oxen failed to reveal any Tsetse Fly south of the fenced zone between the Hunyani and Angwa rivers.

The complementary operations against game in the Sipolilo sub-district proceeding under the direction of the Asst. Native Commissioner appear also to have brought considerable improvement in the position. The Asst. Native Commissioner, Sipolilo, summarizes the record of the year as follows :-

1. There were no deaths due to Tsetse Fly.
2. Sipolilo Reserve is free of fly.
3. Fly are decreasing between Impinge and Hunyani rivers, south of Mt. Barawari.
4. Game is diminishing.

The number of animals shot in this area during the year, however, shows far less decrease than in the fenced zone, a fact which

South of the Nyamsenzi-Sipolilo foot-path an inspector with bait oxen failed to find any tsetse fly, although odd flies have been found in this region each year since 1923. This is probably the result of extension of the operations since 1927 into the triangle formed by the old north fence and the Mvume and Hunyani rivers.

On the whole the position in connection with the operations in the Lomagundi district may be said to be distinctly encouraging. The advance of the fly has stopped and the majority of the farms have been saved from evacuation. Considerable areas where cattle were dying freely from 1923 - 1926 are now supporting healthy herds. Direct inspection during the past two years indicates appreciable retrogression of the tsetse fly. The main factor now preventing a complete "clean up" appears to be uncontrolled traffic.

The new game fence cutting off a further ten mile zone immediately north of the old zone was completed in November. The end of the zone towards the broken country along the Angwa river is closed by a cross fence. At the eastern end of the fence extends to the Impinge river near Sipolilo so that the open end of the zone extends into the country depleted of game by the natives operating under the direction of the Asst. Native Commissioner.

Operations in the new zone commenced in June with a view to driving as much game as possible out of the area previous to the erection of the fence.

## II. Operations in the Gatooma Sub-district.

The western fence and the southern connecting fence were completed in April. Operations against game have been continued vigorously throughout the year and the fences have been maintained in good order. A number of breakages occurred during the first part of the year but for the last five months no breakages have been recorded, although the Ranger has patrolled the whole line each month. A great falling off in the number of animals destroyed is apparent in the December report compared with last year.

Figures have again been collected bearing on the distribution and prevalence of Tsetse Fly in the fenced zone.

Definite improvement in the position in this district is clearly not to be expected as yet in view of the heavy infestation of much of the fenced zone and the fact that the fences were only completed in April.

Notes are being kept of the incidence of Trypanosomiasis in this region.

A special inspection of the country south of the fenced zone has revealed the fact that fly has more or less established itself near the junction of the Mzoe and Umisti rivers and is thus tending to outflank the area of operations and threatening a new block of farms. It is, therefore, proposed to extend the eastern fence and the operations as far south as the Umsweswe river.

## III. Effect of Grass Fires.

An Entomologist proceeded to the fly area in Lomagundi in June to collect information concerning density and distribution of tsetse fly, percentage of emergence from puparia, etc. with a view to a second test of the effect of an organised grass fire at the end of September. He remained in the area until the end of November.

The grass burning was carried out in due course on September 29th but is reported not to have been as fierce and complete as last year. This is attributable to (1) failure of the wind later in the day and (2)

1927-28.

The result of the fire appeared even less encouraging than last year, the effect on the puparia and density of the adult flies being apparently negligible from the practical standpoint.

It is to be noted that so far it has only been possible to test the immediate effect of these fires on the flies and puparia. Experiments on a large enough scale to ascertain possible indirect effects cannot be carried out on a proper basis with the staff available.

Progressive decrease in the density of the flies during the dry season was again noted in this area and the cause remains obscure. It is apparently not due to parasitic enemies.

Regular records were also kept concerning the percentage of flies infected with Trypanosomes, the latter being divided into groups according to the regions infected. Examinations of gut contents in reference to food revealed mammalian blood almost exclusively, only one case of avian blood being recorded.

#### IV. Wankie District.

Cutting the evergreen trees along the Gwasi river with a view to creating a barrier against encroachment of Tsetse Fly was commenced in July and discontinued on instructions at the end of October after some ten miles of one bank of the river had been cleared. An alternative proposal submitted by this branch involving establishment of settlement along the banks of this river on the basis of free occupation of farms with a prospect of free title has received the approval of the Government and is to be put into effect.

Inspection of the region north of the Gwasi-Shangani junction showed the fly to be spreading in the direction of the Gwasi river and to be very close to the river between that junction and a point about three miles south of Hojokwe Hill.

