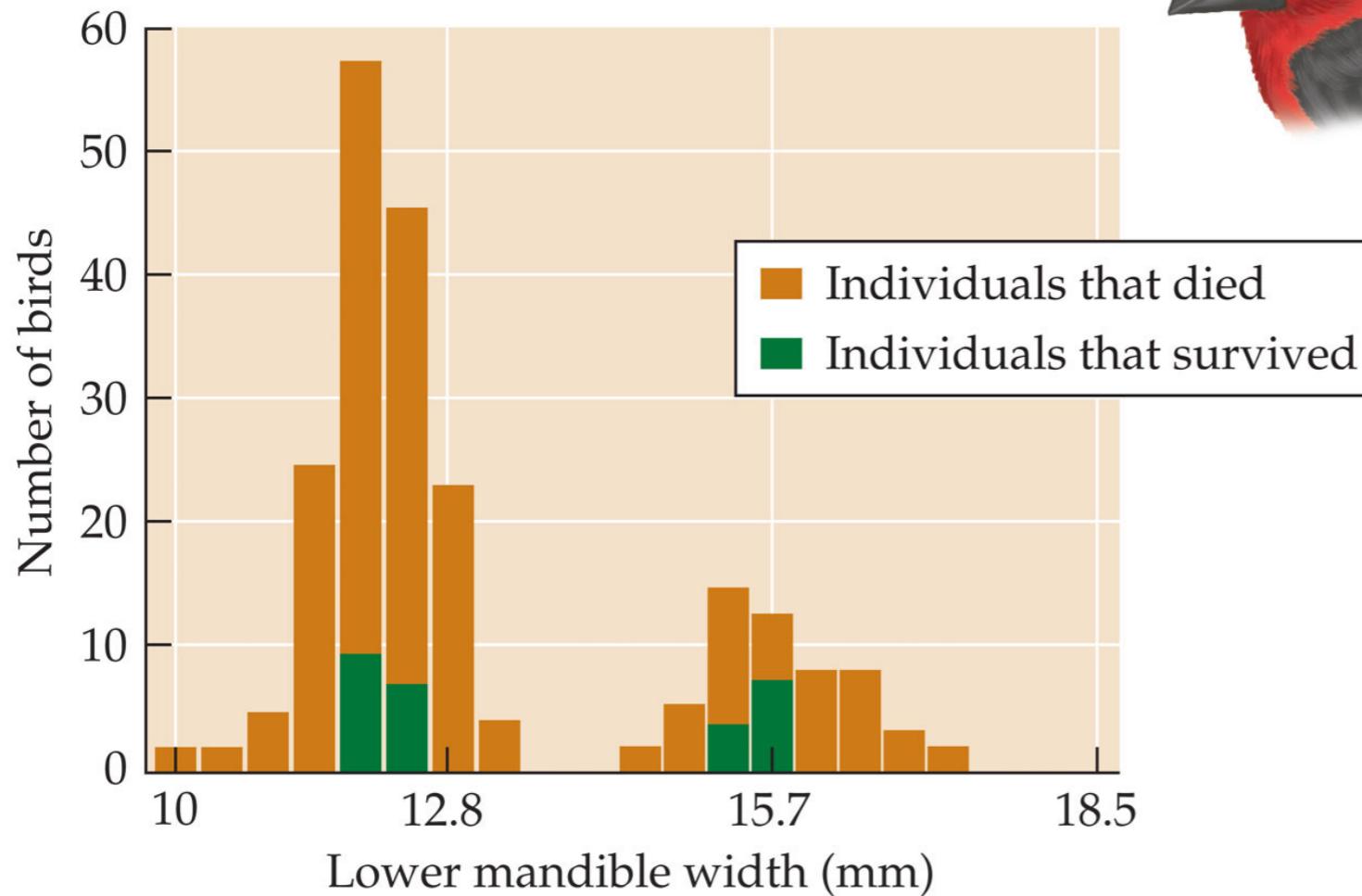
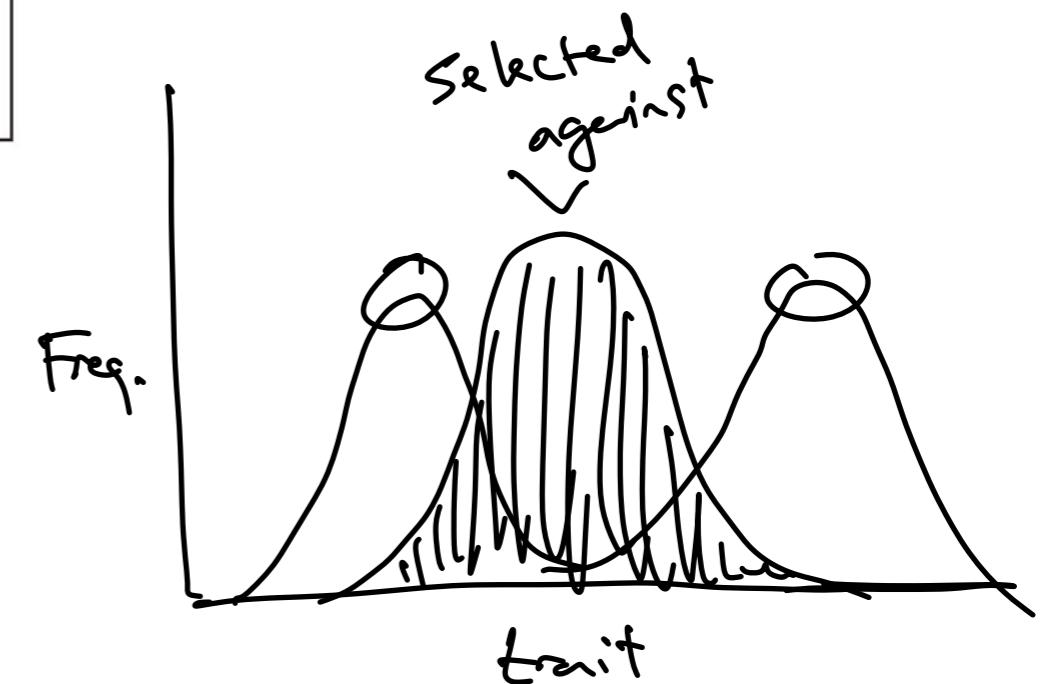


