

THE EFFECT OF LANDSCAPE FEATURES ON POPULATION GENETIC STRUCTURE OF YUNNAN SNUB-NOSED MONKEY

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Here we report a landscape genetic analysis of the Yunnan snub-nosed monkey (*Rhinopithecus bieti*), a Tibetan Plateau endemic primate. DNA was extracted from blood, tissue and fecal samples of 135 wild individuals from 11 out of 15 extant monkey groups. Ten microsatellite loci were used to characterize patterns of genetic diversity. The most striking feature of the population structure was the presence of five subpopulations with distinct genetic backgrounds and unique spatial regions. The population structure of *R. bieti* appeared to be shaped by anthropogenic landscape features and gene flow between subpopulations was strongly impeded by arable land, highway and the human residential sites. The partial Mantel test proved that 36.23% ($r=0.51$, $P=0.01$) of the genetic distance was determined by habitat gap after controlling the effect of geographical distance. Only 4.92% of the genetic distance were determined by geographical distance in partial Mantel test, but no significant correlation was found ($r=0.11$, $P=0.23$). Estimation of population structure history indicated that the environmental change at the Last Glacial Maximum and human-induced effect since Holocene, or a combination of both, has shaped the observed structure of *R. bieti* populations. This suggests that the increasing human influence is becoming an important factor in shaping the genetic structure and evolutionary potential of wildlife on the Tibetan Plateau.

Keywords: *Rhinopithecus bieti*, landscape genetics, anthropogenic genetic discontinuity, conservation