

INTROGRESSED BACKGROUND REMOVAL USING GENETIC DISTANCES

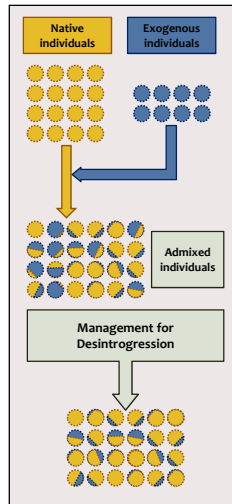
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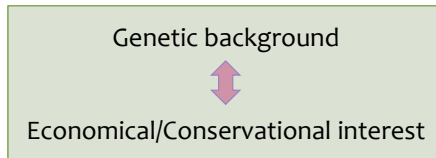
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INTRODUCTION



Some populations require to be maintained pure



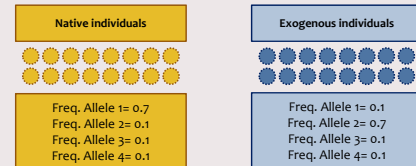
If a group of individuals in which we are interested is introgressed by another we have to look for a method to RECOVER the original background using the available information

METHODS

Simulations:

- Population size $N = 100$ (50♀, 50♂)
- 10, 20, 30, 40 or 50 of which are **exogenous**
- 1 to 5 random mating generations
- 10 generations of management

10-50 markers: 4 alleles each



Management

Minimisation of the Genetic Distance between the current population and the original native population.

- Cavalli-Sforza Chord Distance (1967)
- Nei's Minimum Distance (1973)
- Kullback-Leibler (KL) Divergence (1997)

OBJECTIVE

Evaluate the potential for the recovery of a population background through the genetic distances calculated from different sets of molecular markers

RESULTS

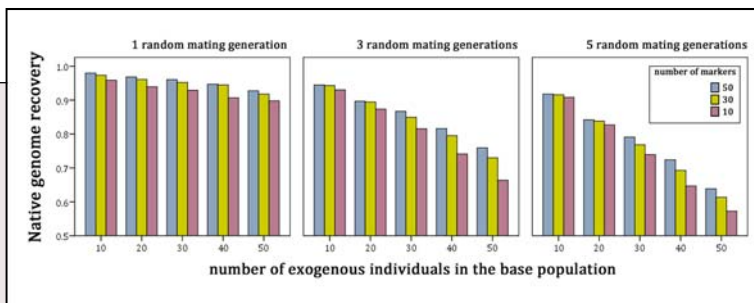
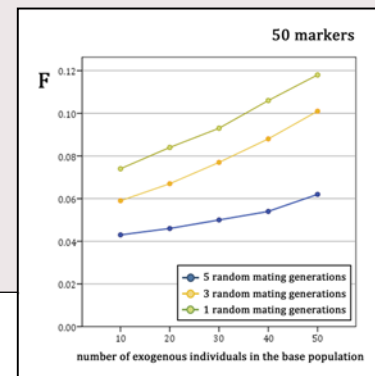


Figure 1: Native background recovery by minimisation of the KL divergence for different number of exogenous individuals in the base population, random mating generations and number of markers simulated.

Results obtained by Cavalli-Sforza and Nei distances (not shown) are similar to those presented for KL: same level of recovery for the three methods

Figure 2: Values of inbreeding reached after 10 generations of management for KL in a simulation with 50 markers and different number of exogenous individuals and random mating generations



CONCLUSIONS

- A certain recovery of the native background can be obtained using genetic distances
- The success will depend on the original allele frequencies and degree of introgression
- The increase of the inbreeding is a side effect to account for