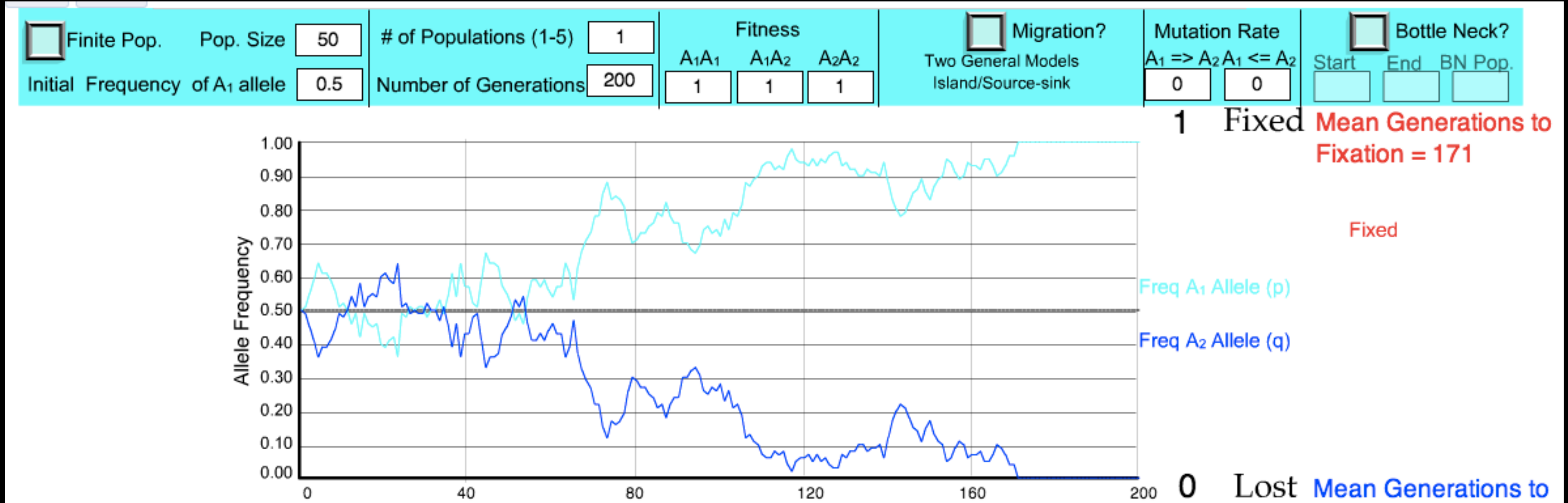


Biology Essentials - 003



Genetic Drift: Random Evolutionary Change

Genetic Drift: Random Evolutionary Change



http://www.radford.edu/~rsheehy/Gen_flash/popgen/

Gene Pool

Hardy-Weinberg
Equilibrium

Isolated
Populations

Genetic Drift

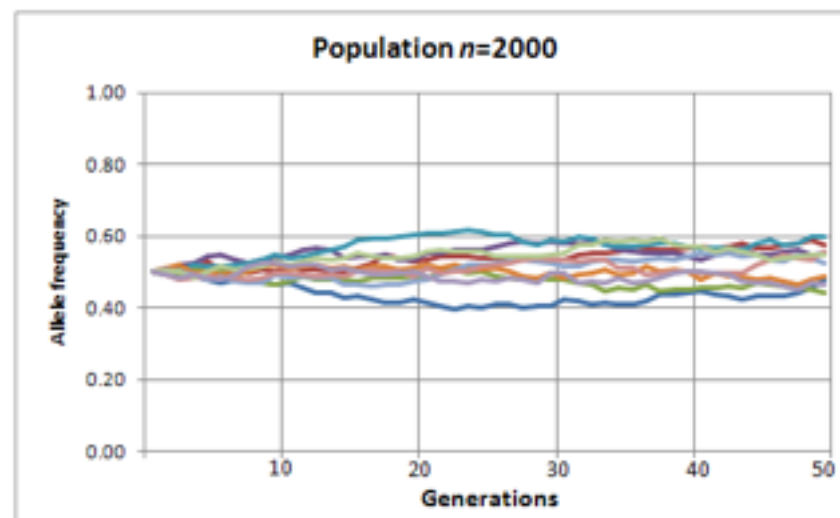
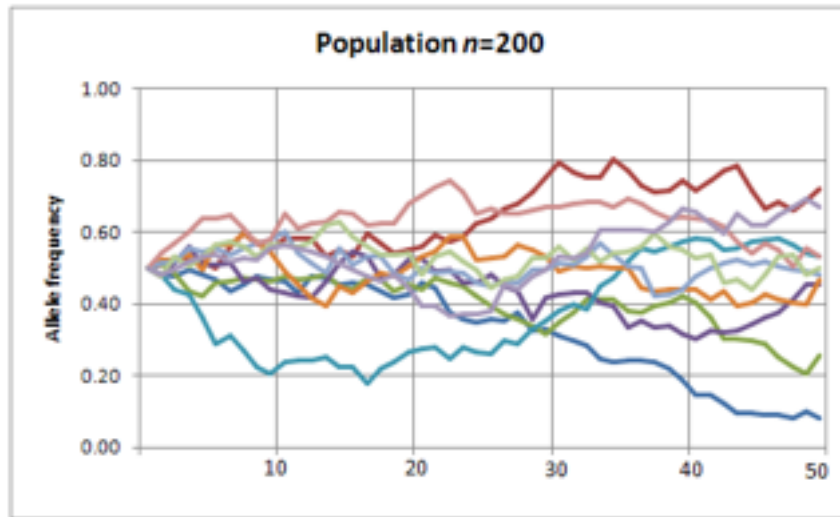
