

## **Required corrections for Max Brown, 29 November 2020**

1. In the introduction, we request that you explain more fully how the various chapters fit together to address the aims. This could take the form of a narrative explanation with questions (and hypotheses) at the end of chapter 1.
2. In Chapter 2, we request that you expand on the mechanistic explanations of how polyploidy can act as a barrier to both hybrid formation and gene flow. We suggest that these mechanisms can be placed into a conceptual framework that also includes isolating mechanisms that do not relate to ploidy. This will greatly improve the impact of this important review.
3. In Chapter 3, we request that you discuss the fact that the observation of hybridisation is distinct from the occurrence of gene flow. This might also include a comparison with the findings of Roux et al. (<https://doi.org/10.1371/journal.pbio.2000234>) who assessed evidence for gene flow in 61 pairs of animal taxa.
4. In Chapter 4, we request that you discuss how the model fitting analysis performed using dadi may have been impacted by an insufficient number of SNPs, especially considering the failure to find optimal parameters in two of the models.
5. We request that Chapter 5 be made an appendix.
6. In chapter 7, we request that you provide an expanded and more nuanced discussion of the findings with respect to functional groups.
7. We request that you rewrite the general discussion, placing your thesis in the broader context of the field, and describing if and how it changes our understanding of the field. A conceptual diagram would be useful here.

## **Additional minor suggestions**

Section 1.2 (Page 6). The wording appears to present adaptive introgression as a distinct process from introgression, when in fact it is just a special case.

Page 12. “distinct that” → “distinct than”

Page 21. “adaptive loci” would be more correctly stated as “adaptive alleles”

Page 24. “In addition for” → “In addition to”

Page 18 says there are ~1400 species in the flora, whereas page 24 says ~1500.

Page 28 mentions that Liliaceae have cross-ploidy hybrids, but Figure 8 seems to contradict this.

Section 2.4 (page 35) discusses directionality of back crossing, and should probably refer to Figure 9.

Page 36. “Successful hybridisation” should probably be “Successful introgression”

Page 43. “Here, we combine use” → “Here, we use”

Page 45. “probability congeneric” → “probability of congeneric”

Page 48. Says same ploidy parents are 22% more likely, but chapter 2 said 35%. Is this correct?

Page 50. “ploidy differences are expected to lower the probability of hybridisation due to prezygotic barriers such as meiotic irregularities”. As discussed, this is a postzygotic barrier that reduces the probability of introgression, not hybridisation itself.

Page 56 “be an important” → “be important”

Page 60. models differ by the amount *and timing* of gene flow

Page 111. Mentions finding ploidy-specific diagnostic sites to detect introgression. However, this is not necessarily required, as you can use frequencies at non-fixed SNPs (e.g. see Martin et al. 2015 Mol. Biol. Evol.)