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Play with Your Food Before You Eat: Exploring the Effect of Dominance on Play Initiation and Foraging Priority in Red (*Varecia variegata rubra*) and Black-and-White (*Varecia variegata variegata*) Ruffed Lemurs (Primates, Lemuridae)

Abstract:

Abstract— Female dominance behaviors define the social structures of many lemur species, including ruffed lemurs (Varecia spp.), influencing all aspects of their sociality and behavior. This study examines the interplay of dominance, play, and foraging behavior in a small population of captive black-and-white and red ruffed lemurs. The analysis focuses on how age and sex influence play initiation frequency and foraging priority behavior. Existing literature suggests that older females displayed higher aggression and often moderated group interactions, reinforcing matriarchal hierarchies. Play behaviors reflect dominance influences, with older females managing or vetoing play more often while younger males initiate play more frequently. Foraging priority refers to the order in which individuals access food, often reflecting dominance hierarchies, while foraging locomotion describes the movement and effort involved in finding and acquiring food. Dominance affects foraging priority by granting higher-ranking individuals first access to high-quality feed; in foraging locomotion, dominant individuals may expend less energy, as they can claim resources more directly, while subordinates often travel farther or search longer to find food, increasing their energy costs. In contrast, this study finds no significant differences in play initiation acceptance frequency between the females and males, while foraging priority varies between the groups and individuals. Several factors, including kinship, may contribute to these findings. The kinship of the red-ruffed lemur sisters may have mitigated aggression, fostering more egalitarian interactions. The increased variability in play behaviors between the red ruffed lemur pair further supports the importance of kinship ties in shaping social dynamics. Meanwhile, the black and white ruffed lemurs exhibited a less egalitarian social structure. These findings suggest that lemur dominance behaviors are shaped by a complex combination of innate social structures and environmental influences.