

**FACULTY COLLOQUIUM**  
**Wednesday**  
**September 2, 2015**  
**UC 222**  
**12-12:50pm**

**Acoustic Communication in  
Birds: Habitat Fragmentation  
Leads to Signal Variation:  
The Mangrove Warbler in  
Baja California Sur, Mexico**

**By Dr. Robert Whitmore,  
Biological Sciences**

During the springs of 1997-98, 2000 vocalizations of the Mangrove Warbler were collected in all of the known mangrove stands within the general area of Concepcion Bay in south central Baja California. Songs from 13 males, believed to be the entire adult territorial male population, were analyzed spectrographically and compared with all (n=17) Yellow Warbler (*Dendroica petechia* ssp) vocalizations from the western United States archived at the Library of Natural Sounds at Cornell University and the Borror Laboratory of Bioacoustics at Ohio State University. In sum, “mangrove” type songs are significantly ( $p < 0.0001$ ) lower in all measures of frequency, shorter in total length, have shorter individual song elements and wider gaps between song elements; all adaptations for sound transmission in dense habitat. Moreover, all individual “mangrove” type songs were either entirely or had significant portions of their song elements at or below 4 kHz, a level shown to reduce attenuation and

increase amplification approximately 1-2 m above ground level in dense habitats. Un-weighted pair group arithmetic average cluster analysis, ( $r^2 = 0.84$  of an “Ochiai” similarity matrix compiled from a song element catalog [69 different note forms]), placed nearly all “mangrove” type birds in the same clusters, while those of other locations were widely dispersed between clusters, indicating the “mangrove” type birds had the same or similar tutors or that the habitat fine tuned their songs towards a common structure. However, song structure within individual mangrove stands was more similar than between mangrove stands suggesting that tutors may be more important than habitat.



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students too!**