



## Anopheles stephensi in Northeast Ethiopia: The making of cities and vector habitats

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The theory that urbanization in sub-Saharan Africa would aid malaria elimination has been increasingly challenged. The emergence of the invasive vector *Anopheles stephensi* in the Horn of Africa signals a shift in vector ecology within urbanizing areas. Understanding the conditions enabling its establishment is critical for effective control. This study examines how transformations in land use, water and infrastructure systems, settlement patterns, and livelihoods have contributed to *An. stephensi* habitats in Dubti, an agro-industrial town in northeast Ethiopia. Using an ethnographic and spatially grounded approach, we trace urbanization processes over the past 65 years. Urbanization is conceptualized as a multidimensional, socially determined process shaping health. Entomological data on adult and larval *An. stephensi* were integrated in the final phase of analysis. Results show that hydrological re-engineering, settlement densification, and livelihood transitions have reshaped water use and vegetation, creating new pathways for contact between vectors, humans, and animals. Legacy irrigation networks from cotton and sugarcane plantations, alongside current farming practices, also create conditions for year-round vector habitats. We conclude that the establishment of *An. stephensi* in Dubti is inseparable from past and ongoing urban transformations. Malaria prevention must therefore move beyond household-level interventions to address infrastructural, ecological, and livelihood processes shaping vector ecology.

