

The relative abundance of coyotes and gray wolves has changed in disturbed habitats of North America. Hybridization has occurred between these species, where coyote populations have increased in abundance and where gray wolf populations have declined. Genetic divergence among coyotes and gray and red wolf populations in North America was the subject of a recent publication by Michael S. Roy et al. (*Molecular Biological Evolution* 11(4): 553-570, 1994). Researchers selected microsatellite loci to quantify genetic differentiation and hybridization within and between species. These loci exhibit a much higher rate of mutation than that of nuclear loci and consequently are more sensitive to detecting recent genetic divergence. Coyotes show no evidence of genetic subdivision, which is a result of high rates of genetic exchange throughout their recent range expansion. Hybridization between coyotes and gray wolf populations of Minnesota and southern Quebec has significantly affected allele frequencies (alternative gene forms at given locus) of these wolf populations. The analyses also support the hypothesis that the intermediate phenotype of the red wolf is derived from historic hybridization between coyotes and gray wolves. More recently, extensive hybridization occurring between red wolves and coyotes has caused red wolves to become even more genetically similar to coyotes. The authors concluded that continued habitat changes favoring

range expansion of coyotes will threaten the genetic integrity of gray wolf populations.

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Biodiversity is most often defined in terms of species richness. A recent publication by R. Gresswell, W. Liss, and G. Larson (*Canadian Journal of Fisheries and Aquatic Sciences*, 1994, number 51, Supplement 1:298-309) focuses on the importance of recognizing intraspecific variability for maintaining biodiversity at the species level. The authors examined life history organization of Yellowstone cutthroat trout. They also examined in detail subspecies and metapopulation hierarchical levels of differentiation. Variation in life history and morphometric characteristics of Yellowstone cutthroat trout were documented between populations in different lakes and within subpopulations in the same lake. Differences found in life history organizations included reproductive isolation and homing, pattern of spawning migration, initiation and duration of spawning, juvenile emigration and residence, abundance of spawners, age and size of spawners, and male:female ratio and fecundity. The authors concluded that loss of diversity at any hierarchical level jeopardizes the ability of the species to adapt to changing environments and increases the risk of extinction.