(C) Disruptive selection



Disruptive Selection

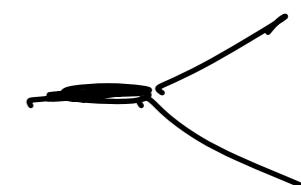


ECOLOGY 3e, Figure 6.6 (Part 3)
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disruptive

- Can result in
speciation if
there is formation of
a reproductive barrier

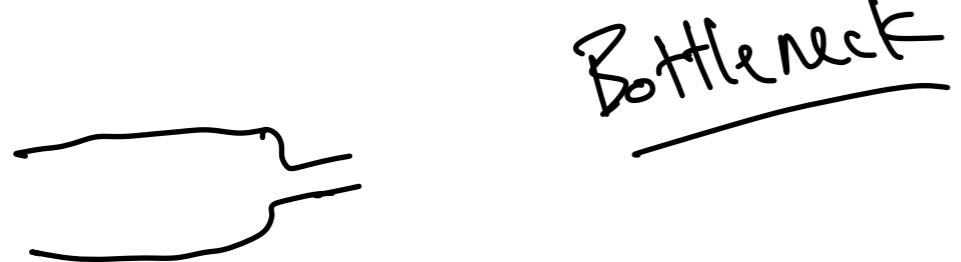
African seedcrackers





Genetic Drift - occurs when chance events determines which alleles are passed on (unrelated to fitness)

Island of the Colorblind



Pingelap - atoll in Micronesia
1775 Typhoon Lengkieti

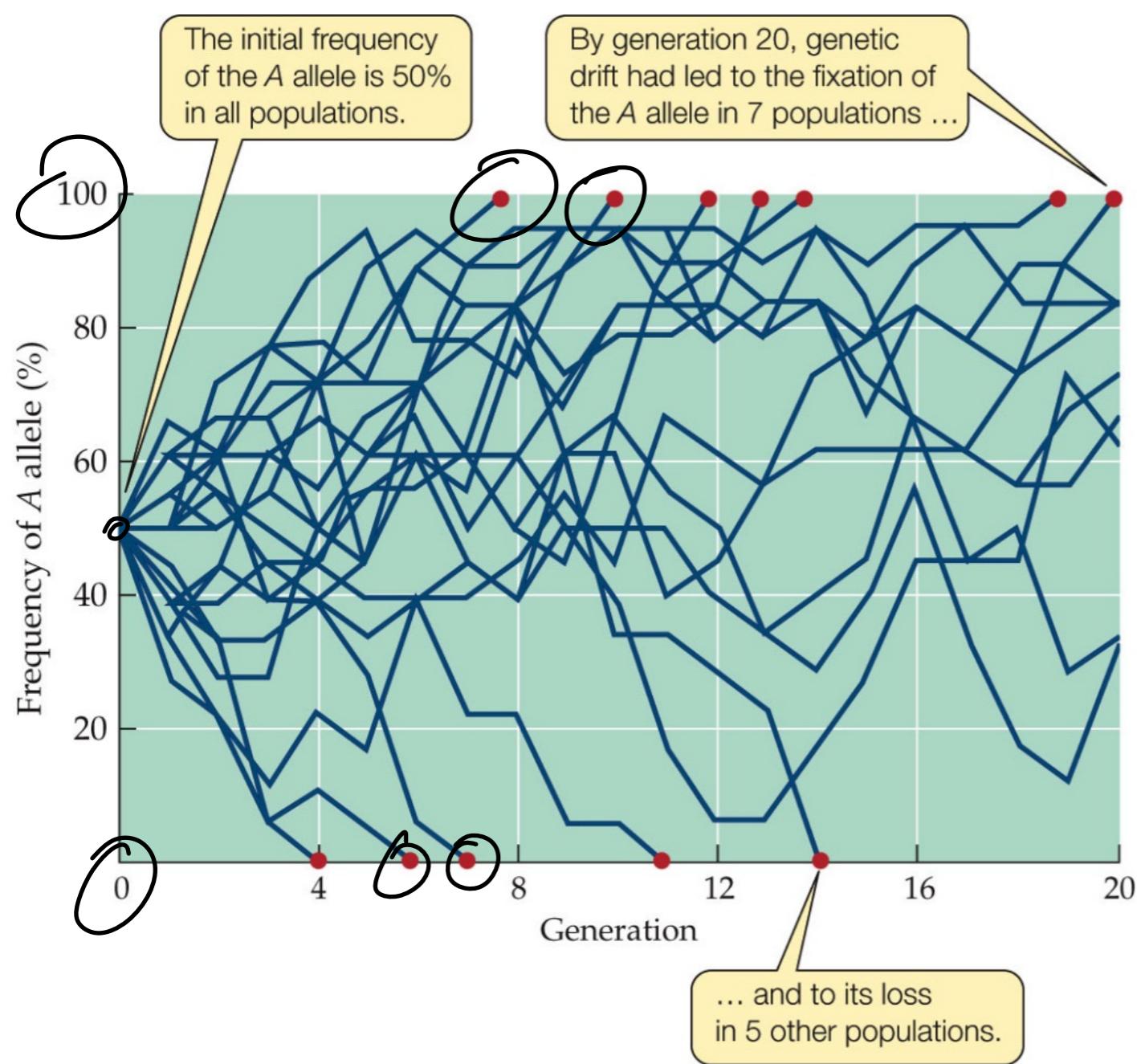
~20 survivors
1 heterozygous achromatopsia

