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GENETIC DIFFERENTIATION IN SIMULATED MONKEY POPULATIONS WITH SPATIAL SUBTRUCTURE AND VARYING GROUP FUSION AND FISSION SIZE THRESHOLDS.

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This study examines genetic differentiation levels in simulated, monkey populations containing social groups of different sizes, subjected to density-dependent population regulation and existing on landscapes with some spatial subdivision. Models are built using the CRITTRZ simulation system. The models simulate individual life histories and maintain age, sex, genotype and pedigree information on simulated individuals. Groups in the simulated populations resemble cercopithecine multi-male groups. They contain immigrant adult males and natal animal segments composed of matrilines. Groups may fission, partly along matrililines, and they may fuse. Group sizes are influenced by group size fusion and fission threshold parameters. Four simulation series with varying fusion and fission threshold size pairs were conducted. The fusion/fission parameter pair values were a) 16/32 b) 20/40 c) 24/48 d) 28/56. Terminal, mean Fst measures of genetic differentiation in the same simulation series were a) .062 b) .043 c) .032 d) .028, indicating strong decline in genetic differentiation among simulated monkey groups with increasing group fusion and fission threshold values. These results are compared with those of previous simulations that employed similar fusion/fission size parameter pairs, but fixed, age-specific birth and survival rates and no spatial substructure.

Keywords: monkey, simulation, CRITTRZ, genetic