

WHAT DRIVES TIGER DISPERSAL

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Tigers in India traverse long distances to find mates and new territories. But this movement depends on the roughness of the terrain and human disturbance in the area. | Photo Credit: [Kalyan Varma](#)

Tigers in India traverse long distances to find mates and new territories. But the movement depends on roughness of the terrain and human disturbance in the area. The terrain affects tiger dispersal differently in the Western Ghats and central India, two strongholds of wild tiger populations in the country, finds a new study.

The central Indian landscape is highly fragmented with high densities of people, while the Western Ghats has lesser human disturbance and is home to the world's largest contiguous tiger population. A study in 2017 by a team including Anuradha Reddy (of Hyderabad's CSIR-Centre for Cellular and Molecular Biology) revealed that roughness of terrain and human footprint drove tiger gene flow in central India: tigers moved across ridges and rough topography to avoid the presence of people. Do similar landscape features drive tiger gene flow in the Ghats?

Another team including Dr. Reddy studied this across 30,000 sq km in the Western Ghats in Kerala, Karnataka and Tamil Nadu. They collected tiger faeces in forests including Bhadra Tiger Reserve and Nilgiri Biosphere Reserve, and used forensic samples that came to CSIR-CCMB between 2011 and 2015 to obtain genetic data of 115 individual tigers. They complemented this with overlays of land cover and land use categories, using maps showing terrain, road networks, developed areas (reflecting human disturbance) and historical maps (from the 1960s, to see how vegetation cover changed over the decades).

Though the team did not find strong correlations between current genetic structure and historical landscape in the Ghats, comparing the data with the team's earlier study in central India (after standardising the methods for comparisons) revealed an interesting pattern — the relationship between terrain and gene flow is “inverted” in both regions. While gene flow correlated with rough terrain in central India, it was linked with smooth forest terrain containing minimal human disturbance in the Ghats, finds the team's study published in *Animal Conservation*.

This pattern is mainly due to differing levels of human disturbance, Dr. Reddy said in an email. While Central India has more fragmented forests and higher human disturbance, the Ghats have relatively larger, connected forest patches and lesser human disturbance, facilitating tiger movement across lower and smoother areas, she added.

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