

Modelling the distribution of *Rhipicephalus microplus* and *R. decoloratus* in Zimbabwe

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Abstract

Species distribution modelling is a very useful tool in vector management. Ticks are vectors of various pathogens which cause serious problems in livestock production in tropical countries. They have a high dispersal potential which is mainly facilitated by the movement of animals from one area to another. In light of the observed geographic expansion of *Rhipicephalus microplus* in Zimbabwe, we used species distribution modelling techniques to identify areas which may provide suitable habitats for the occurrence of this invasive tick species as well as the autochthonous *Rhipicephalus decoloratus*. Our results suggest that, despite the geographic expansion of *R. microplus*, climate will continue to be a limiting factor for the further expansion of this tick species. We expect its distribution to be restricted to the most favourable areas in the eastern and northern parts. The greater part of Zimbabwe is suitable for *R. decoloratus*, although in areas where *R. microplus* occurs, displacement of the former by the latter will be expected to occur. A heterogeneous climate, unregulated movement of cattle and episodic droughts are suggested to be possible factors for the continued existence of *R. microplus* and *R. decoloratus* in Zimbabwe and the partial displacement.