Genetic Study of Recent Samples of American Marten (*Martes americana*) from Vermont

Abstract

American marten was listed as endangered in Vermont in 1987 due to an absence of detection since 1954. Between 1989 and 1991, marten from Maine were reintroduced into southern Vermont but studies deemed the reintroduction unsuccessful. However, since 1998 marten have been detected in northeastern Vermont and are thought to represent colonization from a northern New Hampshire population. The objective of this study is to determine the source of a recently discovered marten population in southwestern Vermont. This study is ongoing; to date three microsatellite loci have been compared among 12 marten samples from northeastern Vermont and 3 samples from southwestern Vermont. Nine out of 18 alleles observed occur in both populations, whereas 7 were found only in northeastern samples and 2 only in southwestern samples. Both populations were in Castle-Hardy-Weinberg equilibrium but the number of alleles detected was greater in the northeastern population. The level of genetic variation observed was similar in the northeastern (0.746) and southwestern (0.756) populations with little genetic differentiation between them. Population assignment tests could not exclude the southwestern samples from having been derived from the northeastern population and one individual in the southwestern population may be a migrant. Thus preliminary results cannot reject the hypothesis that the southwestern population was derived by long distance dispersal of martens from northeastern Vermont.

To complete this study, microsatellites from 20 samples of martens from northern New Hampshire will be analyzed and computer analyses will further examine the data from all three populations. The results will allow the hypothesis that the population in northern New Hampshire is the source of the northeastern population to be tested. If this hypothesis cannot be rejected, the data from northeastern Vermont and northern New Hampshire will be combined, to test the hypothesis that it is the source of the southwestern population.