

THE IMPLICATIONS OF COLOR VISION ON PREY CAPTURE STRATEGIES FOR WILD SQUIRREL MONKEYS (*SAIMIRI SCIUREUS*)

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The genetic mechanism that underlies the color vision system of most New World primates allows some females to possess trichromatic vision, while other females (and all males) cannot visually differentiate red from green. Still, the evolutionary pressures acting to maintain this ancient polymorphism in natural populations are not well understood. In this study, we observed two separate social groups of omnivorous squirrel monkeys (*Saimiri sciureus*) at the Tiputini Biodiversity Station in lowland Ecuador. Visual phenotype was resolved using real-time PCR with fecal samples collected from known individuals. Within one social group (N=6 trichromatic; N=6 dichromatic), trichromatic individuals exhibited a lower nearest neighbor distance while foraging and were able to capture and consume stick insects at a higher rate. Dichromatic females, on the other hand, foraged lower to the ground and successfully captured katydids at a higher rate relative to trichromatic females. In the second social group (N=5 trichromatic; N=2 dichromatic), trichromatic females spent a higher proportion of their foraging time manipulating detritus and other vegetation in search of prey items. Our analyses also reveal behavioral differences between individuals with different versions of trichromatic vision and suggest that the presence of an infrequent opsin allele in trichromatic females results in higher rates of insect consumption. Our observations contribute to a growing set of comparative analyses exploring the adaptive significance underlying the maintenance of polymorphic color vision in primates.

Keywords: color vision, insect foraging, polymorphism