ABSTRACT

TITLE:	Characterizing Hybridization Between Canis Familiaris and Canis Lupus Through Genetic Analysis Using Microsatellite DNA Data
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ABSTRACT: Hybridization between the grey wolf (Canis lupus) and the domestic dog (Canis familiaris) is an arising problem for wolf conservation. This phenomenon is caused by the displacement of natural ecological niches, causing these two species to share territory. This sharing of territory can lead to successful reproduction resulting in a hybrid species called the wolf-dog. Long-term direct hybridization between wolfs and dogs has the potential to introduce novel dog genes into the wolf gene pool and subsequent back-crossing of hybrid-derived wolf-dogs to wolfs could spread these dog genes widely through wolf populations leading to a loss of genetic purity with the eventual genetic extinction of the species. Wolfwood Refuge takes part in caring for wolves, dogs and wolf-dogs as an effort to provide adequate homes for these animals. It is important to know the presence of wolf and dog genes in these individuals to better understand conservation and management issues of the grey wolf. Using microsatellite DNA markers we genotyped 20 animals from Wolfwood Refuge and compared them to control full dogs and full wolves. This provided an unbiased assessment of proportional parentage independent from the exhibited phenotype. We expected to see that designations of parentage supplied by the curator based on observed phenotypes would be greatly different from what we found genetically. We found that seven of the 20 animals were different than what the curator hypothesized. Most animals had a combination of both dog and wolf genes present in their DNA. Our results show that gene movement between wolfs and dogs is extensive and that phenotypic characterization is likely not accurate. More vigilance to controlling dog-wolf hybridization will be necessary if the gene pool of the grey wolf is to be maintained.