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ANNUAL REPORT OF THE CHIEF ENTOMOLOGIST.

1923

Extension of the "fly areas" of the colony has been recorded during the year in parts of the Darwin, Lomagundi and Sebungwe districts. In the two first named the extension has been accompanied by loss of cattle owned by both European and natives. No record of retrogression other than in the area of the game elimination experiment in the Shangani region has been made.

This advance has coincided with general reports of increase of game in certain areas during the past few years, consequent, it is believed on diminution of hunting both in the free shooting areas and outside due to the low price and lack of saleability of hides and biltong.

The continued steady advance of this pest is, needless to say, creating a very grave situation.

Mr. J.K. Chorley continued his study of the bionomics of the fly on the Umwati River during a short visit from February 8th to March 16th and from June 1st to November 16th with an interval from August 10th to 22nd. During the time he collected no less than 19,989 living puparia of the fly and 33,739 empty pupa cases. His notes on the breeding sites of the insect are now extensive and constitute a desirable addition to our knowledge. In addition a great deal of information has been secured concerning the breeding season of the fly and the influence of temperature on the pupal period, distribution of the fly and its breeding sites in respect to season, etc. In this connection I may mention that the fact of this species of Tsetse Fly breeding freely during the rains was not definitely established previous to Mr. Chorley's visit to the fly area in February this year. The study of the natural parasites of the fly has yielded results of great interest and shows that a very high death rate occurs at certain seasons of the year from this ~~one~~ cause. When final figures are secured concerning the rate of parasitisation which will probably not be till February - March as the insects are still emerging, it is proposed that Mr. Chorley write up the results of his investigations to date for publication in the Bulletin of Entomological Research.

Through the kindness of Dr. Lamborn, who is working on the parasitisation of this fly in Nyasaland, two consignments of Flesh Fly (Sarcophagid) puparia parasitised with Syntomosphyrum glossinae which is also a tsetse fly parasite, were received on

July 18th. From these a strain of the parasite was established on locally bred Flesh Fly puparia. About the same time, however, the same parasite was bred from tsetse fly puparia collected on the Unniati River and we were also successful in breeding from this strain. Breeding was continued successfully and with a view to ascertaining whether we could induce an artificial increase of parasitisation with this species in the Tsetse fly's natural haunts parasitised Flesh Fly puparia were forwarded in regular succession to Mr. Chorley on the Unniati River during September and October. Unfortunately owing to various causes including the depredation of ants at his camp and difficulty in breeding parasites in large numbers during the hot dry season, Mr. Chorley was unable to release great numbers of the insects in the fly haunts. This combined with the fact that a natural increase of the parasites occurred in the late dry season rendered conclusions impossible. It was decided, however to continue breeding and studying the parasites at Salisbury to learn as much as possible concerning its life history and influence affecting its breeding so as to be in a better position to test its capabilities in the field during the coming year. Attempts are also being made to breed another tsetse parasite, Mutilla glossinae in Flesh Fly puparia at Salisbury with a view to artificial increase.

Investigations are also in progress in respect to the parasites of flesh and dung breeding flies (Sarcophagidae and Musidae) at Salisbury to ascertain if any of their parasites are likely to breed in Tsetse Fly puparia.

I visited the Darwin district from June 5th to July 5th in connection with a reported extension of the fly area involving the death of numbers of native cattle. The result of my investigation was embodied in a report dated 21st July.

As a result of my visit to this district certain shooting operations were carried out in the Kandeya Reserve during the dry season under the guidance of the Native Department. These were closed down in December but it is hoped will be renewed next season. At the instance of the Acting Native Commissioner a wider area outside the Reserve was thrown open to free shooting under Government Notice No. 84 of 30th November, 1923.

In August (July 27th to August 24th) I revisited the scene of the Shangani Game Elimination Experiment to make a supplementary inspection and submitted my report on 31st August.

From September 4th to October 5th I visited the Lomagundi district in connection with the extension of fly across the Mvume river and the loss of cattle from trypanosomiasis of farms between the Hunyani - Maitwe rivers. A preliminary report was forwarded on September 24th and my final report on October 13th.

Subsequent to my visit the game laws were suspended with reference to an area between the Mvume and Hunyani rivers delineated by me for active operations against game (Government Notice No. 83 of 30th November, 1923). This was not part of my programme but is apparently a necessary legal preliminary to direct operations on the part of the government.

Arrangements have been made for two experiments bearing on the question of transmission of "fly disease" amongst associated cattle in the absence of tsetse fly. The one is being carried out by Mr. J.O.A. Fraser-Mackenzie of Lone Cow Estate, Lomagundi, two cattle being exposed to tsetse on a river selected by myself and associated since with four cattle which have not been near the "fly". The scene of the experiment is an isolated spot between the Hunyani river and the Mvukwe Mountains. The second experiment is being conducted by the Veterinary Department near Gatooma with eight head of cattle of which two have been exposed to fly on the Umniati River.

ABSENCES FROM HEADQUARTERS ON DUTY.

Mr. Chorley 9th February to 16th March on the Umniati River re Tsetse Fly Research.

1st June to 10th August on the Umniati River re Tsetse Fly Research.

22nd August to 16th November on Umniati River re Tsetse Fly Research.

Mr. R.W. Jack

6th June to 6th July in Darwin District re Tsetse Fly.

27th July to 24th August in Shangani Region re Tsetse Fly.

5th September to 5th October in Lomagundi re Tsetse Fly

28th December at Mazoe Estate re Citrus Pests.

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