50% \rightarrow 30% in 5 generations

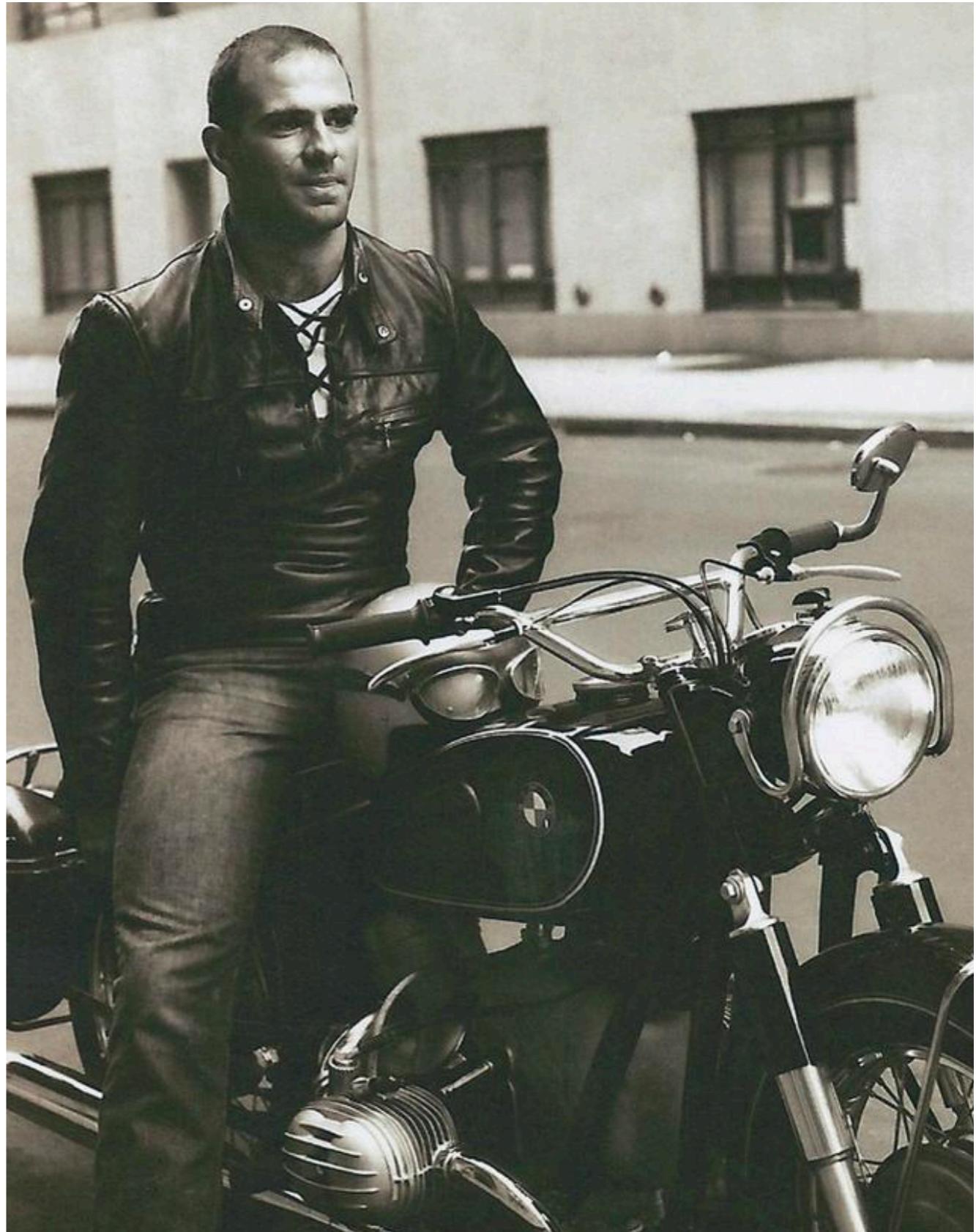
- Initial event was due to genetic drift