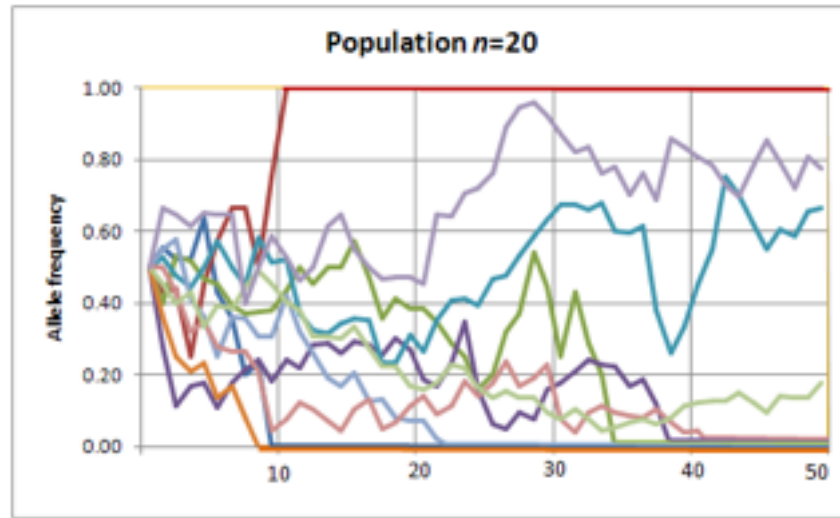
- Large size
- Random mating
- No mutations
- No migration
- No selection

Bottleneck

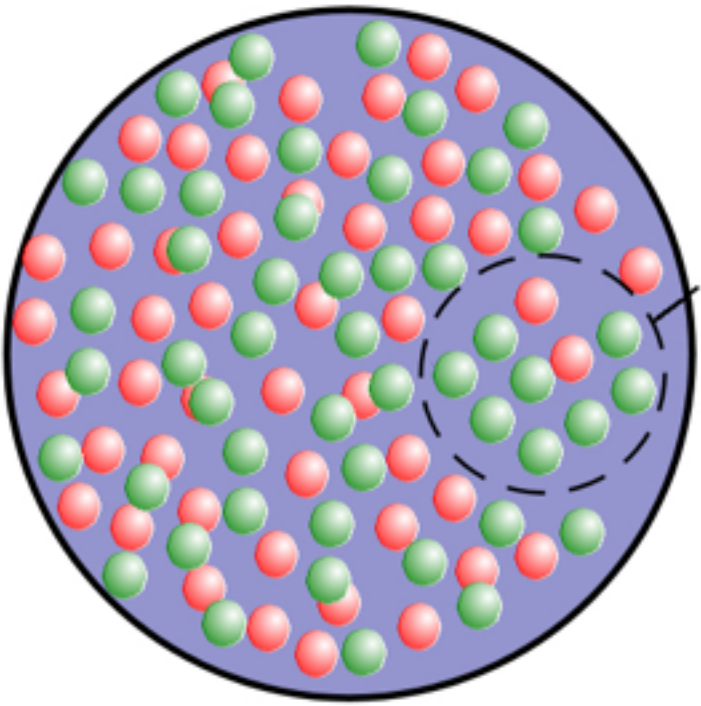
Founder Effect

Northern
Elephant Seal

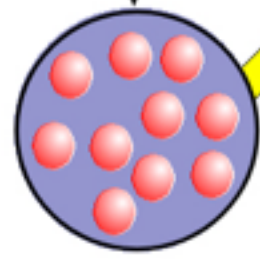
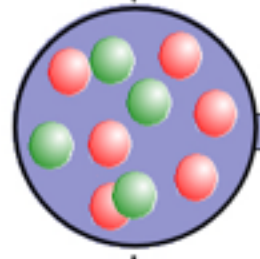
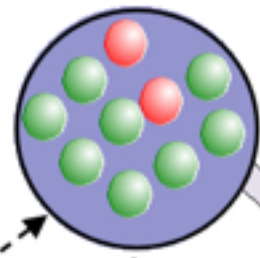
Pingelap



