
THE DECLINE AND ISOLATION OF FISHER POPULATIONS PRIOR TO EUROPEAN SETTLEMENT: INSIGHTS FROM DNA ANALYSIS

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Historical and contemporary genetic information can provide insights into the nature of population expansions or contractions and temporal changes in abundance and connectivity. Fisher (*Martes pennanti*) populations in California are thought to have declined precipitously over the last 150 yrs and currently only two populations remain in the state that are both geographically and genetically isolated from each other. In this study we looked at whether the isolation of these two populations is a result habitat alteration and trapping that accompanied European settlement in the mid-1800s or if it is the result of a more ancient demographic event. We collected both historical and contemporary genetic samples from each of the two extant fisher populations. We successfully obtained microsatellite genotypes at 10 loci for 21 museum specimens (dated 1882-1920) and 275 contemporary individuals (2006-2009). We found significant temporal shifts in allele frequencies between historical and contemporary samples between regions indicating large amounts of genetic drift likely due to isolation and small population size. We found a strong genetic signal for a 90 percent contraction in effective population size of fisher and estimated that this decline occurred over a thousand years ago. As a decline in abundance of this magnitude likely resulted in contraction of the geographic range, our analyses suggest that fisher populations in California became isolated from one another far prior to the European settlement of the state.