299

HYBRIDIZATION AND GENE INTROGRESSION IN MEXICAN HOWLER MONKEYS

L. Cortés-Ortiz

University of Michigan, Ann Arbor, MI, USA

Presenter's Email: lcortes@umich.edu

Alouatta palliata and *A. pigra* hybridize in southern Mexico. To understand patterns of hybridization and extent of gene introgression between these species, I used a multi-locus approach including maternally (mtDNA), paternally (SRY gene), and bi-parentally (microsatellites) inherited loci. I sequenced and genotyped over 200 individuals across the distribution of the two species in Mexico, and found that approximately half of the individuals within the hybrid zone were hybrids. Analyses of genetic data reveal that hybridization is biased, such that crosses involving *A. palliata* males and *A. pigra* females only produce fertile females, and crosses in the opposite direction either do not occur very frequently or do not produce fertile or viable offspring. Nonetheless, genetic variation at the uni- and bi-parentally inherited loci shows evidence of extensive backcrossing. Remarkably, all multi-generational hybrid males have mtDNA and SRY genes of the same type (i.e., both genes are either of *A. palliata* or *A. pigra*, but never of both types together) and most of their nuclear genome is also composed of alleles from the same species. These observations suggest that genomic incompatibilities may occur between *A. palliata* and *A. pigra*. Microsatellite analyses revealed the presence of heterospecific alleles in populations outside the hybrid zone, suggesting evidence for gene introgression, ancestral hybridization, or a shift in the location of the hybrid zone. Collecting, exportation, and importation permits were granted by SEMARNAT (Mexico) and USFWS (USA). This project was funded by the NSF (DEB-0640519), the Universidad Veracruzana, and the University of Michigan.

Keywords: Genetics, Evolution, *Alouatta*, Neotropics