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Management of invasive american weed *Parthenium hysterophorus* could prevent the spread of mosquito-borne diseases

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Abstract

Invasive alien plant species have threatened the integrity of ecosystems throughout the world. They affect not only the species diversity of native ecosystems, but also threaten their biological integrity due to the increase in the movement of people and goods around the world. The number of species being introduced into new areas is rising. The spread of invasive plant species is currently a major problem in Kenya, where indigenous flora is replaced by dwellings. These species reduce agricultural yields, irrigated croplands, grazing areas, water availabilities, and contribute to the spread of vector-borne diseases. Invasive plant-like *Parthenium* can affect the spread of insect-borne diseases by limiting or amplifying the spatiotemporal distribution of vectors, pathogens, and hosts, which can, in turn, lead to the creation of infection. The aim of this study is to compare the diversity (richness and abundance) of mosquitoes in different sites in Baringo region in Kenya with special reference to *Parthenium* plant. *Parthenium* is considered one of the world's most serious invasive plants that is able to thrive and spread aggressively outside their original geographical areas. Mosquitoes Samples were collected using a combination of different trapping techniques from six sites: Longwan, Lororo, Ilgarua, Perkrra, Sandi, and Salabani. Three sites with *Parthenium* and three without *Parthenium* traps were set on different farms, and captures were made between (06:00–18:00). A total of 50.000 mosquitoes were captured and 48 species were identified. The survey was conducted to assess mosquito abundance and diversity in selected areas. This knowledge could be helpful for targeted control.

By the end of this project, I expect to have an inventory of the mosquito population composition and of the abundance and richness of arboviruses. I will further gain insight into how changes in community ecology interact with the main types of land-use change and influence the dynamics of relevant arboviruses in Kenya.

Keywords: Agricultural intensification, arboviral disease vectors, invasive plants, land-use changes, mosquito ecology, *Parthenium hysterophorus*

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