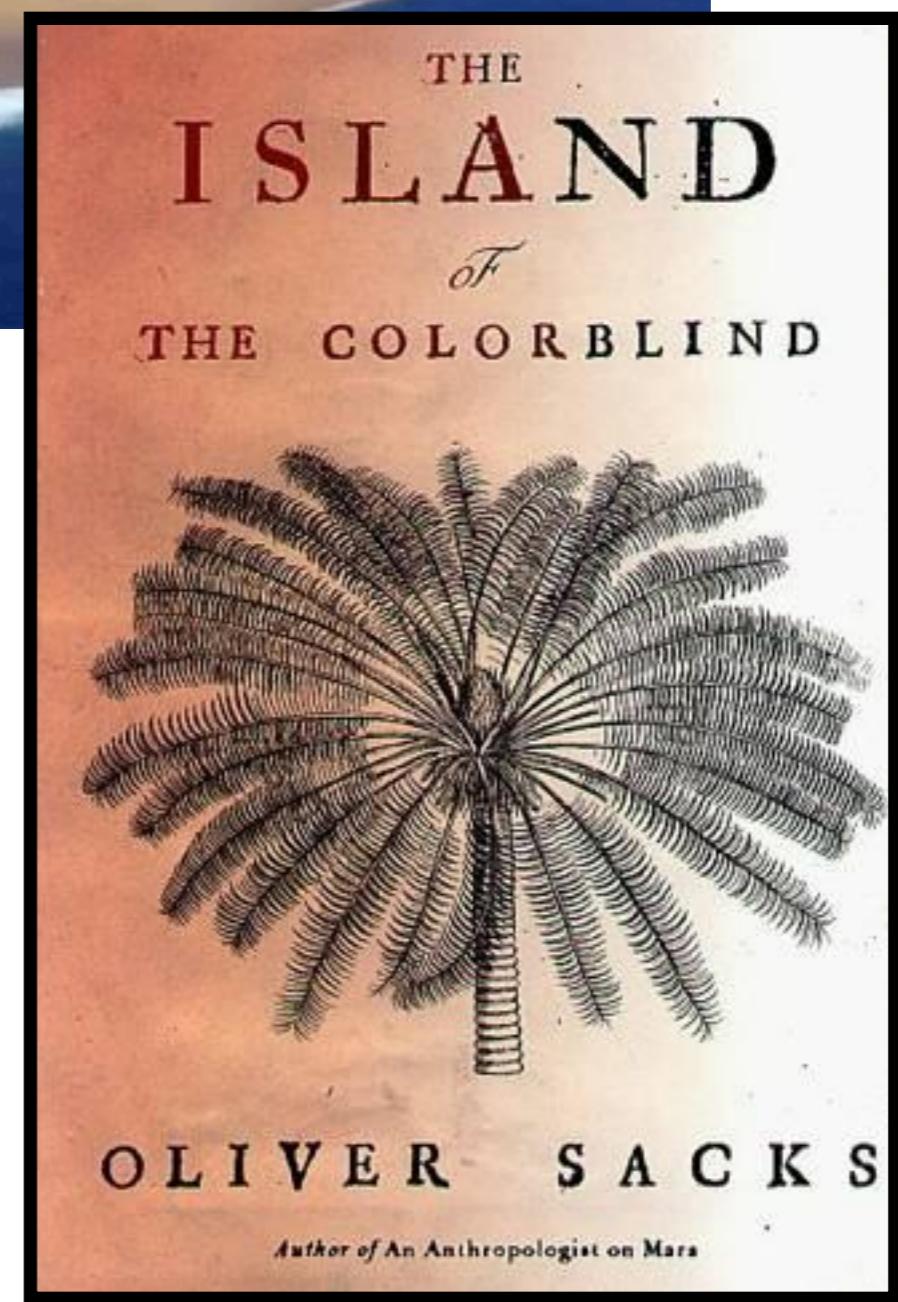
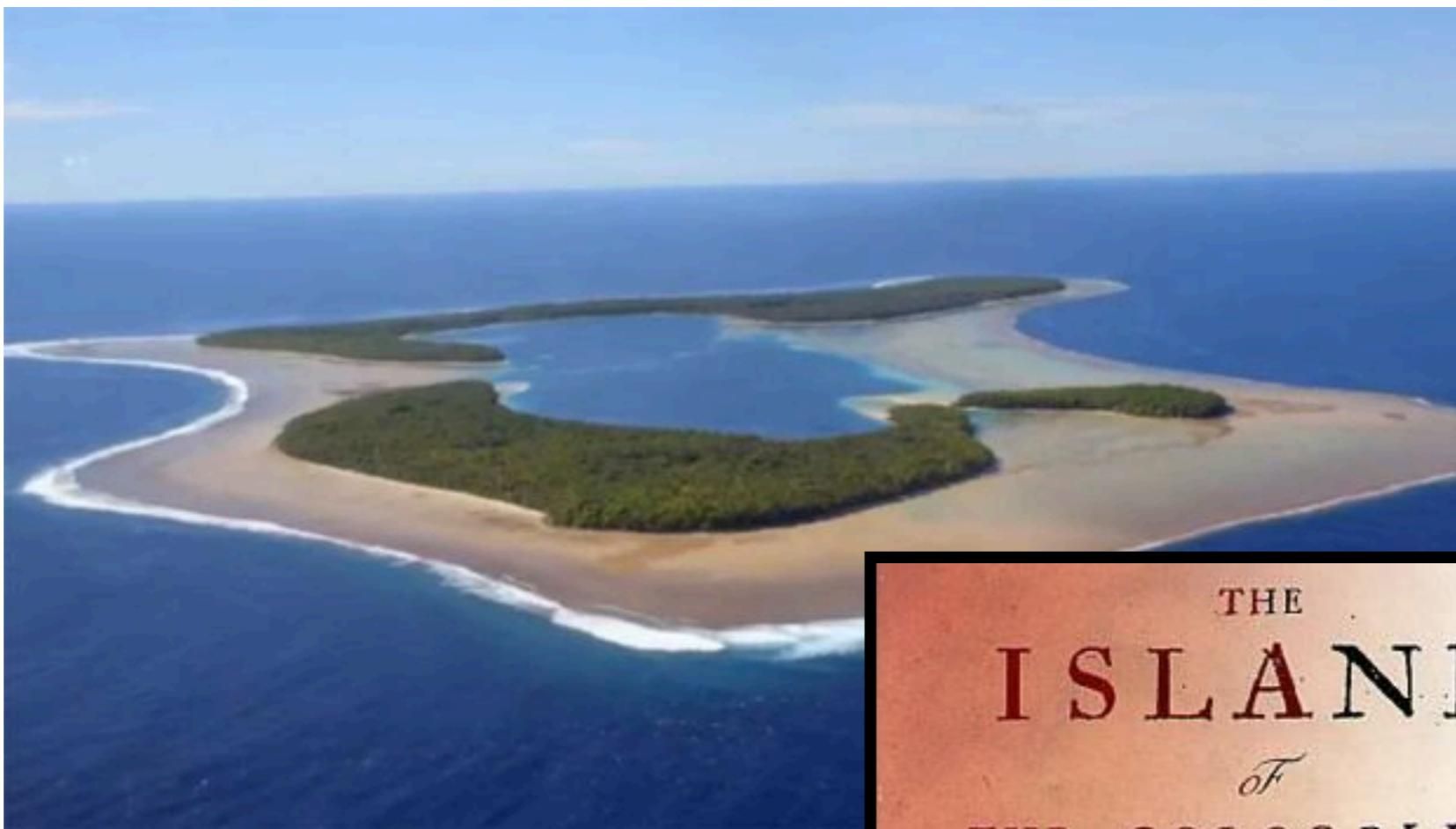
- * Cannot see in bright sunlight

