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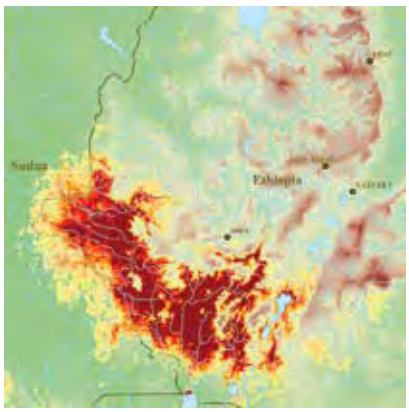

guidelines

# COLLECTION OF ENTOMOLOGICAL BASELINE DATA FOR TSETSE AREA-WIDE INTEGRATED PEST MANAGEMENT PROGRAMMES

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# COLLECTION OF ENTOMOLOGICAL BASELINE DATA FOR TSETSE AREA-WIDE INTEGRATED PEST MANAGEMENT PROGRAMMES

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# Contents

# Foreword

The creation of tsetse-free zones using an area-wide integrated pest management (AW–IPM) approach, as outlined in the Pan African Tsetse and Trypanosomiasis Eradication Campaign (PATTEC) Plan of Action is a noble undertaking but also a very challenging one in view of the transboundary nature of the tsetse and trypanosomosis problem. AW–IPM programmes, especially those that include a sterile insect technique (SIT) component are complex and management intensive (Vreysen et al. 2007) and are usually implemented in different phases. Before any operational suppression or eradication can be attempted in the target area, it is essential that accurate baseline data be collected in order to develop an appropriate intervention strategy. This document attempts to provide detailed guidelines for both senior technical staff involved in the planning of entomological surveys for AW-IPM programmes (section 2) and field workers who will be involved in the implementation of these surveys (section 1 and 3).

The term area-wide in AW–IPM refers to the target population (not the target area) and is defined as the integrated use of control tactics against an entire tsetse population within a delimited geographical area (Klassen 2005), i.e. total population management (Hendrichs et al. 2007). The target area could be quite large, as for example the area of the Southern Rift Valley of Ethiopia infested by *Glossina pallidipes* (25 000 km$^2$) or quite small, such as the *Glossina palpalis gambiensis* infestation in the Niayes area, close to Dakar, Senegal (~ 1000 km$^2$). The concept of AW-IPM differs from localized control or field-by-field management that has in the last decades be the more traditional way of dealing with the tsetse problem. Field-by-field management addresses only small fractions of a pest population at any given time, usually those that cause a current problem (e.g. an outbreak of disease). The goal of these two approaches is completely different and although both have merit, the choice as to which to use has many financial, managerial, and technical implications that have to be taken into consideration (Hendrichs et al. 2007).

Although comprehensive, the subject matter is not necessarily exhaustive in the level of detail given as there are already good sources of information on many topics, and appropriate references and links are given. In particular, the FAO training manuals for tsetse personnel (volume 1–5) are referred to as valuable sources of information. These guidelines will update some of the information found elsewhere (e.g. Cuisance 2000), as new research is constantly contributing to the improvement of survey methods (especially in the fields of odour attractants and development of new traps).

Whilst someone wishing to understand all aspects of tsetse survey work could read the manual from cover to cover, it is more likely that they will use it for reference, or for finding information on a particular activity as it arises. These guidelines therefore provide some background information for increased understanding as well as a more practical level of how to carry out a specific activity.

There are differences between theory and practice when considering how to plan a tsetse survey necessitated by the need to compromise between what is theoretically possible and what is practical within the financial and human resource constraints. For example, we know

that tsetse presence and absence can change over very small distances and they might be found in one place with suitable habitat but not in another, with apparently similar habitat. We also know that at very low densities, with traps of limited efficiency, trapping over a period of three days with a small number of traps may not detect those flies and a zero catch does not mean tsetse are absent. Theoretically we should trap in those situations with a higher number of traps for a longer period of time. Models have now been developed that make it possible to calculate the number of traps and the duration of trapping necessary to be able to determine presence within a given degree of probability, based upon the efficiency of the trapping device used, the particular species of tsetse in question, the season and the expected density of the flies. However, unless dealing with a relatively small area, it is unlikely that the required intensity of trapping would be possible.

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