**Supplementary table legends**

**Table S1**. The 59 species used to compare the difference between *-l* and *β* assuming a gamma model for DFE. See Chen et al. (2017) for further details.

**Table S2**. Details of the 11 species used in the current study to compare the difference between *-l* and *β* assuming a full model (gamma + exponential) for the DFE.

**Table S3**. Mutation rates used for 11 species used in the current study for estimation of Ne.

**Table S4**. Test for the invariance of DFE parameter estimates across bins by comparing the log-likelihoods of independent estimates for each bin against those of shared estimates.