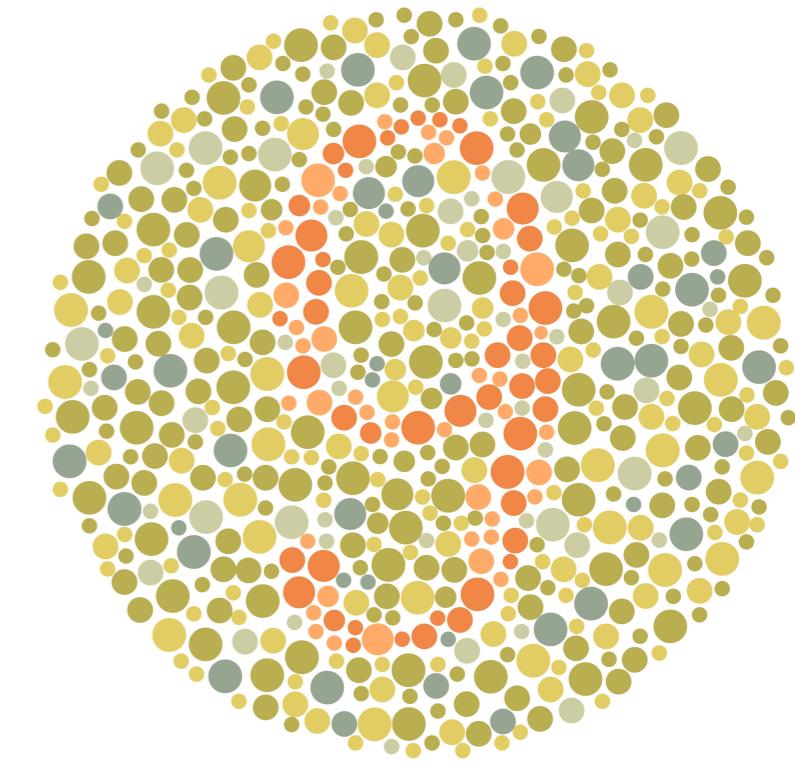
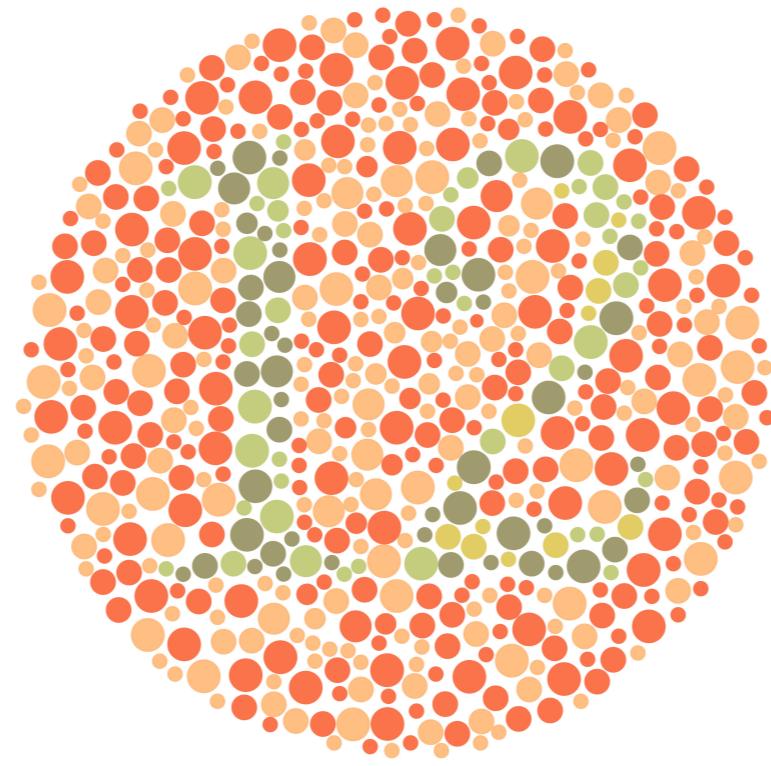
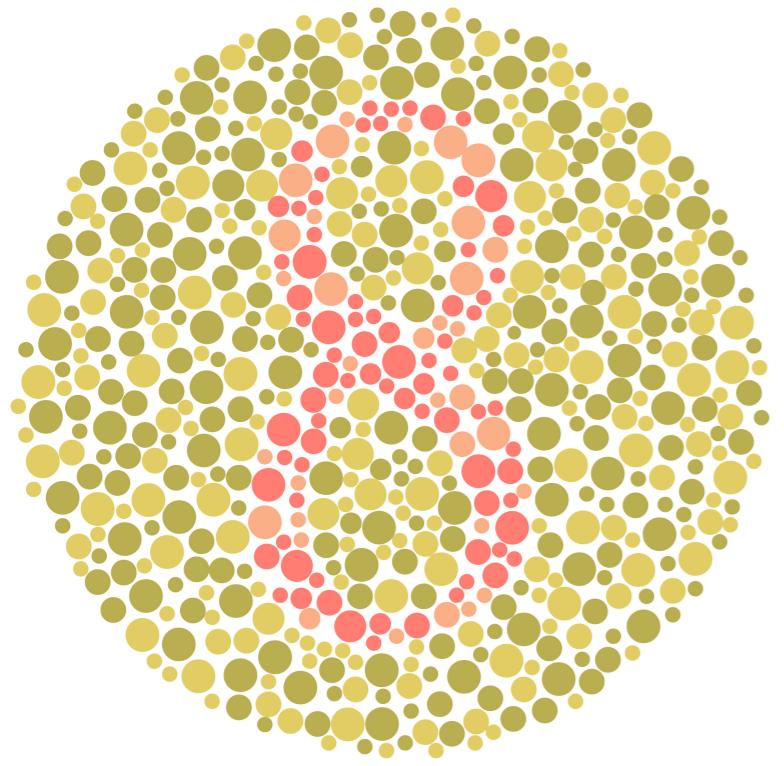
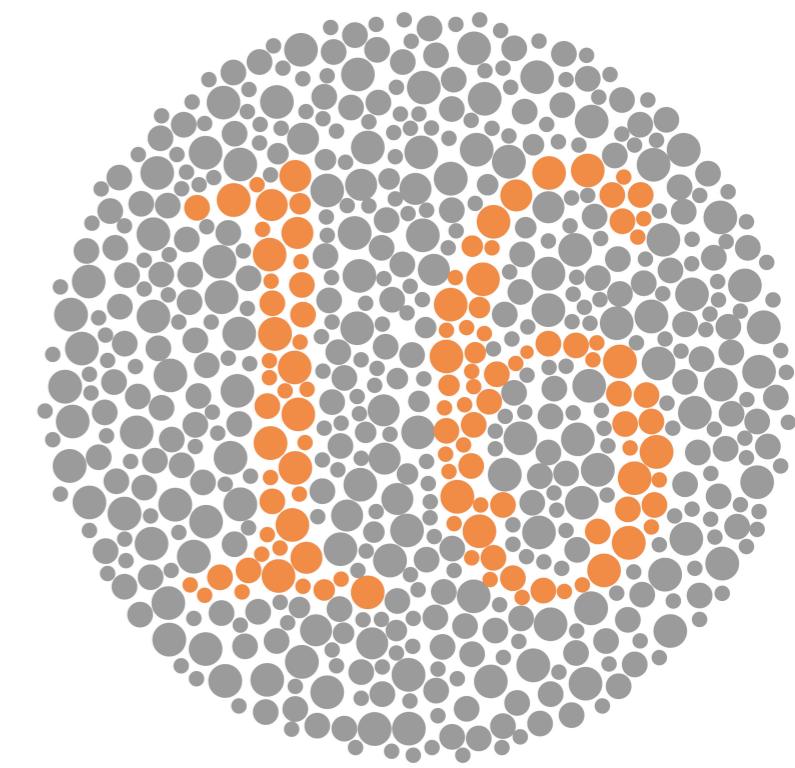
