

Roaming paws: Movement and home ranges of dogs in varied human densities in Machakos, Kenya

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Introduction

Free-roaming dogs (FRDs) pose health and ecological threats by spreading diseases such as rabies and cystic echinococcosis

FRDs threaten livestock, disturb wildlife, and create safety concerns among communities, emphasising the need for targeted management strategies

There is limited understanding of FRD movement patterns, particularly how human population density influences their behaviours

Objective

To examine the movement patterns of FRDs in areas with high and low human population densities to inform strategies for targeted interventions

Method

Two locations in Machakos, Kenya, were selected based on their contrasting human population densities

A total of 100 FRDs (50 in each location) were fitted with GPS trackers and monitored over a 5-day period to collect movement data



A dog with a GPS gadget tied on its neck Photo: Maurice/ILRI

Home ranges (HRs) were calculated using the Minimum Convex Polygon (MCP) method to identify core areas most frequently used by dogs

Non-parametric multivariable regression models analysed how factors like human density, dog age, and sex influence movement patterns and home range sizes

Contact

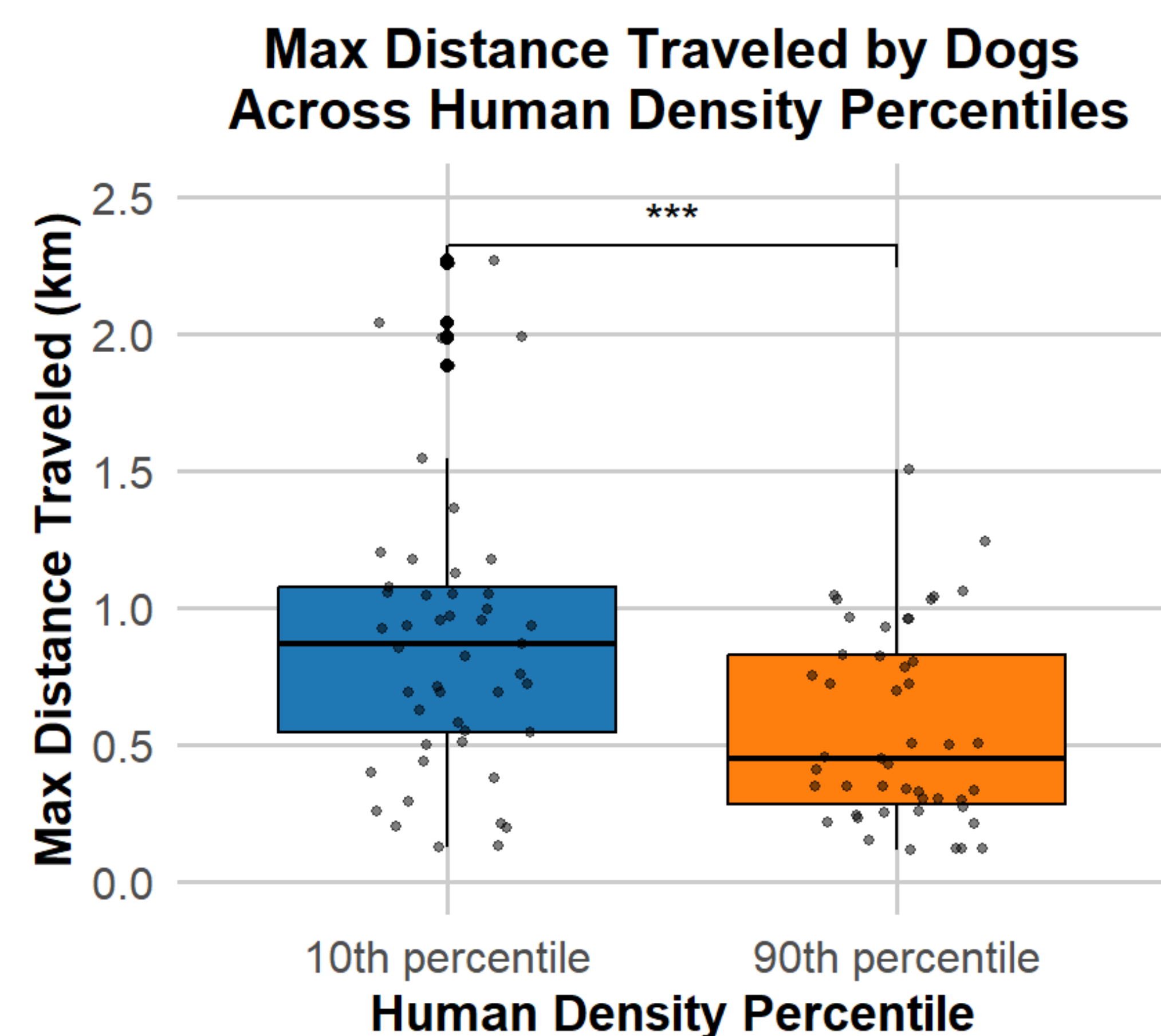
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Key results

