



ID der Kurzfassung : 391

Human presence shapes mosquito community composition and virus abundance in a Savannah ecosystem

Inhalt

Anthropogenic land-use change reshapes mosquito communities with implications for arbovirus ecology. However, joint assessments of mosquito and virus communities across land-use types remain rare, particularly in African savannah ecosystems. We characterized both communities along an anthropogenic disturbance gradient in the Kavango Zambezi Transfrontier Conservation Area in Namibia.

In 2023, 7,727 mosquitoes (54 species) were collected across six land-use categories (national park, communal conservation area, rangeland, agriculture, village, town), using BG-Sentinel, CDC light and gravid traps. Urban sites showed the highest abundance and lowest diversity of mosquitoes, accompanied by a pronounced shift towards anthropophilic vector species, particularly *Culex quinquefasciatus*. Human presence was identified as a key driver for variations in mosquito community composition. *Mansonia uniformis*, common in intermediately disturbed habitats, harbored twice the virus richness and much higher infection rates than the more abundant *Cx. quinquefasciatus*, highlighting mosquito species identity as a major determinant of virus abundance. Virus communities, comprising mostly insect-specific viruses, were closely linked to mosquito community patterns.

Our results demonstrate that land-use change influences virus abundance primarily through restructuring mosquito communities, with anthropophilic vector species dominating in human settlements suggesting elevated arbovirus transmission risk.

Keywords

land-use change, mosquito community composition, arbovirus, insect-specific virus, anthropogenic disturbance, KAZA, savannah ecosystem

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PhD Student

Junior Scientist Status

Yes, I am a Junior Scientist.

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Track Klassifizierung: Vectors

Typ des Beitrags: Oral presentation

Kommentare:

Please note that the taxonomic names *Culex quinquefasciatus* and *Mansonia uniformis* should be italicised. This could not be done in the submission due to the character limit. Feel free to change the track to "Climate change, Ecosystems, Environmental pollution" or "Conservation, Biodiversity & Wildlife Health" if you think either would be a better fit.

Eingereicht von **MUNZEL, Hannah** <hannah.munzel@charite.de> am **Freitag, 19. Juni 2026**