Originating population

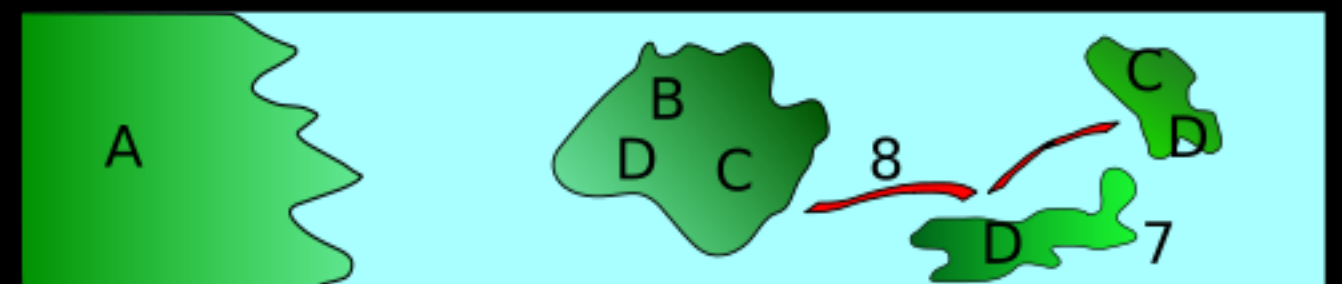
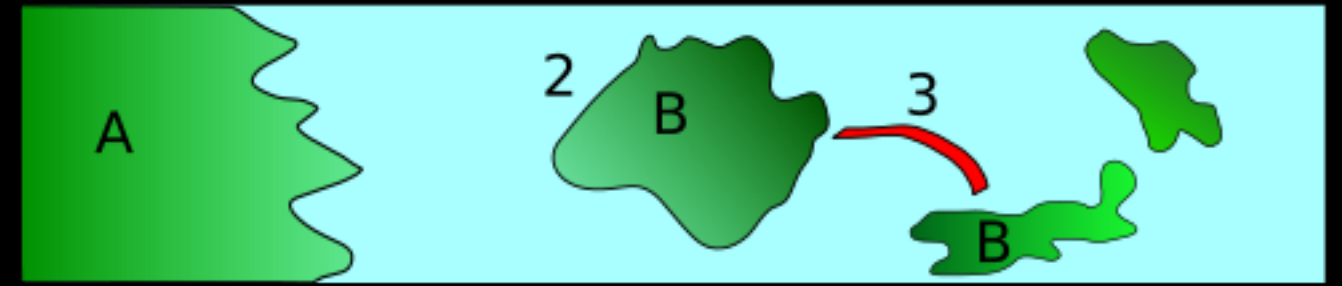
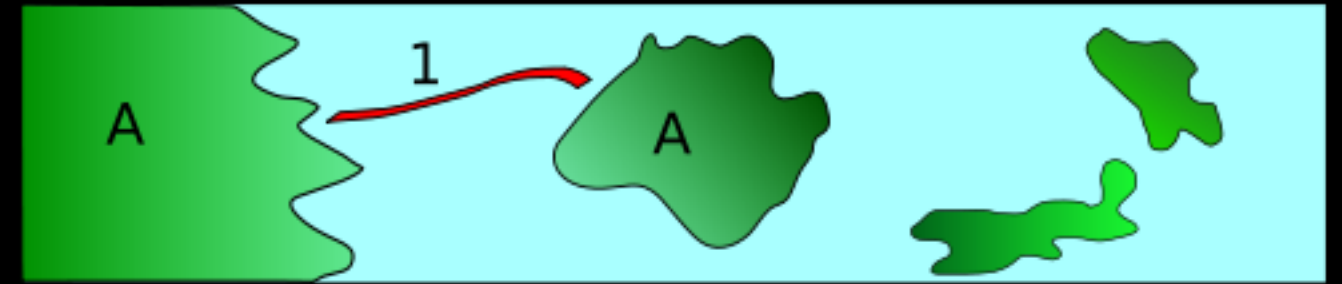


