Structure

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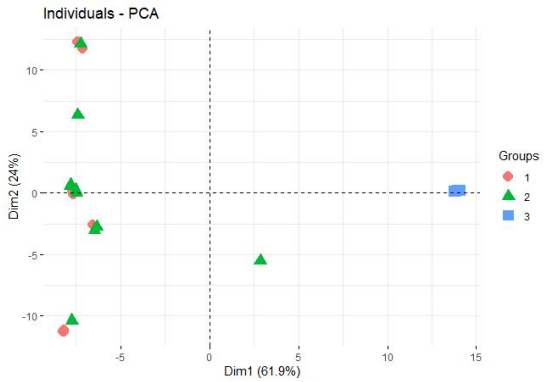
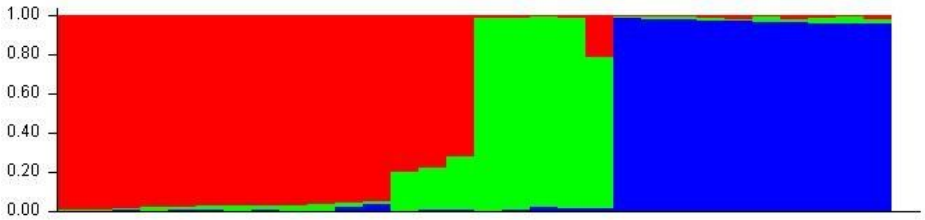
Three Populations with Migration

PCA



In this data, we know there are three populations, and that they have come apart at some point and since migrated between each other. This PCA plot seems to indicate migration occurred between two groups (green and red).

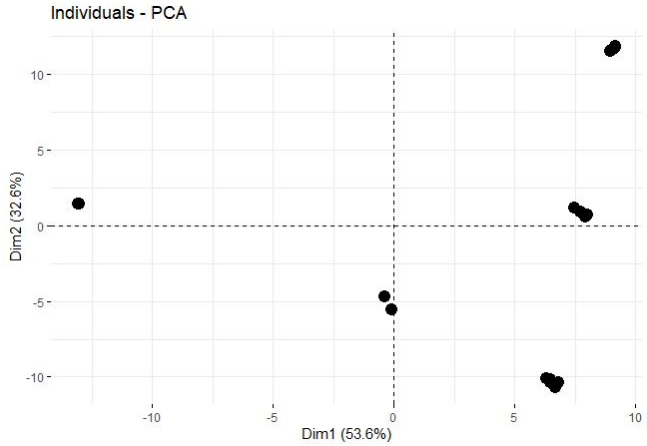
K=3



Once again, we know K=3 for this population, and I think for the most part what we gleaned from PCA we can also see here. Two of the populations (coincidentally also green and red here) seem to have combined more with each other, while the third remains predominantly most like itself.

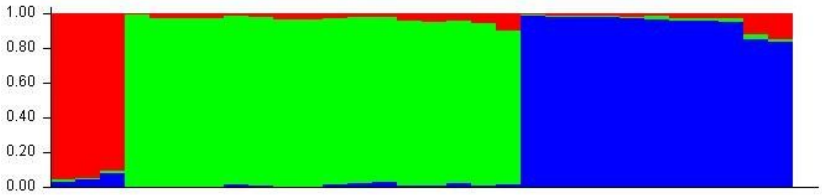
Mystery 1

PCA



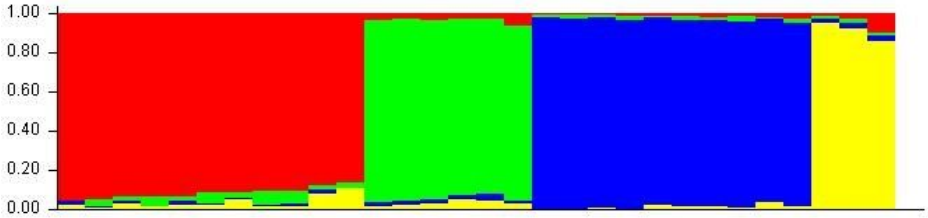
Here, the PCA plot seems to be showing five pretty distinct populations. However, the STRUCTURE plots don't support five super distinct populations.

K=3



This plot suggests instead three distinct populations with perhaps migration or some sort of combining between them.

