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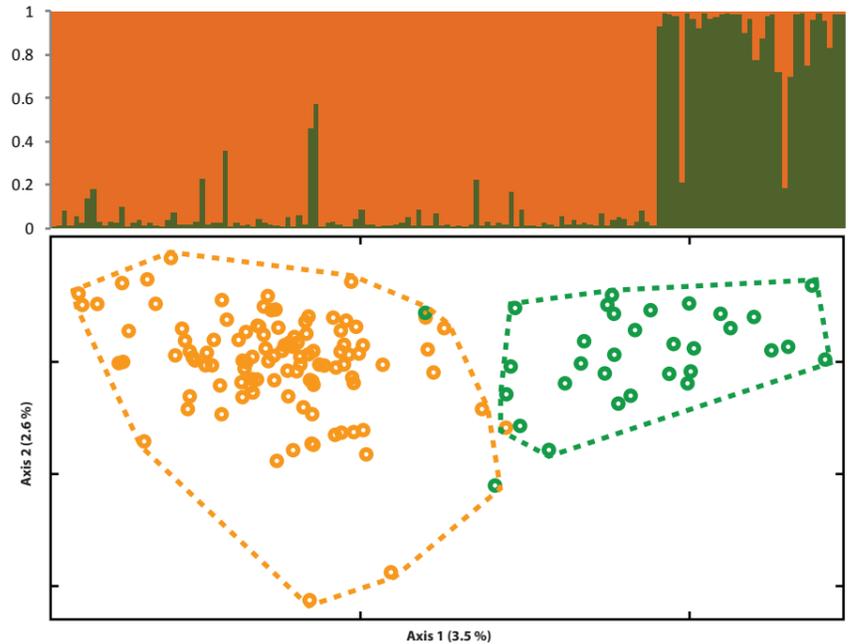
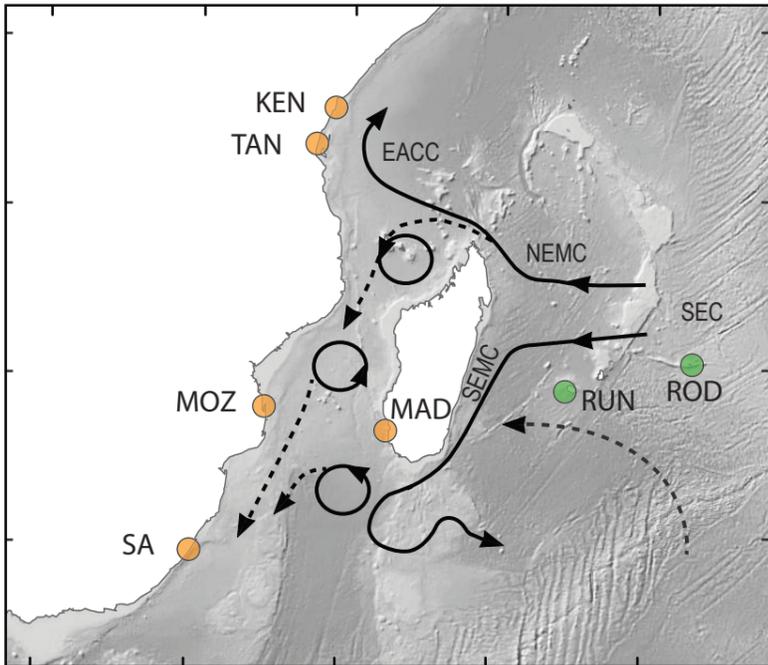
Low and asymmetrical gene flow in the cordonnier: geographic barrier or reproductive isolation?