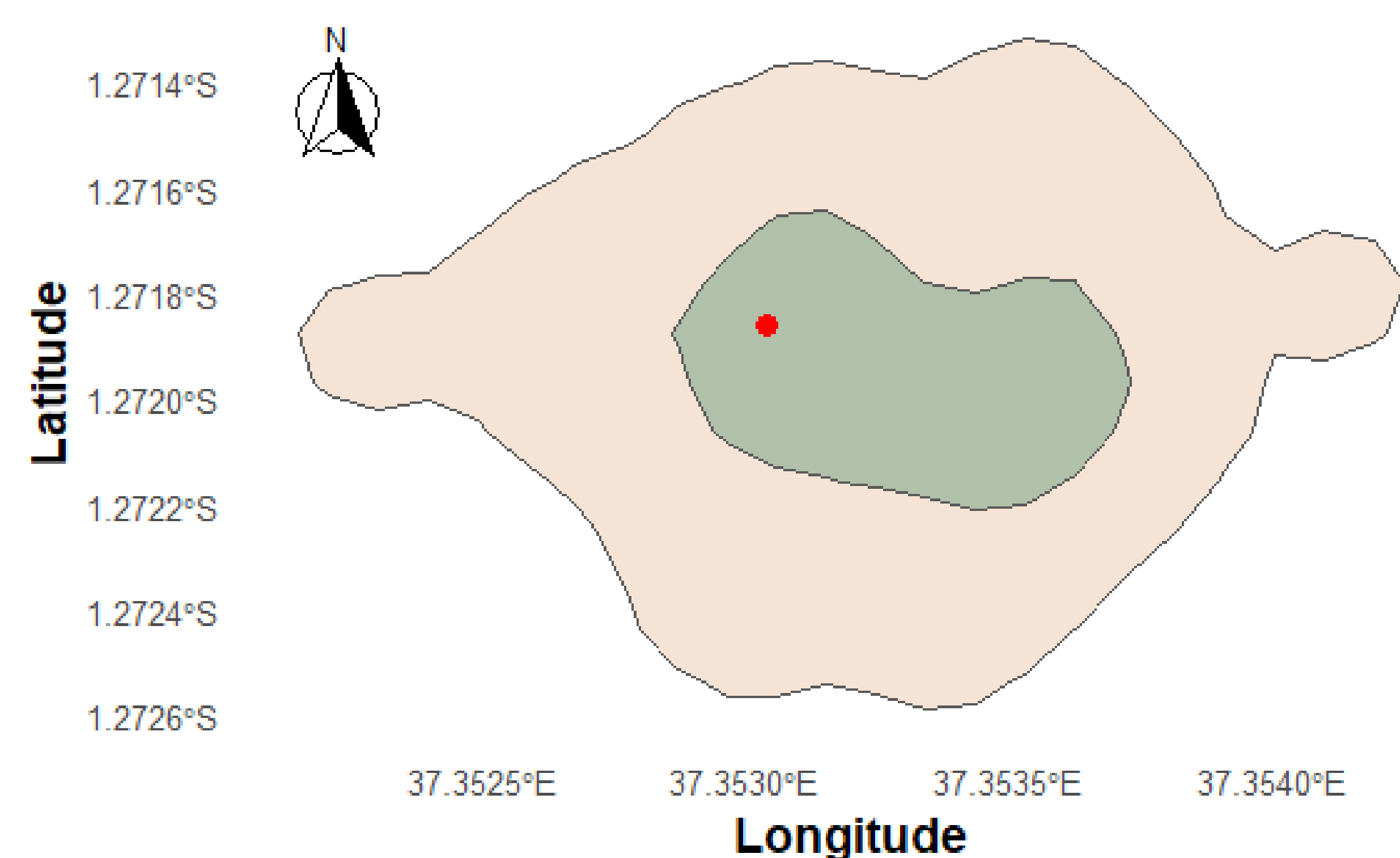
The median furthest distance travelled by FRDs was 0.7 km, with a range from 0.1 km to 2.7 km



Dogs in sparsely populated areas travelled farther from their households compared to those in densely populated areas

The median 50% home range (HR) was 0.03 km², ranging from 0.005 km² to 1.4 km²

Core and Extended Home Range



Older, non-castrated male dogs had significantly larger home ranges in sparsely populated areas

Conclusion

Understanding the roaming behaviours FRDs is key to developing effective management and disease control strategies

Findings from this study can inform targeted interventions in urban and rural areas, improving public health and environmental management.