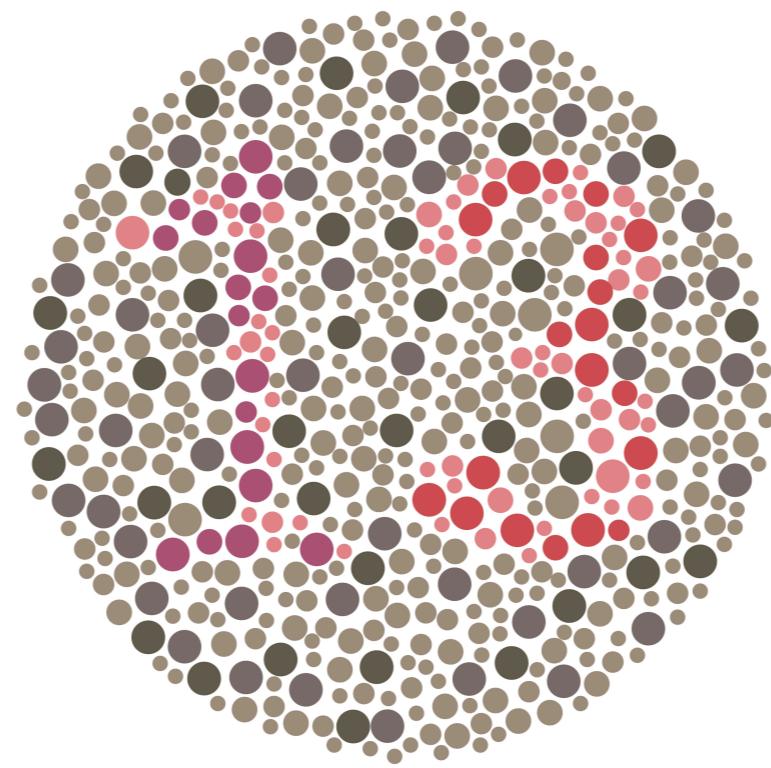
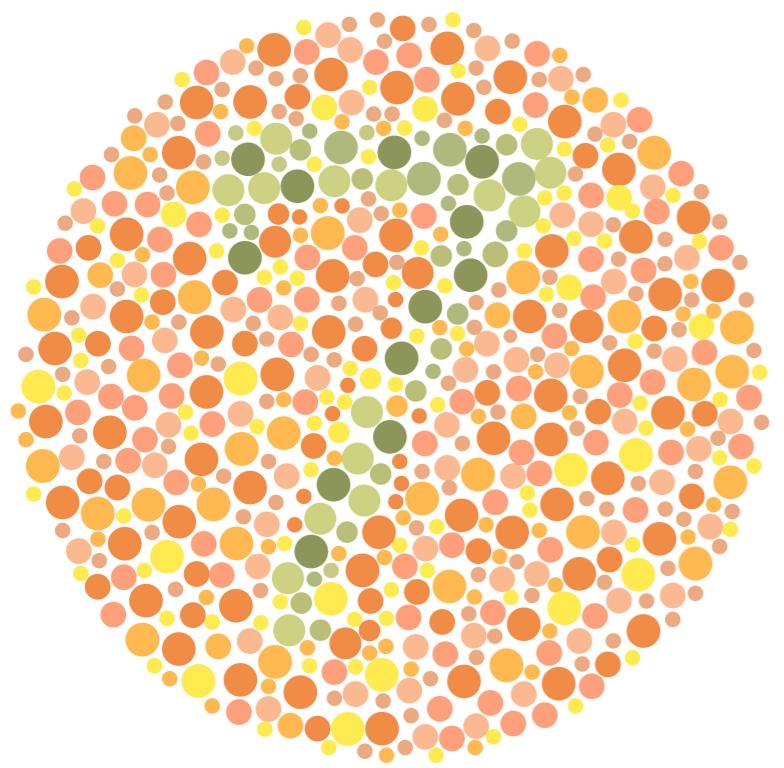
- * Better perception in faint light conditions

