

REPORT

**Project: DNA Analysis of a Cougar (*Puma concolor*) shot in Bourbon County, Kentucky
December 2014**

Date Issued: January 24, 2015

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On December 19, 2014 we received a tissue sample collected from a male cougar shot by Kentucky Department of Fish & Wildlife Resources on 12/15/2104 near Paris in Bourbon County, Kentucky. This tissue was submitted for DNA analysis to determine the population origin of this animal.

We extracted and analyzed the DNA to determine mitochondrial DNA haplotype. This cougar has a mitochondrial DNA haplotype "M", which is the most common North American haplotype (Culver et al. 2000, Culver and Schwartz 2011). Subsequently, we analyzed the sample using a panel of twenty, variable, microsatellite loci (nuclear DNA) to determine individual and assign origin.

This genetic profile obtained from this individual was compared to our cougar DNA database. This male represents a new individual to the DNA database.

We investigated the potential population of origin for this individual using our database which includes cougar samples from populations in South Dakota, North Dakota, Nebraska, Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Texas, Oregon and Florida. Preliminary substructure analysis shows that the animal is most closely related to individuals from the Black Hills breeding population of Wyoming and South Dakota (Table 1). Assignment tests are probabilities that the animal in question assigned to each population given the gene frequencies of this animal and all other animals in our database. Here we report the assignment score from the population with the highest probability (the total from all populations must total 100%). However, bear in mind that the scores do not necessarily mean that this animal is directly from this location, as there may be other un-sampled populations nearby.

Table 1. DNA analysis results for the cougar sample from Bourbon Co., Kentucky.

Lab ID	Type	Collection Location	mtDNA Haplotype	Sex	Individual	Population	Assignment Score %
KY-14-T1	tissue	Paris, KY	"M"	male	KY-14-M1	Black Hills SD/WY	86.9

Please contact us if you have any questions.