**Quantifying the Statistical Power in the Inference of the Evolution of the Distribution of Fitness Effects in Canine Lineages.**

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Previous work on inferring the distribution of fitness effects (DFE) [maybe explain here a bit what’s DFE] has shown that distantly related species have distinct DFEs. However, the timescales and conditions under which the DFE evolves remains unclear. Domestic dogs and wolves provide a system in which to understand how the DFE changes over recent timescales as the two populations split from each other fairly recently. Using genome resequencing data from arctic wolves and breed dogs, there was no detectable difference in their inferred DFE. Here, we sought to determine if the current state of the art methods for inference of the DFE had sufficient statistical power to detect a change in the DFE between wolf and dog populations. We performed forward population genetics simulations modeling wolf and dog evolution, and compared the inferred DFE and demographic parameters of simulated and empirical data. We have modeled ancestral wolf DFEs and demographic histories and are still awaiting the results of our dog DFE simulations for comparison. Understanding if we can detect a difference in DFE will provide insight towards the impact of domestication on the DFE and help confirm the results found with reported empirical data.