



**Figure S1.** Modified from (Korunes & Noor, 2019). The 3 crosses share the same PP1137 grandparent female and parent male. The mutations were identified in the F2 progenies, with the 4 grandparents and the 4 parents genomes considered as ancestral. The F2 de novo mutation candidates were so compared to the genotype of 4 ancestral genomes (two grandparents and two parents) and the other F2 progenies of the corresponding cross (mutation must appear only one time, *i.e* in only one F2).