

MAPPING THE RISK OF MALARIA IN KYEBE SUBCOUNTY, UGANDA.

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Abstract

Malaria is the leading cause of morbidity and mortality in Uganda. It is responsible for 30% morbidity in Rakai district.

Previous studies in Uganda have mapped the mosquito breeding habits through extensive field surveys. However, these conventional methods are expensive.

In this research, remote sensing (RS) and geographic information system (GIS) which have been successfully used elsewhere in malaria epidemiology were used. The major objective was to use these techniques to map the risk of malaria in Kyebe Sub County and identify the potential suitable sites for the construction of a new health Centre.

Sample sites were selected by random sampling of the different land use and cover (LUC) types from a base map prepared by interpretation of X 1 m digital camera images. Fourth instar mosquito larvae were collected using a 350 –ml sampling dipper, segregated, identified and counted.

85.6% of the fourth instar larvae captured were of the *Anopheles gambiae* complex. Degraded papyrus which had 68.2% of all the fourth instar *Anopheles* mosquito larvae captured was classified as the most highly preferred breeding habitat (mean number of larvae per dip = 0.23).

68% of Kyebe Sub County was within 3 kilometers of the degraded papyrus. This model was validated by spatially comparing the distribution of risk with the distribution of population density.

There was a significant correlation (Kendall's tau_b=-0.42, p =0.37).

83.4% of the areas of risk of malaria did not have public health centers within 5 kilometers. GIS techniques were used to determine the potential sites for the construction of a new health center, based on the fulfillment of desirable conditions of easy accessibility, within a population catchment area, areas at risk of malaria and areas not previously served by a public run health.

Restricting the harvesting of *Cyperus papyrus* was recommended. Further research to determine the critical mass of papyrus that proliferates *Anopheles* mosquitoes was suggested.