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Moving through ecology: orangutan positional behavior in a mosaic habitat.

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Documenting the ways in which organisms physically move through space and the influences of habitat structure on their movement and posture are fundamental to understanding their spatial ecology. Movement ecology is thus a significant influence on animal cognition, morphology, diet, group structure, etc. Evidence to date demonstrates that orangutans of different species (*Pongo abelii*, *P. wurmbii*) living in similar habitats exhibit positional behavior more similar to each other than to conspecifics in disparate habitats. Therefore, it is a reasonable hypothesis that orangutan positional behavior is a function of habitat rather than morphological constraints. Here, we test this hypothesis by examining the positional behavior of orangutans living in Gunung Palung National Park in West Kalimantan, Indonesia, a primary forest mosaic composed of seven distinct habitats. We use 33,358 instantaneous scan samples collected every 5 minutes during full day follows of habituated adult orangutans (N=27) to examine postural behavior, locomotor modes, and structure use with a null hypothesis of no differences in positional behavior or support use profiles between habitats. We found significant differences in the profiles of orangutan postural behavior ($G=216.2$, $p<0.001$), locomotor behavior ($G=45.34$, $p<0.001$), and support use ($G=137.8$, $p<0.001$) in 5 distinct habitats within Gunung Palung National Park. Orangutans within the same population move through and use distinct habitats in different ways. This underscores the role of local ecology in structuring organisms' space use as well as the importance of behavioral plasticity to primates' movement ecology.

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