An inspection of the scene of operations against game, 1919-1922, by a temporary officer, as well as brief personnel observations by the Forest Officer and myself in August, revealed a notable increase of both tsetse fly and game since the termination of the operations and my last visit to this region in August, 1923. The position in respect to both game and fly appears to be much as it was before the operations mentioned commenced. Fly was met with freely south of the Shangani river. Late in the dry season, drought conditions throughout the Colony generally had apparently concentrated phenomenal quantities of game in this region including elephant, rhinoceros and buffalo, with the usual species of antelope, etc.

#### V. Occurrence of Glossina morsitans close to Melsetter Border.

Five specimens of tsetse flies stated to have been taken on a buffalo shot about two and a half miles from Spungabera on the Mt. Selinda-Gogoio footpath were submitted to this branch by the District Veterinary Surgeon, Melsetter, in October. The specimens were found to consist of two Glossina brevipalpis, two G. pallidipes and one G. morsitans. The occurrence of G. morsitans in this region has never before been recorded and it is hoped to arrange for a further examination of the locality to ascertain if this species is actually becoming established there. It is probable that this species constitutes the most active threat in reference to invasion of the southern part of Rhodesian territory from Portuguese East Africa.

Considerable losses of cattle from Trypanosomiasis were reported on a number of farms south of the Lusitu river during the first half of the year. Some of the localities affected lie in the Sabi River Basin

remote from the border.

#### VI. Sabi River Valley.

There has long been reason to suspect the Sabi River Valley of harbouring tsetse fly and a detailed search for fly in this region is considerably overdue. Diagnosis during the year of Trypanosomiasis in an ox near the Tungwesi-Sabi junction, a locality far remote from any known fly belt emphasized the need of an inspection and an experienced temporary field officer of the branch has been detailed to examine the valley from this point down to the Portuguese Border.

#### VII. Parasites of flies allied to Tsetse.

An Entomologist has devoted considerable attention to this question during the year. The work has been carried out (1) in the potential fly area in the Gatooma sub-district, close to the present fly limit, (2) at Salisbury and (3) in the fly area in Lomagundi during November. In the Gatooma sub-district the investigation was a continuation of that mentioned in last year's report.

So far only two minor parasites have been found common to Glossina and allied flies.

Incidentally much information has been gained concerning the early stages of flies breeding in dung, decaying vegetable matter and carrion, and notes have been made bearing on their breeding habits.

#### VIII. Control of Traffic from Fly Areas.

The danger associated with traffic from the fly areas is certainly real, although there may be a tendency to overestimate it. Of recent years the danger has increased owing to motor vehicles being used more freely for prospecting, etc. The question has received consideration and certain recommendations have been made.

#### IX. Cooperation of other Departments re Tsetse Fly Control.

Discussion with other departments has been initiated concerning the possibility of creating barriers against Tsetse Fly encroachment through (1) concentration of native settlement, and (2) European settlement. It is hoped that in certain localities it may prove possible to proceed on a definite plan along these lines but the procedure is fraught with considerable difficulties and is far from applicable to all threatened areas.

#### X. Former limits of Tsetse Fly.

Attempts to obtain further information under this head, more especially in the southern part of the Colony, have been attended by considerable success. Collection of information concerning the characteristics of the country near the reported former limits appears likely to lead to an increase in our knowledge of the factors influencing the distribution of this insect.

In the above connection I take the opportunity of expressing my warm appreciation of the assistance afforded by various Native Commissioners in supplying information either from personnel experience or culled from native sources.

#### PRESERVATION OF THE NATURAL FAUNA OF THE COLONY.

Recommendations concerning the creation of a game reserve in the Wenkie district were given effect to during the year and on the 1st October, 1928, the first official Game Warden in the Colony was appointed. Temporary headquarters have been established near Dett Station and the warden's first duties consist in exploring the reserve and obtaining information concerning the habits and movements of game.

Preliminary investigations have been made concerning the possibility of augmenting the water supply in this dry area with a view to removing the necessity for migration of the game in periods of intense drought. A considerable improvement in the position appears possible at a reasonable outlay.

Suggestions that an area around the Chipinda Pools on the Lower Lundi River should be set aside as a game reserve led to a joint visit to this region by the Forest Officer and myself in May. In view of very definite information obtained from native sources concerning heavy infestation of this area with tsetse fly prior to 1896 I was unable to recommend its maintenance as a game reserve. The country is typical of the low veld fly areas, with mopane forest predominating and in the face of the steadily intensifying threat of eventual invasion by tsetse fly from Portuguese East Africa creation of a game reserve in this region would appear to be a very short sighted procedure.