Public Abstract
First Name:Darice
Middle Name:Rae
Last Name:Westphal
Adviser's First Name:Gregory
Adviser's Last Name:Blomquist
Co-Adviser's First Name:
Co-Adviser's Last Name:
Graduation Term:SP 2011
Department:Anthropology
Degree:MA
Title:Population History at the Microscale: Craniometrics of the Cayo Santiago Macaques

Being able to understand the effects of relatedness on adult cranial morphology has implications for inferring population histories, and for informing us about the influence of social behaviors on these patterns of population relatedness. Several methods have been developed to infer relatedness among human or other primate populations using metric data. R-matrix methods have typically been used to approach questions of population history on global or regional scales with a time depth of tens to thousands of generations.

This thesis uses detailed genealogical and demographic information for free-ranging rhesus macaques born over four decades on Cayo Santiago along with individually matched cranial measurements and interprets the resulting patterns in a socioecological framework. Socioecology seeks to understand the pressures that drive variation in social groups by examining both ecological factors, such as resource distribution, and social factors, such as which sex disperses. I used R-matrix methods to examine cranial shape variation among social lineages on Cayo Santiago and changes over time.

Results from the lineage analysis support the male migration effect of fission and the lineal effect of fission, which increased the genetic variation between two lineages. Lineage-specific mating and random male gene flow both decreased the genetic variation among the lineages. When the lineages were combined and divided into four time periods, a strong temporal trend was observed. This temporal trend is most likely due to environmental differentiation over time and some degree of genetic drift. This thesis demonstrates how behavioral mechanisms affect genetic relationships among populations and that linear distances derived from cranial measurements can provide information about population structure and population history even at this small spatial and temporal scale.