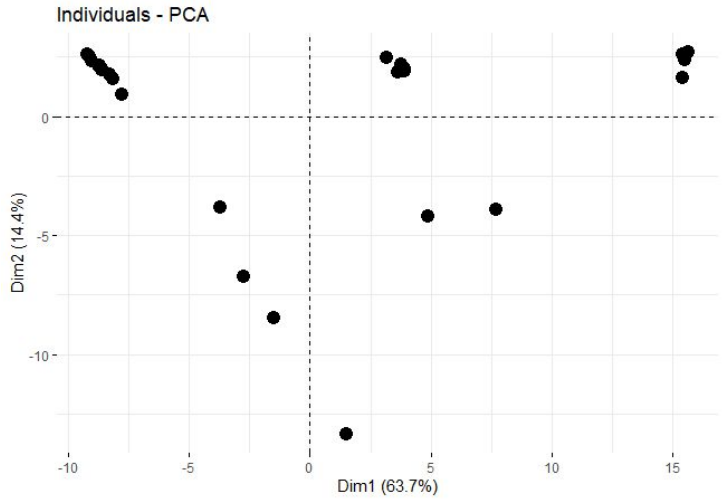
K=4



This presents a similar situation to the K=3 plot, though now with four groups. And it seems migration might have happened from the yellow and green group to the red group. I think this is the more likely scenario.

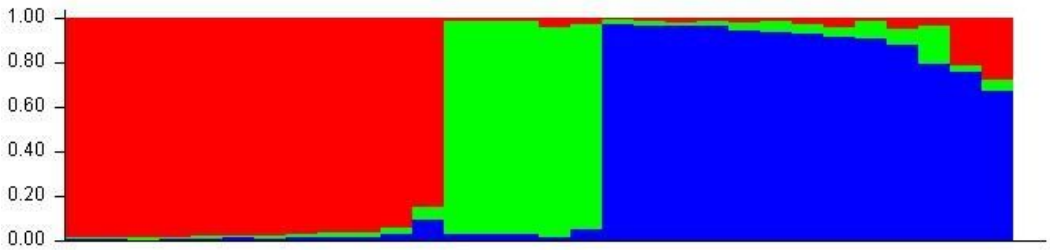
Mystery 2

PCA:



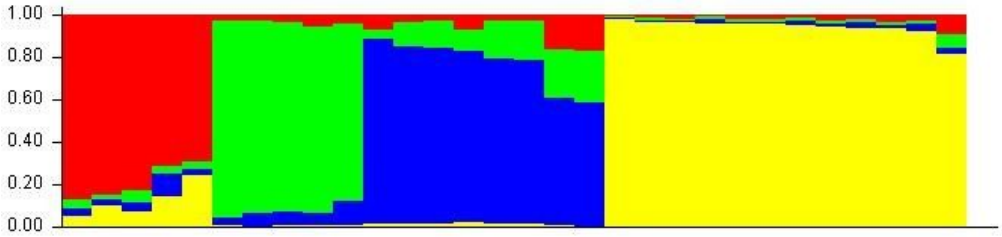
This graph is pretty interesting. I'm seeing three mostly clustered groups with some seemingly wacky outliers. Maybe a recent migration to an unknown group has occurred.

K=3



This suggests three clusters but much more pronounced intermingling in one of them. This could be an explanation for the seemingly more random group outside of the three: maybe migration of two groups to another

