

Watson, Whitney, "Sexual Dimorphism in Ear and Nose-Leaf Coloration of Tent-Roosting Bats in the Sarapiquí River Basin of Costa Rica." Advisor: Bernal Rodriguez. Macalester College. 2011.

Ear and nose-leaf coloration of Neotropical tent-roosting bats was studied using photography and pixel color intensity analysis at La Tirimbina Biological Reserve in Heredia Province, Costa Rica during March and April 2011. Bats of the species *Uroderma bilobatum* and *Ectophylla alba* were captured and photographed. Photos were viewed in Photoshop® and red, green, and blue color intensities were recorded for several pixels at multiple locations on bats' faces. Color intensities were analyzed against sex, reproductive state, and length of time bats were in captivity before photos were taken. Differences in color intensity were found between males and females ($P < 0.05$) and between reproducing and non-reproducing males ($P < 0.05$) of both species. Relationships were found additionally between color intensity and bats' time in captivity for both species ($P < 0.05$). Ear locations exhibited more frequent significant difference than nose-leaf locations in color intensity between males and females and between reproducing and non-reproducing males. Results suggesting ear and nose-leaf coloration as a factor in sexual selection included significantly greater intensity of all colors in males than in females at the tragus tips of *E. alba*, and stronger relationships between color intensity and time in captivity for males than for females in *U. bilobatum*.