Livestock/Wildlife Interactions in Areas of Tsetse Clearance and Incidence

Land use planning was examined in the Zambezi Valley, Zimbabwe, by identifying and quantifying the effects of rural income diversification programmes on land use change in areas with contrasting backgrounds of tsetse fly control. Particular emphasis was laid on interactions with management of wildlife and domestic livestock.

Background

Improvement of agricultural productivity, farm incomes and general quality of life in Communal Lands is a priority in the Zimbabwe National Development Plan. It is thought that, by raising rural living standards and through creating off-farm employment opportunities, rural to urban population migration will be reduced. There is a growing awareness of the importance of tsetse control as a component of rural development and the wider effects of this control need to be evaluated.

Tsetse flies occur in the north of Zimbabwe and there is an ongoing clearance programme; the west has been cleared of tsetse for some time. The differences between the two areas are related not only to tsetse but also to factors such as isolation and the presence of marketing facilities for cash crops. The study quantified land use change since 1984 in an area of tsetse occurrence and compared this with land use in an area where tsetse has been controlled.

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Research highlights

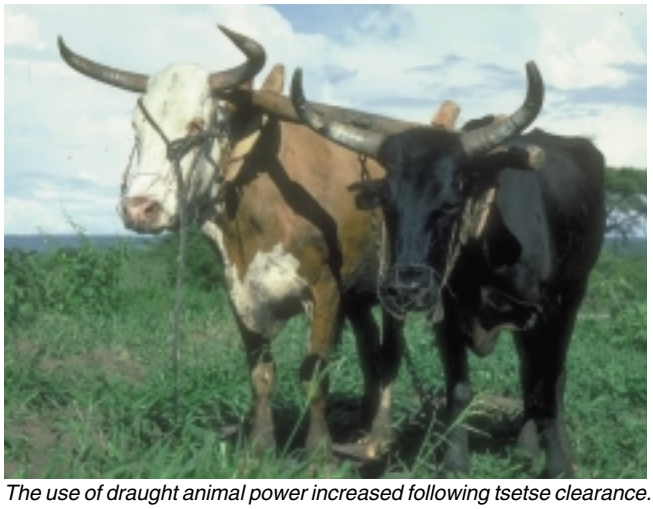
Satellite imagery was used to identify areas of human dominated land use, whilst data were collected on tsetse control operations and CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) community wildlife management programmes. Participatory rural appraisal (PRA) studies helped to unravel complex issues affecting land use and risk avoidance strategies taken by farmers in relation to community wildlife programmes and the threat of trypanosomosis spread (formerly known as trypanosomiasis). This is a serious disease spread by the bite of the tsetse fly – in humans it is known as African sleeping sickness.

In all areas, which are largely under mixed farming systems, there was an overall increase in land used. However, this masks complex temporal and spatial patterns where land is being abandoned as well as being brought under cultivation. The increase in land used varied from 8% to 35% between different areas and periods.

Following tsetse clearance, and where other social and economic factors were favourable, a number of changes were identified. Use of cattle for draught power increased, enabling large increases in cultivated land within a relatively short time. The increase in land used stabilised at about 30% of total land area. Cash crops increased where efficient and reliable markets existed, leading to increased farmer incomes. Also there was decrease in fallow periods, a tendency for almost continual use of the land and an increasing dependence on purchased farm inputs.

In the north, the ongoing clearance of tsetse has resulted in an increase in use of draught animal power. However, an increase in cultivated land may well have taken place without the tsetse clearance, through the use of alternatives such as tractors given the presence of marketing structures. In the west, isolation and a lack of marketing facilities have prevented a similar development, despite the absence of tsetse.

Cattle populations have increased exponentially in some areas, despite government regulations limiting number of cattle per household. In all areas small-stock have also increased – this was attributed to improved veterinary services. All livestock, with the exception of donkeys, are used for meat. However, most of the meat



The use of draught animal power increased following tsetse clearance.

consumed in households comes from chickens or goats.

Through participatory assessment of community, livestock and wildlife interactions, the research found that:

- Community wildlife management programmes are more important adjacent to protected areas, where population is sparse, or where poor market structures inhibit income from cash crops.
- Where cash crops formed an important part of local economies, wildlife management programmes did not provide a significant source of community income.
- Conflicts between wildlife and livestock were recorded more often in areas where CAMPFIRE was most successful. Increased conflicts were attributed to more settlements and to greater wildlife populations after establishment of CAMPFIRE projects.
- The greatest impact of the CAMPFIRE programme has been in support of community projects.

Uptake

Several uptake pathways, via the local agricultural extension services, were identified during presentations of preliminary results at a DFID workshop in Matopos, Zimbabwe, in October 1997 – and final results were presented at a similar meeting in February 1999.

Linkages

Follow-up funding has been obtained for workshops to enable dissemination of final results to stakeholders in Zimbabwe. Project findings can usefully be combined with other research in semi-arid areas, including the modelling work in Project R6301: Optimising the utilisation of semi-arid rangelands (Zimbabwe), and examination of changes in land tenure

Participatory research played an important role. A PRA ranking exercise is conducted in one of the study villages by collaborators from the Africa University, Mutare.

systems in R6607: Privatising rangeland resources in Namibia. CAMPFIRE co-operated fully and there have been discussions on how these linkages could be strengthened.

Relevance to sustainable livelihoods

The results of this project will help to formulate future tsetse control policies, enhance programmes for communal wildlife management, and enable improved advice on sustainable use of natural resources to be provided by local extension services. The complex spatial, temporal, social and economic relationships that occur following major changes in land use potential – in this case resulting from tsetse clearance and eradication – have been emphasised. After tsetse control, there is a response by local farmers in Zimbabwe to keep greater numbers of cattle and small livestock as part of a small-scale mixed farming rural economy. Although in some areas, increased settlement and farming occurred before clearance, since tsetse eradication, farmers have become more reliant on livestock to enhance their incomes – either through draught power and the resulting increase in cultivated area or through direct sale of livestock. The project also demonstrated the changes that can occur in areas of rapid rural development and farming intensification. The contribution of livestock to this development is critical when marketing conditions are favourable.

Wildlife/livestock interactions analysed by the project indicate that farmers' perceptions of wildlife benefits are often different from those of the CAMPFIRE association.

Selected project publications

A number of draft reports are currently available; for further details please contact the project leader, J. Pender. Titles include:

- Wildlife – Livestock stress points.
- Risk Assessment.
- Land cover classification of Muzarambani and Dande.
- Land cover classification of the Kariangwe Basin.
- A history of tsetse and trypanosomiasis control in Zimbabwe's Mid-Zambezi Valley 1980–97. 117 pp. + 7 maps.

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