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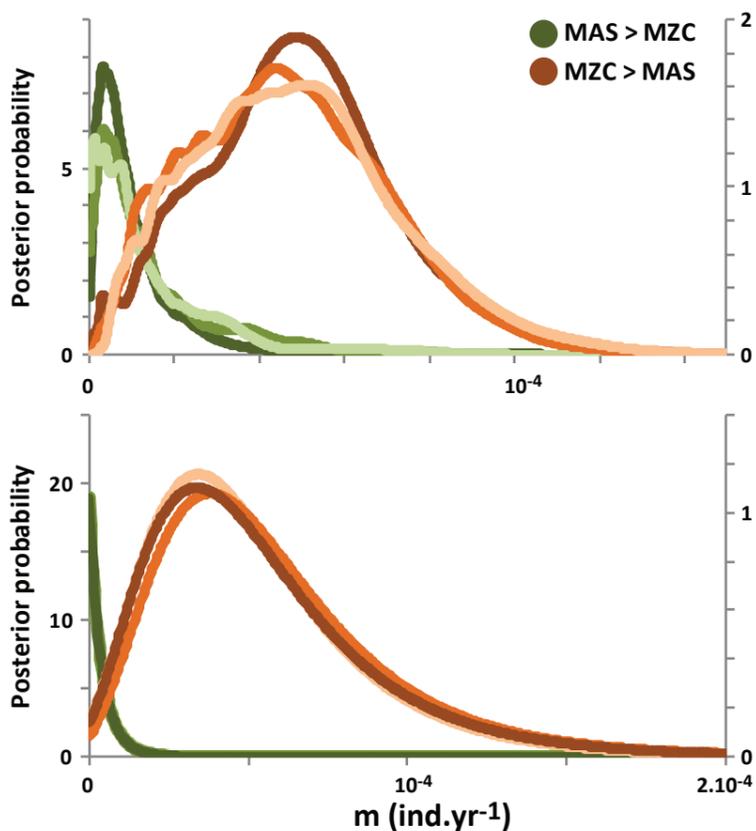
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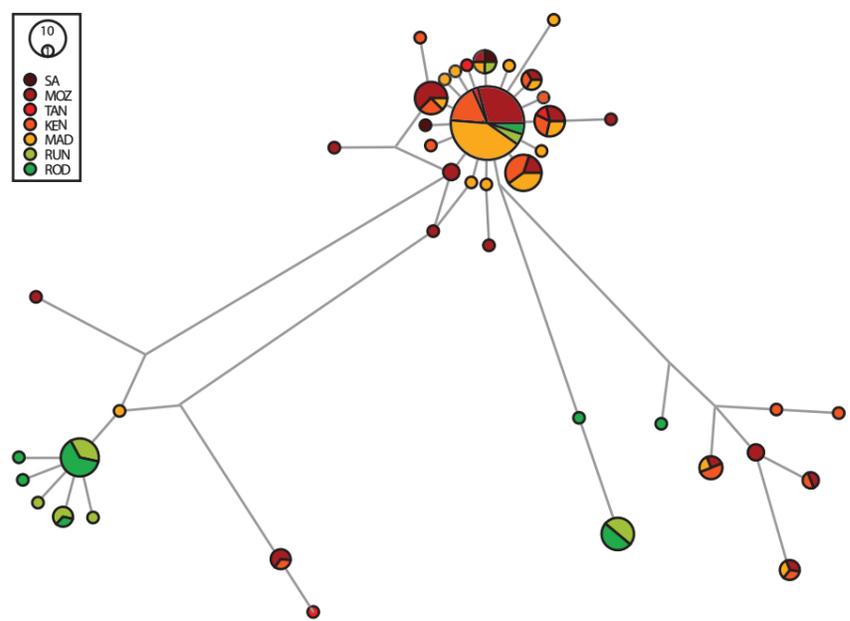
The cordonnier *Siganus sutor* is a marine fish that inhabits the estuaries, rock reefs, and the inner, pavement areas of coral-reef flats of the Western Indian Ocean (WIO). We investigated the genetic structure of the cordonnier using nuclear and mitochondrial markers from seven localities in the WIO. Based on their geographic distribution, we identified two genetically distinct ensembles, one in the Mozambique Channel (MZC) and one in the Mascarene Islands (MAS). Bayesian structure assignment showed little admixture, leading us to suspect that the cordonnier may alternatively consist of two species. Under the latter hypothesis, the weak gene flow would correspond to occasional hybridization, also offering an alternative explanation for asymmetrical gene flow at the mitochondrial locus.



Correspondence analysis based on the matrix of individual genotypes (11 microsatellite loci). Orange (resp. green) contour delimitates all individuals assigned to the orange (resp. green) cluster by Bayesian structure analysis (above). Orange circles = individuals sampled in the Mozambique Channel; green circles = individuals from the Mascarenes.



imA analysis, nuclear DNA (above); mtDNA (below). Reconstructed gene flow between Mozambique Channel (MZC) and Mascarenes (MAS) was bidirectional for nuclear markers but unidirectional for the mitochondrial marker. Although weak, gene flow predominantly occurred from MZC to MAS, opposite to the main westward oceanographic circulation. A continent-island model where $N_e(\text{MZC}) \gg N_e(\text{MAS})$ explains this result. Asymmetric gene flow of mtDNA relative to nDNA is common in situations of secondary contact with incomplete reproductive isolation.



Parsimony network of *cytb* haplotypes shows advanced lineage sorting and likely mtDNA introgression.



Two species ?