

First insights into veterinary and zoonotic schistosomiasis in Malawi

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ABSTRACT *Schistosoma mattheei* infections are confirmed in cattle, with further characterisation of larval stages with COX1 and rITS DNA typing forthcoming. HUGS' OneHealth approach is kick-starting better surveillance of hybrid schistosomes in livestock.

Introduction

Hybridisation in UroGenital Schistosomiasis (HUGS) is a novel collaboration focused on human epidemiology *PLUS* formal surveillance of veterinary helminths & aquatic intermediate snail hosts. This will develop local capacity for OneHealth disease surveillance in Malawi, addressing the importance of hybrid schistosomes and how they respond to annual preventive chemotherapy control. (see Stothard et al., 2020, WHO 2022)

Aim

To reveal hybrid schistosome transmission in Malawi by livestock inspections, and surveillance at abattoir, as coupled with application of advanced molecular DNA typing of schistosomes.

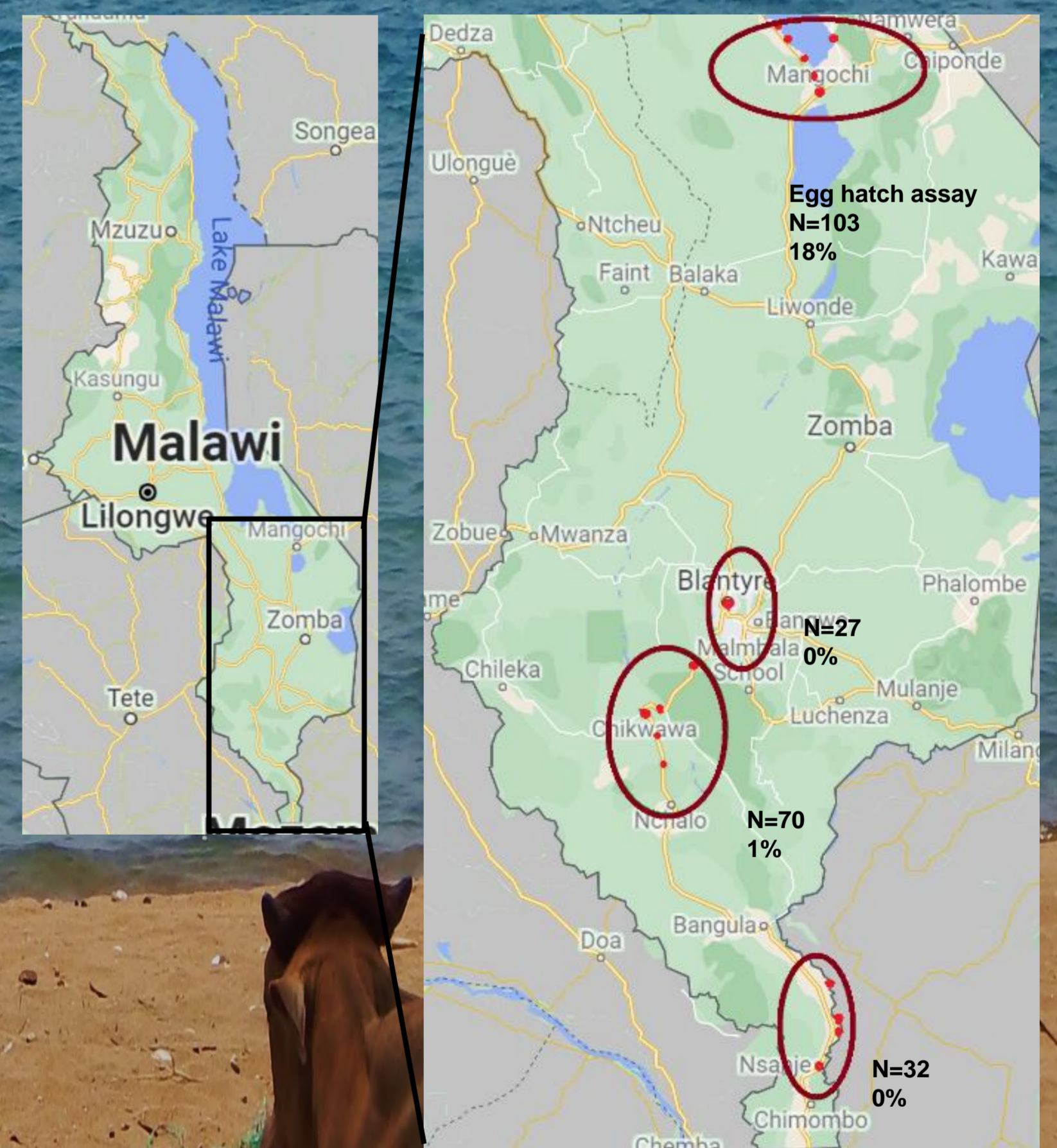
Study design, methods and results

A total of 51 cattle and 15 goat carcasses were examined within Mangochi, Blantyre, Chikwawa and Nsanje, inclusive of 135 cattle and 31 goat faecal samples using classic sedimentation, filtration methods and miracidia hatching. Collected schistosome worms (in ethanol) and larvae (on FTA cards) are typed with real-time PCR assays and DNA sequencing of COX1 and rITS genetic targets.



Fig. 1. In Blantyre, adult schistosomes of *Schistosoma mattheei* were found in cattle (inset picture of female worm with intrauterine eggs) and were confirmed upon PCR amplification of COX1 and rITS; miracidia inspected so far from Mangochi appear to be *S. mattheei*. This is a first report of this species in Malawi.

Fig. 2. Prevalence of schistosomiasis in livestock in Mangochi, in Blantyre, in Chikwawa and in Nsanje Districts (the red circles indicate sampling areas), in November 2021, by sampled carcasses and/or by faecal analysis of cattle and goat stool.



References

Stothard, J R et al. (2020) Future schistosome hybridizations: Will all *Schistosoma haematobium*-hybrids please stand-up! PLoS NTDs: 14, 7

WHO (2022) Guideline on control and elimination of human schistosomiasis <https://www.who.int/publications/i/item/9789240041608>

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