

BEHAVIORAL TESTS OF COLOR VISION HYPOTHESES: WHERE WE HAVE BEEN AND WHERE WE SHOULD GO NEXT.

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Behavioral tests of hypotheses regarding the adaptive significance of color vision in nonhuman primates now span more than a decade. These hypotheses, mostly having to do with the advantages of trichromacy for locating colorful fruit and nutritious leaves, have been supported by modeling studies across a variety of environments and species. When tested in captivity, where important variables can be controlled and analyses can be fine-grained, data have largely conformed with the predictions derived from the foraging hypotheses about trichromat advantage. However, data from free-ranging New World monkeys have failed to generate strong support for the conclusions that captive studies have put forth. That is, wild trichromats have not demonstrated the predicted superiority over dichromats in terms of finding colorful fruits. Indeed, attention has shifted to advantages associated with dichromatic vision. In this presentation I will summarize the behavioral evidence from both captivity and the wild in an attempt to locate trends, weaknesses, and promising new directions in the search for explanations about the relative advantages and disadvantages of trichromacy and dichromacy in nonhuman primates. The ability of individual primates to adapt to the limitations imposed by their color vision status has probably been underestimated and deserves increased attention.

Keywords: color vision, trichromat, dichromat, New World monkeys