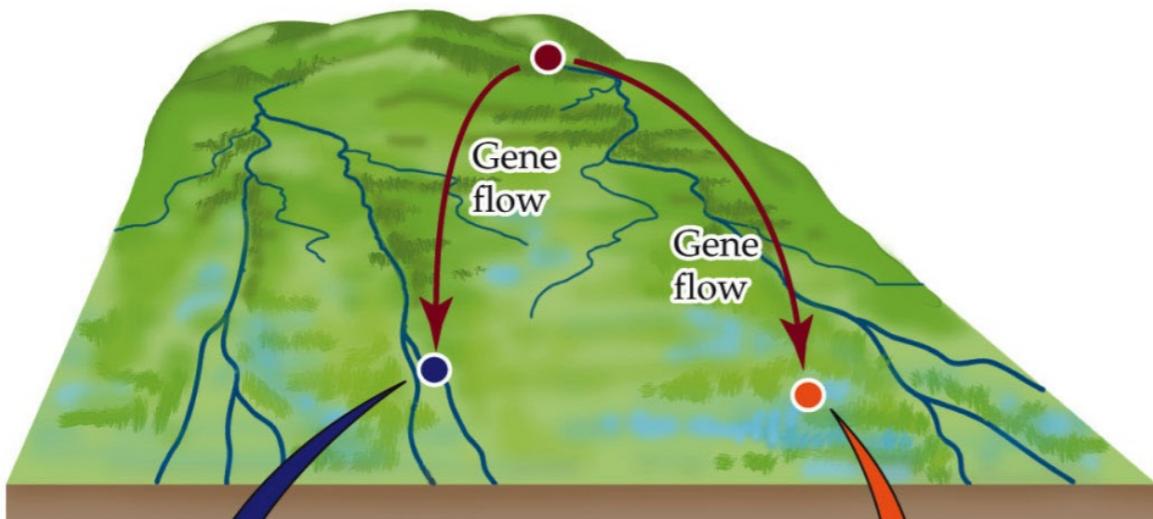


ECOLOGY 2e, Figure 6.7
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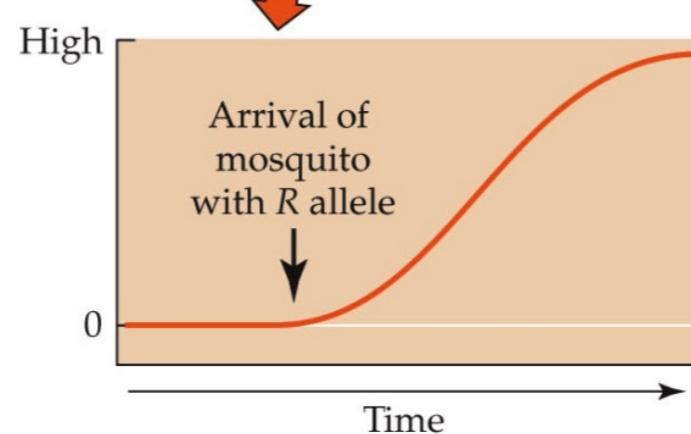
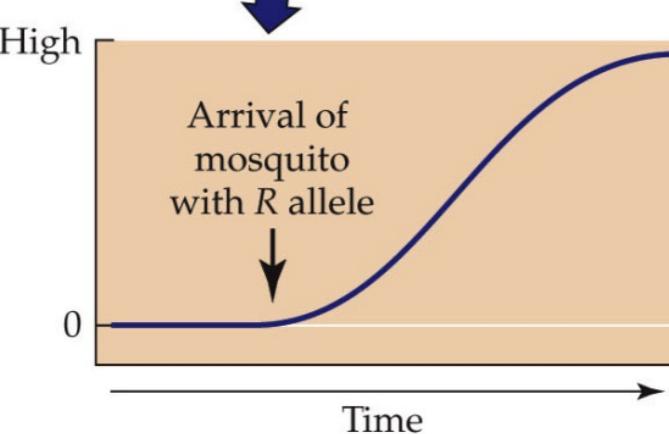








Frequency of R allele
in mosquito population
exposed to insecticides



Gene flow: occurs when alleles are transferred from one population to another via movement

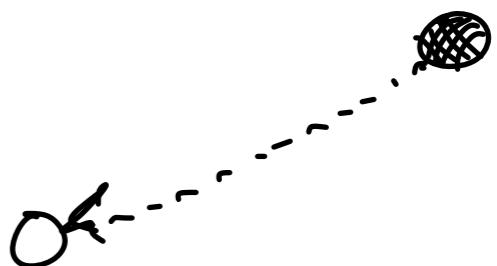
Effects:

