GENE FLOW AND GENETIC DRIFT

BATTLE OF THE RANDOM

EVOLUTIONARY FORCES

BY GABBIE HUGGINS

START GAME OF LIFE



Hi! My name is Gene Flow and I'm the best evolutionary force!

TINCREASES VARIABILITY WITHIN THE POPULATION COPULATION DECREASES VARIABILITY BETWEEN POPULATIONS

Hi! I'm Genetic Drift and actually I'M the best evolutionary force!

OCCURS IN SMALL POPULATIONS 🛧 DECREASES THE GENETIC DIVERSITY OF A 🛧 POPULATION

ALTERS ALLELE FREQUENCY IN A 🚖 POPULATION

HELP THEM CHOOSE!

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MEET GENE FLOW

WHO IS GENE FLOW?



GENE FLOW IS THE EVOLUTIONARY FORCE RESPONSIBLE FOR THE MIGRATION OF ANIMALS AND THEIR ALLELES BETWEEN POPULATIONS



BARRIERS TO GENE FLOW

MEET GENETIC DRIFT

WHO IS GENETIC DRIFT?

GENETIC DRIFT IS THE FORCE THAT ALLOWS ALLELES TO CHANGE FREQUENCY WITHIN A POPULATION DUE TO RANDOM SAMPLING.



GENETIC DRIFT HAS TWO MECHANISMS:

POPULATION BOTTLENECK

RANDOM CATASTROPHIC EVENT CAUSES SIGNIFICANT REDUCTION OF POPULATION SIZE AND ALTERS ALLELE FREQUENCY



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FOUNDER'S EFFECT

SMALL GROUP FROM POPULATION BECOMES ISOLATED FROM ORIGINAL POPULATION WHICH CAUSES SHIFTS IN ALLELE FREQUENCIES





IMORTANT NOTE: THE FOUNDER EFFECT IS DISTINCT FROM GENE FLOW BECAUSE THE GROUP MOVES TO AN AREA WITHOUT AN EXISTING POPULATION

HOW DO THEY CONTRIBUTE TO EVOLUTION?

randomness!



Loss of variation in threatened populations can increase the probability of fixation of alleles and raise the risk of extinction



Gene flow promotes population divergence via selection and drift, which can lead to speciation.

SO GENE FLOW AND GENETIC DRIFT ARE EQUALLY IMPORTANT TO EVOLUTION!

