ID der Kurzfassung : **233**

Understanding the urban microclimate-ecosystem nexus to enable holistic climate adaptation in a changing climate (UMEX-HOPE): Implications of landscape structure diversity and climate change in urban-rural microclimates on vector-borne diseases

Inhalt

Urban areas are becoming increasingly vulnerable to the effects of climate change, particularly through altered microclimatic conditions. As part of the Climate Future Labs initiative at the Lower Saxony Centre for Climate Research (ZKfN), the UMEX-HOPE project investigates the links between urban microclimates, ecosystem dynamics, and human health within a One Health framework. It aims to identify how climate adaptation strategies and landscape changes impact health risks such as heat exposure, air pollution, and vector-borne diseases along urban–rural gradients.

As part of the project, we investigate how landscape structure and climate change influence the ecology and transmission risk of mosquito-borne diseases. In the Hanover region and the rural Wedemark area, spatial analyses of fragmentation, habitat connectivity, land use, and land cover are used to identify breeding habitats of Culex and Aedes mosquitoes. Field collections and genetic analyses assess species composition and population structure. Laboratory experiments simulate varying climatic and ecological conditions to study mosquito development and vector competence for West Nile and Chikungunya viruses. Indoor sampling informs household-level risk assessment.

By integrating ecological, spatial, and epidemiological data, we identify high-risk areas and support adaptive public health strategies.

Keywords

One Health, vector-borne diseases, urban microclimate, landscape structure, mosquito ecology, climate change, West Nile virus, Chikungunya virus, habitat fragmentation, risk modeling

Registration ID

75

Professional Status of the Speaker

Postdoc

Junior Scientist Status

Yes, I am a Junior Scientist.

Track Klassifizierung: Vectors

Typ des Beitrags: Poster presentation