

DIFFERENCE IN TERRESTRIALITY BETWEEN CHIMPANZEES AND BONOBOS INFLUENCED BY AIR TEMPERATURE INSIDE FOREST

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Terrestriality in Pan differs among research sites and seasons there within. In chimpanzees, there are two possible explanations why terrestriality changes seasonally; vertical distribution of food supply and microclimate inside forest. I compared utilization heights in the wettest and driest months of Bossou chimpanzees and Wamba bonobos, using fruit production and forest temperature as environmental factors. The data of focal animal sampling and fruiting in line transects were collected from 2005 to 2008. Forest canopy temperatures in the daytime were 5°C ~7°C higher than ground level temperatures in each of the research periods. In Bossou, dry months showed greater fruit availability and hotter microclimate than wet months. Wamba forest, however, showed little seasonal fluctuation in food supply and microclimate. There were no significant differences in utilization heights and terrestriality for Wamba bonobos between the two seasons sampled. In contrast, terrestriality of Bossou chimpanzees drastically increased in dry months compared to wet months. Ordinal logistic regression analysis estimated that ambient temperature fluctuation inside the forest was the major factor of space utilization in Pan. The daily correlation between forest temperature and indices of space utilization showed clear trends. As maximum daytime temperature increased, utilization height of Pan decreased and terrestriality increased, gradually. The results indicated a limited influence of tree fruit availability on terrestriality. Increasing terrestriality in hotter days might reduce energetic loss affected by the vertical structure of microclimate. Such differences in terrestriality between these two species were mainly caused by ambient temperature fluctuation.

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