

IMPACT OF SOCIAL AND ECOLOGICAL FACTORS ON DECISION MAKING DURING COLLECTIVE MOVEMENTS OF WILD JAPANESE MACAQUES

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Many animal species live as a group, gaining benefits at several levels from staying cohesive. However, living as a group means travelling as a group, so individuals have to overcome their conflicts of interest in order to stay cohesive. The mechanisms underlying decision-making before and during collective movements are still unknown in many primate species. To better understand these mechanisms we investigated the influence of social and ecological factors on decision making of Japanese macaques (*Macaca fuscata yakui*). We studied a wild group of 60 individuals living on Yakushima Island (Southern Japan) from September 2008 to September 2009 using behavioral and phenological sampling as well as GPS tracking. Among the 594 recorded collective movements, we found that 23 out of the 30 adults were able to initiate, but that higher ranking females did so more often than other individuals. The hierarchical rank and the sex of the initiator did not have any significant effect on the number of followers and we also found that the social network of the group was highly correlated to the order of individuals structuring the collective movements. Considering the ecological parameters, we observed changes in the pattern of collective movements correlated to spatial and temporal changes in food distribution. Our results suggest that the mechanisms underlying decision-making processes rely on social determinants even under environmental pressures and at a time when these pressures can be a limiting factor.

Keywords: collective movements, decision making, Japanese macaques, Yakushima