



Project description

Male-male competition in Simakobu monkeys (*Simias concolor*): Strategies and signals

In species that form one-male social groups, males engage in contest competition to exclude rivals by physical combat or display, which encompasses a range of behaviors from avoidance of other males to direct contests during intergroup encounters to long-distance vocal signaling. These competitive interactions may be influenced by the males' reproductive strategies, by differences in resource holding potential (RHP), and by the value of the disputed resource. Because agonistic behavior can be costly, animals would benefit by assessing opponents and avoiding escalating a contest they were likely to lose. Many nonhuman primate species produce loud, conspicuous vocalizations that carry over long distances, and because energetic and physiological constraints may influence the quality of the signal, variation in these calls may enable males to assess competitors prior to engaging in costly fights. The current study investigates male-male competition in pig-tailed langurs or simakobu monkeys (*Simias concolor*) with five main objectives. First, by observing intergroup encounters and loud calls, this research aims to determine what resource(s) males attempt to defend from other males: mates, food, and/or infants. Secondly, to understand the influences of RHP and resource value on male interactions, detailed observations of contests between individuals with different fighting abilities and over different resources are made. Thirdly, this project explores the long-term outcomes for superior competitors by measuring differences in home ranges and group compositions. Fourthly, to assess the honesty of vocal signals, acoustic analyses are used to explore intra- and inter-individual influences on variation in male loud calls. Finally, by measuring male responses to loud calls in both natural and experimental conditions, research investigates the ability of conspecifics to perceive these differences.