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the influence of climate layer quality/accuracy

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MODELING THE DISTRIBUTION OF FOUR PARASITE INTERMEDIATE HOST SNAILS IN ZIMBABWE USING THREE DIFFERENT ENVIRONMENTAL DATA SOURCES/MODELS: THE INFLUENCE OF CLIMATE LAYER QUALITY/ACCURACY

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In the present study parasite intermediate host snail data from a national snail survey carried out in Zimbabwe in 1987 covering most of the country, was analyzed by the use of the maximum entropy method (Maxent) for modeling species geographic distribution with presence-only data.

We compared the geographical discrepancies between the predicted distributions and potential implications for medical malacology of using three different climate datasets (Satellite derived (AVHRR) and Worldclim/Bioclim) in a country with poor climatic documentation.

The explanatory variables consisted of seasonal measures of precipitation, temperature and vegetation indices representing environmental conditions believed to be important predictors for the snails geographical distributions, and were obtained from different sources: 1): seasonal maximum land surface temperatures and Normalized Difference Vegetation Index (NDVI) obtained from the National Oceanic and Atmospheric Administration (NOAA) Advanced Very High Resolution Radiometer (AVHRR) satellite series 96, 2) WorldClim - and 3)BioClim data.

The Maxent analysis revealed the relative importance of climatic and environmental data for the distribution of the individual four snail species in Zimbabwe

The differences between the models based on different climatic layers/sources highlight the neglected influence of climate layer quality on modeling results and the importance of using the most accurate climate data available when modeling species distributions.

This study will be followed by a study examining if the same methods can be used on parasite distribution expressed as prevalences in hosts.