



Spatial distribution of *Glossina* sp. and *Trypanosoma* sp. in south-western Ethiopia

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Abstract:

Accurate information on the distribution of the tsetse fly is of paramount importance to better control animal trypanosomosis. Entomological and parasitological surveys were conducted in the tsetse belt of south-western Ethiopia to describe the prevalence of trypanosomosis (PoT), the abundance of tsetse flies (AT) and to evaluate the association with potential risk factors. The study was conducted between 2009 and 2012. The parasitological survey data were analysed by a random effects logistic regression model, whereas the entomological survey data were analysed by a Poisson regression model. The percentage of animals with trypanosomosis was regressed on the tsetse fly count using a random effects logistic regression model. The following six risk factors were evaluated for PoT (i) altitude: significant and inverse correlation with trypanosomosis, (ii) annual variation of PoT: no significant difference between years, (iii) regional state: compared to Benishangul-Gumuz (18.0 %), the three remaining regional states showed significantly lower PoT, (iv) river system: the PoT differed significantly between the river systems, (v) sex: male animals (11.0 %) were more affected than females (9.0 %), and finally (vi) age at sampling: no difference between the considered classes. Observed trypanosome species were *T. congolense* (76.0 %), *T. vivax* (18.1 %), *T. b. brucei* (3.6 %), and mixed *T. congolense/vivax* (2.4 %). The first four risk factors listed above were also evaluated for AT, and all have a significant effect on AT. In the multivariable model only altitude was retained with AT decreasing with increasing altitude. Four different *Glossina* species were identified i.e. *G. tachinoides* (52.0 %), *G. pallidipes* (26.0 %), *G. morsitans submorsitans* (15.0 %) and *G. fuscipes fuscipes* (7.0 %). Significant differences in catches/trap/day between districts were observed for each species. No association could be found between the tsetse fly counts and trypanosomosis prevalence. Trypanosomosis remains a constraint to livestock production in south-western Ethiopia. Four *Glossina* and three *Trypanosoma* species were observed. Altitude had a significant impact on AT and PoT. PoT is not associated with AT, which could be explained by the importance of mechanical transmission.



This needs to be investigated further as it might jeopardize control strategies that target the tsetse fly population.

Biography:

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