

THE VISUAL ECOLOGY OF NEOTROPICAL PRIMATES: FOOD SELECTION, PREDATION AVOIDANCE AND REPRODUCTION

D.M.A. Pessoa¹, V.F. Pessoa²

¹*Primate Center, Federal University of Rio Grande do Norte, Natal, Rio Grande do Norte, Brazil,* ²*Primate Center, University of Brasilia, Brasilia, Federal District, Brazil*

Presenter's Email: pessoadma@gmail.com

Under different genetic status, Old World monkeys have routine trichromacy while New World monkeys show a polymorphic trichromacy. This visual polymorphism of neotropical primates allows the existence of trichromatic and dichromatic females and only dichromatic males, in a total of six different visual phenotypes. It has been suggested that each phenotype might enjoy different abilities related to the detection of natural targets. Although the role of this polymorphism still remains to be understood, the influence of a variety of ecological variables (e.g.: food selection, predation avoidance, social behavior, mate choice and group dynamics) on the evolution of color vision has been proposed. In recent years, quantitative modeling has proven to be a versatile tool for the study of the utility of color vision. One great advantage of this methodology is that each ecological factor can be evaluated separately. In order to estimate the importance of natural pressures believed to influence color vision evolution in New World primates, a broad study of color modeling is being held. Until now differential advantages for each phenotype have been considered for food selection, predation avoidance and reproduction. Although our data suggest that dichromats and trichromats are equally suited to perceive these color signals, since their values of JND (a perceptual measure) exceed a previously established threshold of 1, in many circumstances trichromats show suprathreshold advantages (higher JND values) in target detection when compared to dichromats. Phenotypes that carry widely spaced and longer M/L pigments enjoy the most advantage. Grants: CNPq (Processes 478222/2006-8 and 472187/2008-2)

Keywords: Color vision, New World primates, Color modeling, Natural targets