
Potential Effect of Climate Change on the Distribution of Afrotropical *Syritta* species (Diptera: Syrphidae)

John Midgley^{*†1,2}, Kurt Jordaens³, and Bonolo Mosime^{2,4}

¹Department of Zoology Entomology, Rhodes University, Makhanda, 6139 – South Africa

²KwaZulu-Natal Museum, Pietermaritzburg, KwaZulu-Natal, 3021 – South Africa

³Royal Museum for Central Africa, Invertebrates Section, Leuvensesteenweg 13, 3080 Tervuren – Belgium

⁴University of KwaZulu-Natal, Pietermaritzburg, KwaZulu-Natal, 3021 – South Africa

Abstract

Climate change and land-use change threatens global biodiversity. Loss of pollinators in particular could have major ecological and economic implications. Species distribution models are one tool used to assess potential impacts of climate change on species. There is little documentation on the distribution, vulnerability and conservation status of Afrotropical *Syritta*. In this study, 2 *Syritta* species' known occurrence data were used as predictors for the analysis of habitat preferences, potential shifts in species distribution and shifts in bioclimatic range within South Africa. Ensemble modelling approach based on 3 model algorithms (maximum entropy, random forest and generalized linear models) were used with 3 assessment metrics (TTS, AUC, COR) to identify the important predictor variables. The analysis shows a wide and uneven distribution across the delineated geographic regions, with rainfall and temperature expected to influence the probability of geographic distribution of *Syritta* in South Africa. This study is important in developing long-term regional monitoring *Syritta* biodiversity hotspots and potential conservation strategies.

Keywords: Ecological niches, Ensemble modelling Hoverflies, Species distribution modeling

*Speaker

†Corresponding author: jmidgley@nmsa.org.za