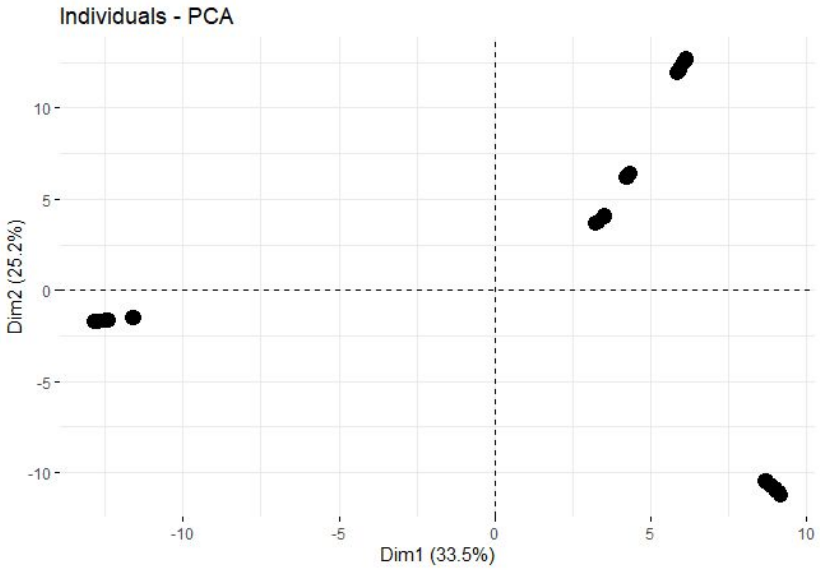
K=4



This suggests four clusters with evidence of a lot of inter-cluster influence in two of them. This I think agrees with the PCA, but I was expecting it to look more like three very distinct clusters with the fourth showing more evidence of migration or the like. Instead perhaps this is suggesting heavy migration to/from multiple clusters.I think this is the more likely scenario.

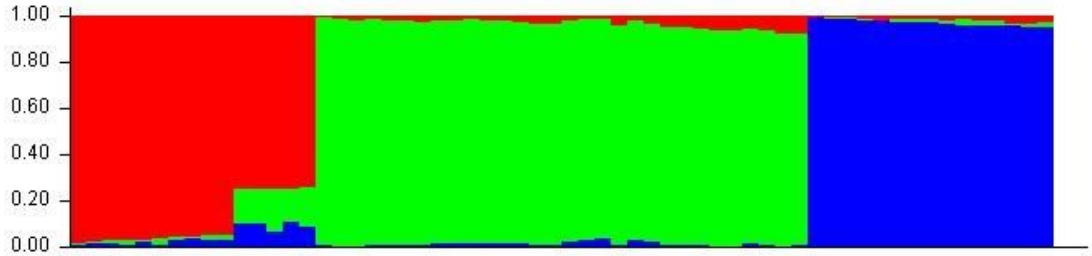
Mystery 3

PCA



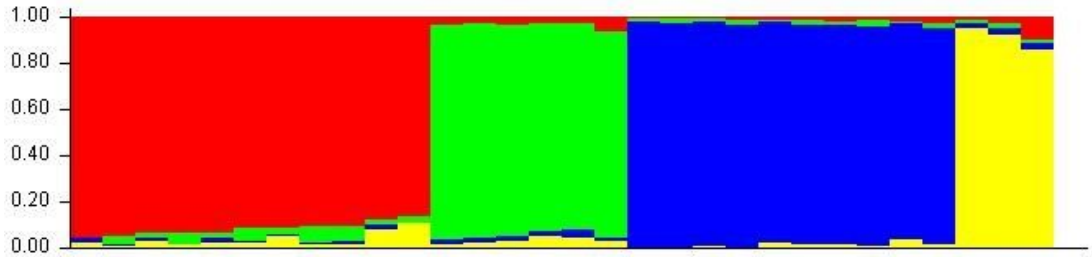
This graph looks to me like anywhere from three to maybe even five distinct clusters. The proximity of the ones in the upper right is confusing. Migration could definitely be at play.

K=3



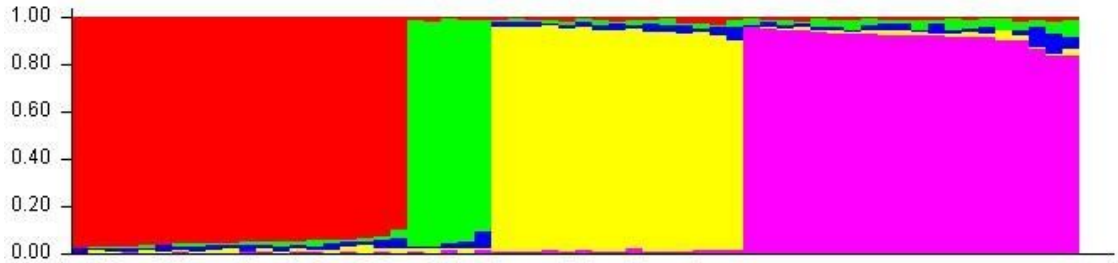
Here we see three very distinct clusters with some substantial influence perhaps from migration particularly in the red cluster from the other two.

K=4



This suggests instead four clusters with evidence of some kind of mixing in many of the groups. This could be evidence supporting that two of those clusters in the upper right corner of the PCA graph actually create a separate population. I think this is the most likely scenario.

K=5



I think this shows that five distinct clusters is not likely, as the blue group really has no unique grouping.