- 1) Populations become more similar
- 2) New alleles can be introduced

Culex pipiens - Mosquito // West Nile virus
Malaria

1960's a mutation led to new alleles that introduced resistance to pesticides

Spread to other populations via gene flow

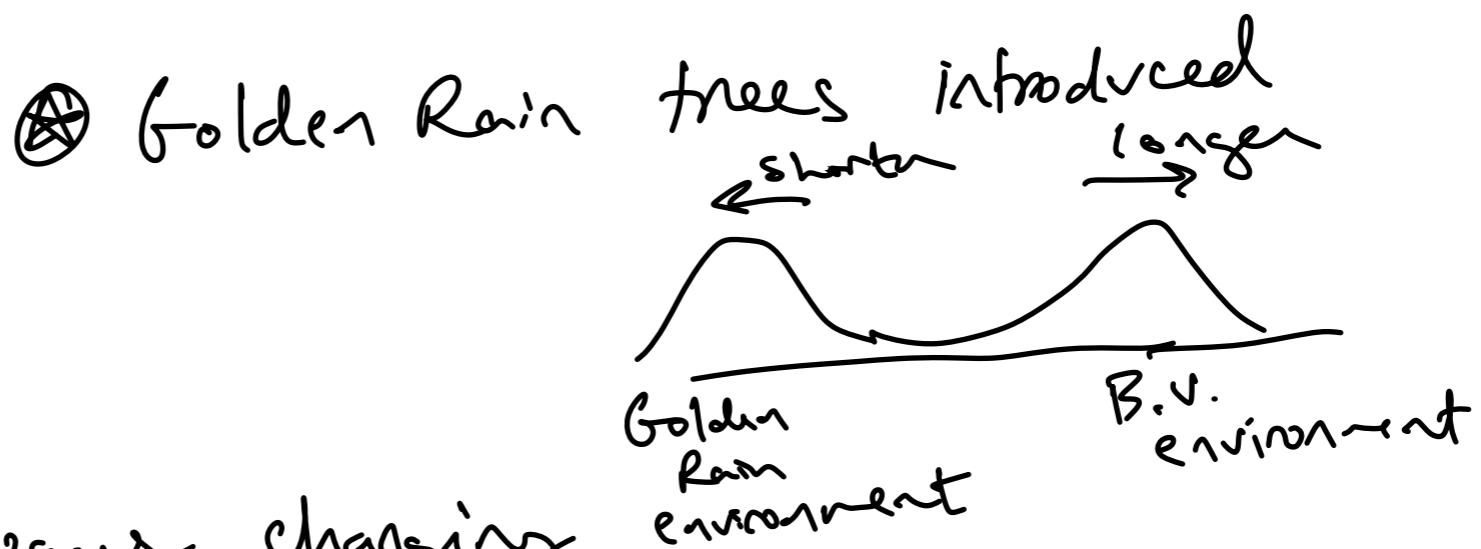


Adaptations

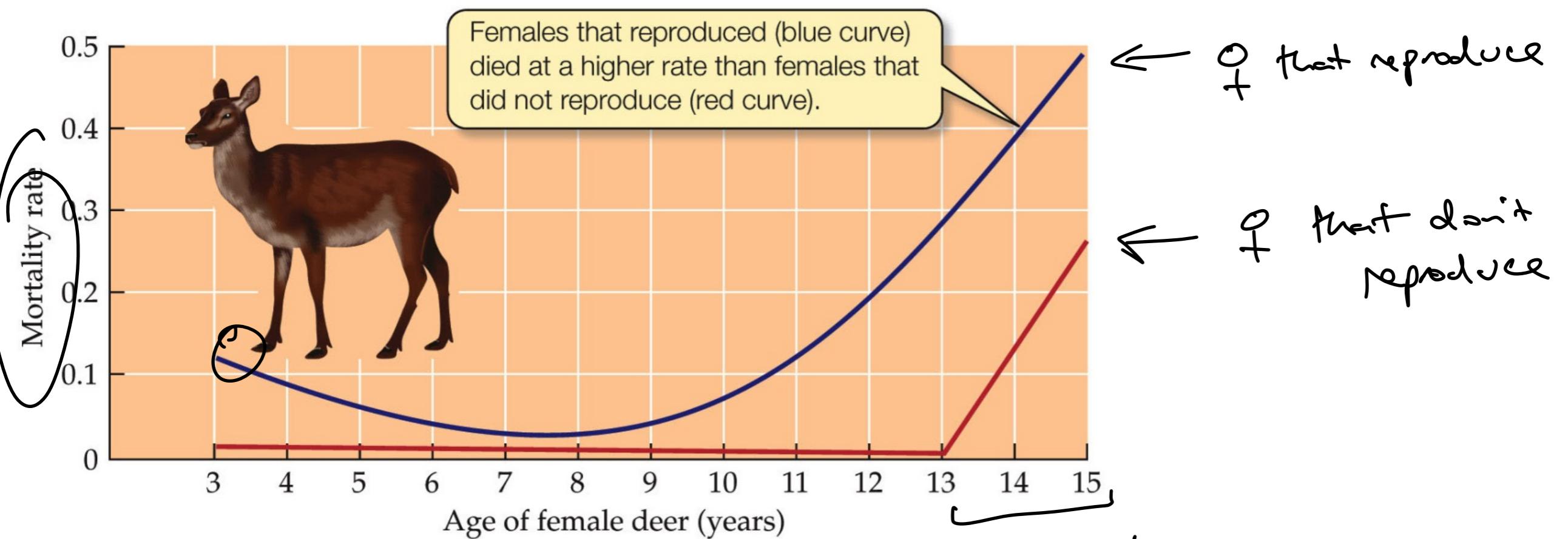
Features of organisms that improve their ability to survive and reproduce (\uparrow Fitness)

Natural Selection \rightarrow Adaptive evolution

- SOAPBERRY BUGS - feed on Balloon Vines
- length of beak \sim depth of the seed



- Environments are always changing
No such thing as a perfect match



Foraging cost
Predation cost

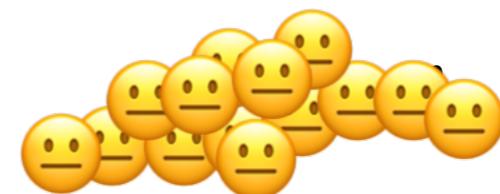
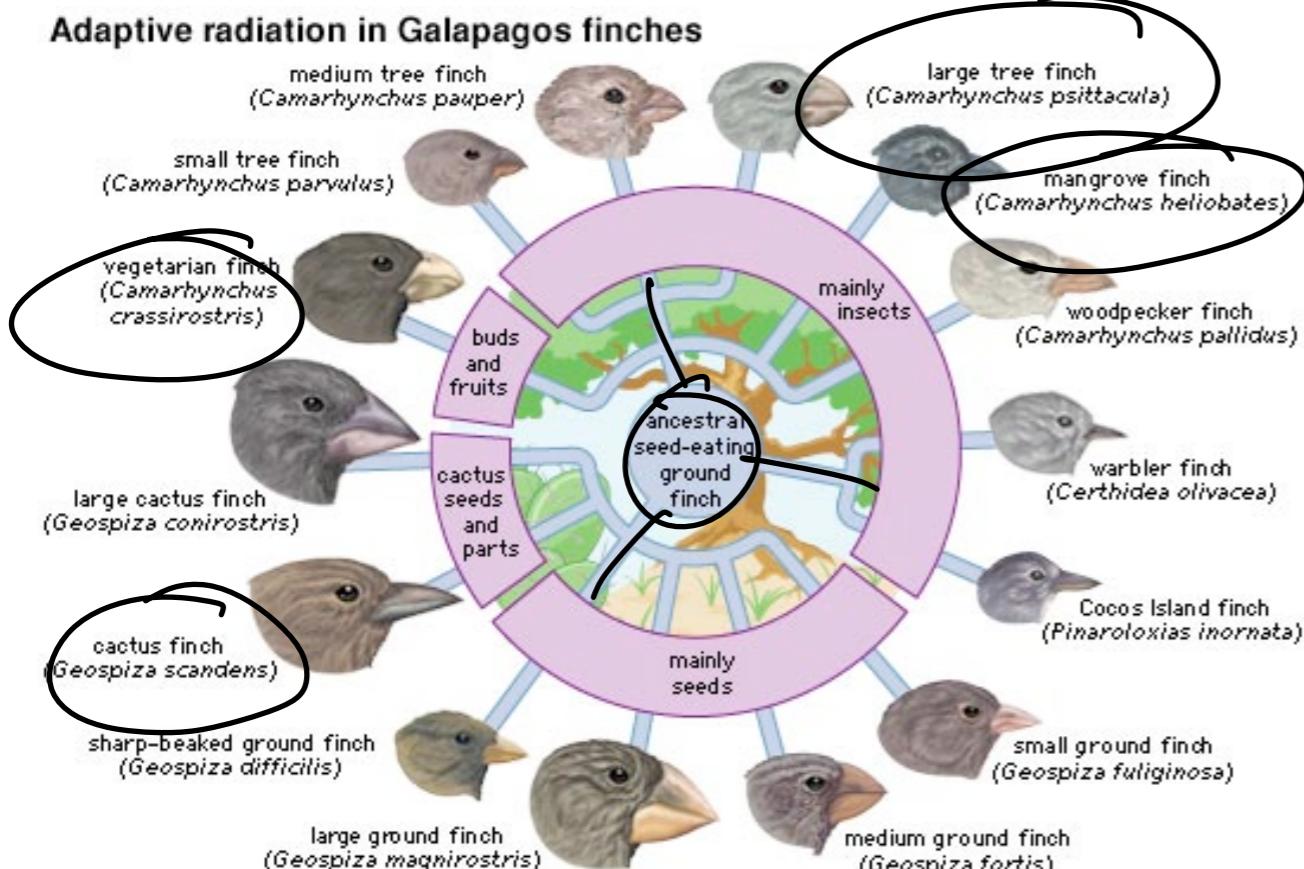
red deer

- i) Lack of genetic variation
- 2) Evolutionary history
- 3) Ecological trade-offs

Adaptive Radiation

Evolution can occur on much smaller timescales than once thought

Finch Radiation



Islands: Natural Laboratories

1. Inherited traits (beak size)
2. Variation in trait
3. Fitness differences, (different in each environment)