Ancestral population frequencies		
	Red	Green
Original	0.50	0.50

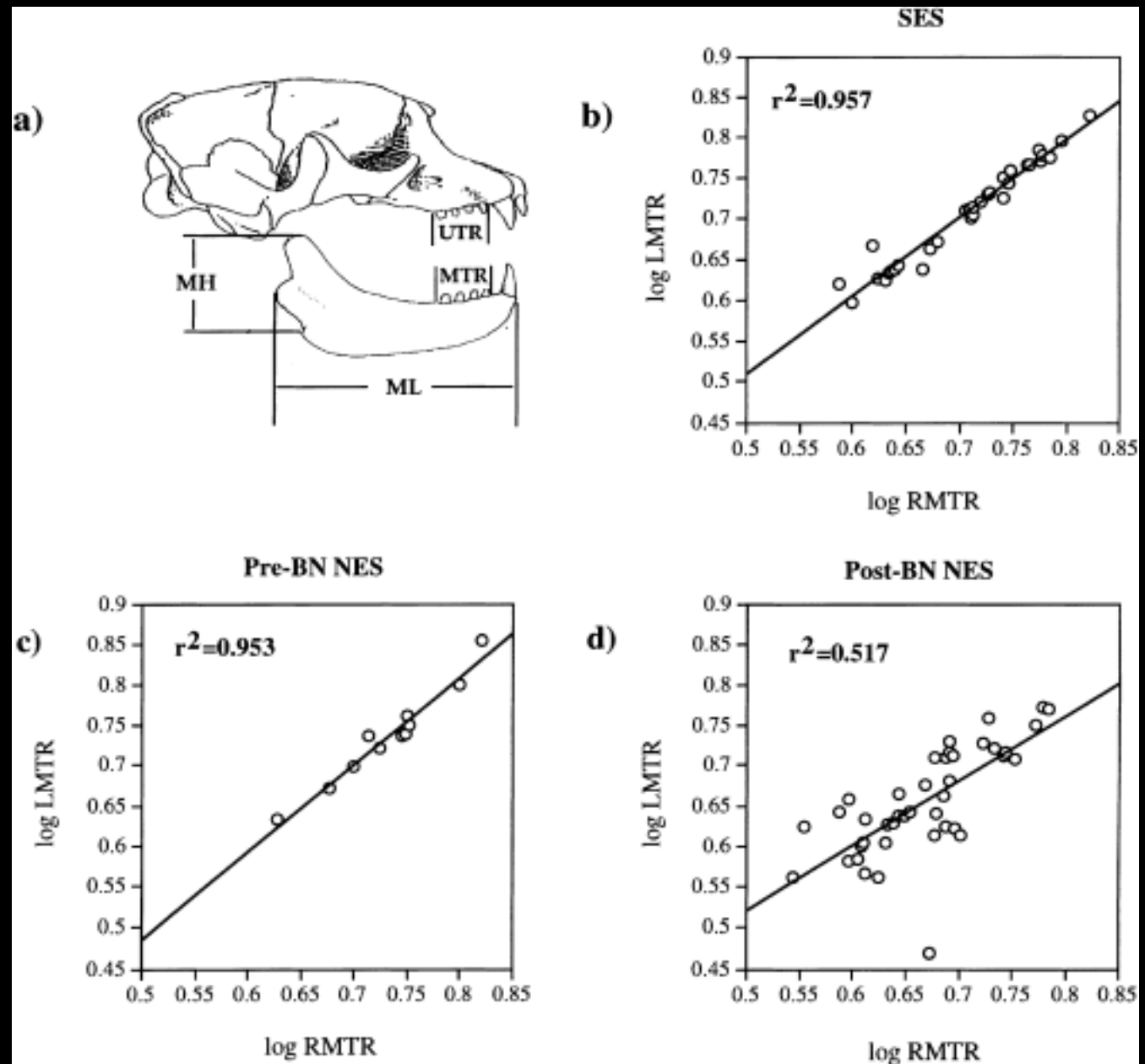


Founder population

Founder population frequencies		
	Red	Green
After split	0.20	0.80
Generation 1	0.40	0.60
Generation 2	0.50	0.50
Generation 3	0.60	0.40
Generation 4	0.90	0.10
Generation 5	1.00	0.00



Isolated Populations



Impact of a population bottleneck on symmetry and genetic diversity in the northern elephant seal

1. A. R. Hoelzel¹, R. C. Fleischer^{1,2}, C. Campagna³, B. J. Le Boeuf⁴, G. Alvord⁵



Bottleneck Effect

Acknowledgements

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Center, Astronaut photograph ISS008-E.-19646 was taken March 7, 2004, with a Kodak DCS760 digital camera equipped with an 50-mm lens, and is provided by the Earth Observations Laboratory, Johnson Space. *English: Before the Year 2004, Only Two Tropical Cyclones Had Ever Been Noted in the South Atlantic Basin, and No Hurricane. However, a Circulation Center Well Off the Coast of Southern Brazil Developed Tropical Cyclone Characteristics and Continued to Intensify as It Moved Westward. The System Developed an Eye and Apparently Reached Hurricane Strength on Friday, March 26, before Eventually Making Landfall Late on Saturday, March 27, 2004.*, March 26, 2004. NASA. http://commons.wikimedia.org/wiki/File:Cyclone_Catarina_from_the_ISS_on_March_26_2004.JPG.

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