Diversity and Distribution of mosquitoes transmitting Malaria and Rift valley fever in Baringo County, Kenya

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Introduction

Vector-borne diseases are among the ailments that have been linked to climate change. Climatic factors influence the incidence of vector-borne diseases such as malaria and Rift Valley Fever by altering the abundance of mosquito vectors. Mosquitoes vary in their vector potential because of climatic factors that affect their abundance, blood feeding behaviour, survival and ability to support parasites. Vector surveillance may thus enhance the ability to detect changes in reservoir patterns of known pathogens. Such surveillance will aid in early warning and detection of vector-borne diseases, an output that will lead to quick implementation of targeted control programs in disease prone areas such as Baringo County, Kenya.

Objective

To determine the diversity and distribution of mosquitoes transmitting malaria and rift valley fever in Baringo County, Kenya

Methodology

The study is underway in sections of Baringo County, Kenya. The area represents arid and semi-arid regions. The study area is sub-divided into four agro-ecological zones namely: riverine, highlands lowlands and midlands (Fig. 1)

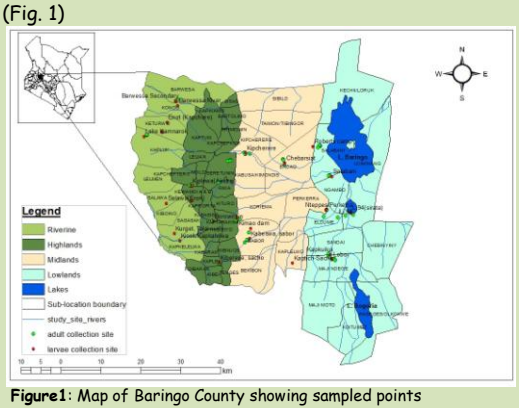

Figure1: Map of Baringo County showing sampled points

Mosquito collection

Standard dipper and pipette were used to sample larvae from habitats (Fig. 2). Outdoor mosquitoes were collected by CDC light trap while indoor mosquitoes were collected by pyrethrum spray catch method. Taxonomic keys were used to identify species morphologically under dissecting microscope (Fig. 2).

Figure 2: Collection **(a)** and identification of collected mosquitoes **(b)** during the study

Results and Discussion

Three mosquito genera were sampled in the four study zones (Fig. 3). Of the total collection, three known vectors of malaria, *Anopheles gambiae, An. funestus and An. pharoensis* (Aniedu, 1992), were sampled in different sites in the County. *Anopheles gambiae* which prefers to breed in open sunlit shallow pools of water (Gillies & De Meillon, 1968) was highest at mid altitude zone where such habitats were common. Three species of *Aedes* group which transmit arboviruses (Gillett, 1972) were represented by immature forms of *Ae. taylori, Ae. aegypti* and *Ae. africanus* from high and low altitude zones. Adults of *Mansonia uniformis*, a vector of RVF virus, were mainly collected from low altitude zone. Other species which have tested positive for RVF virus in Baringo County include *Culex quinquefasciatus, Cx. univittatus* and *Mn. africana* (Sang *et al.*, 2010). Whereas the last two were not collected during this study, *Cx. quinquefasciatus* which was collected in large numbers is ubiquitous in all study sites.

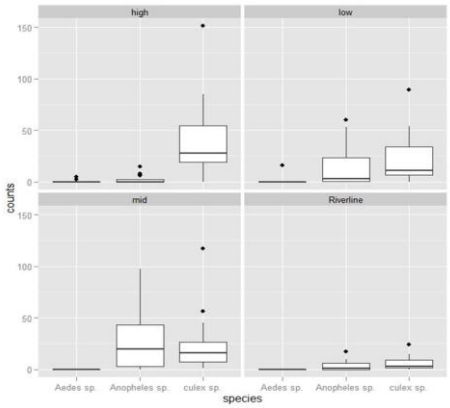

Figure 3: Distribution of different mosquito genera in surveyed zones

Conclusion and recommendation

The presence *of Anopheles* species in all study zones indicates that entire county is at risk of malaria more so at low and mid altitude. *Aedes* species and *Mansonia uniformis* from lowlands around L. Baringo are vectors ready to transmit viruses in case of RVF outbreak. These vectors should be screened for pathogens to determine their infection status.

References

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