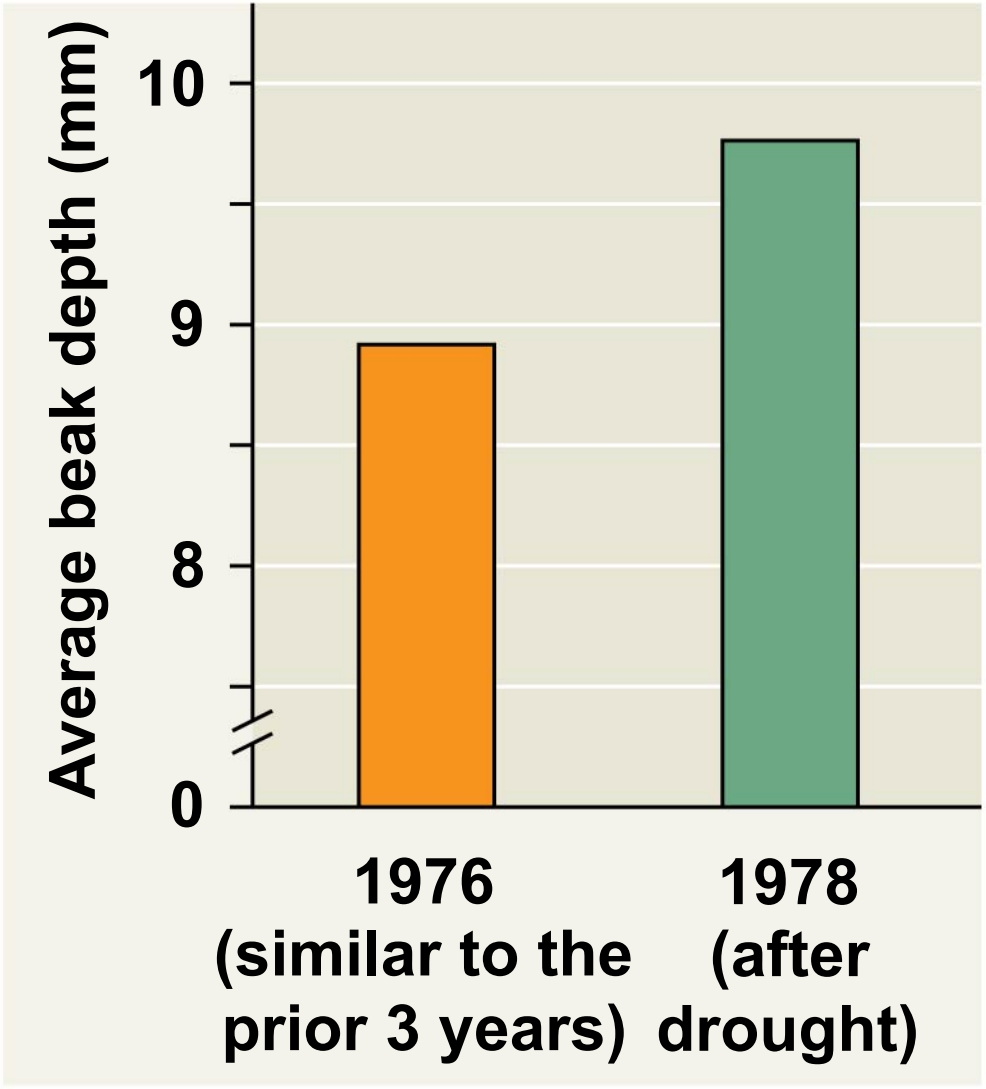
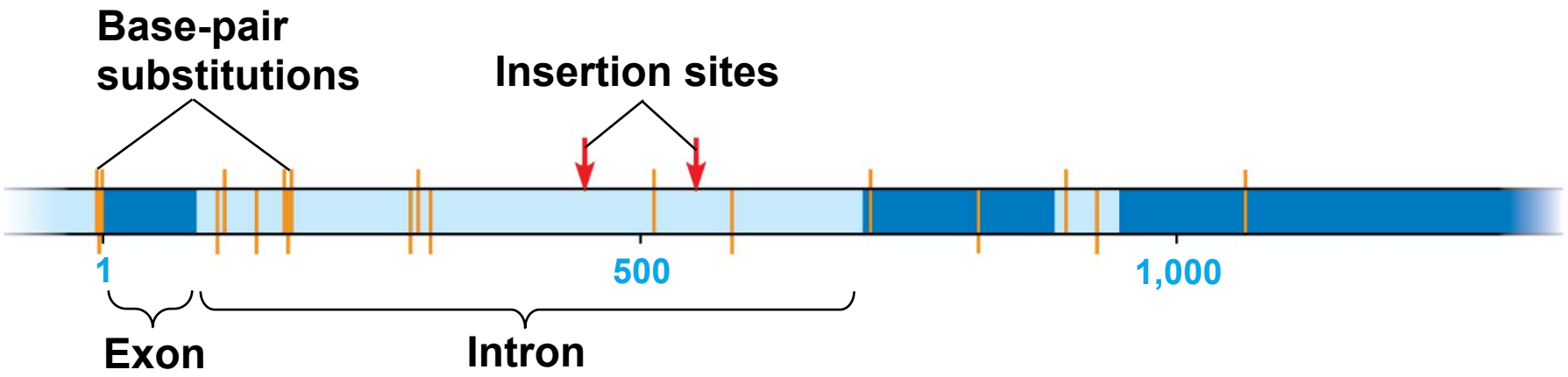
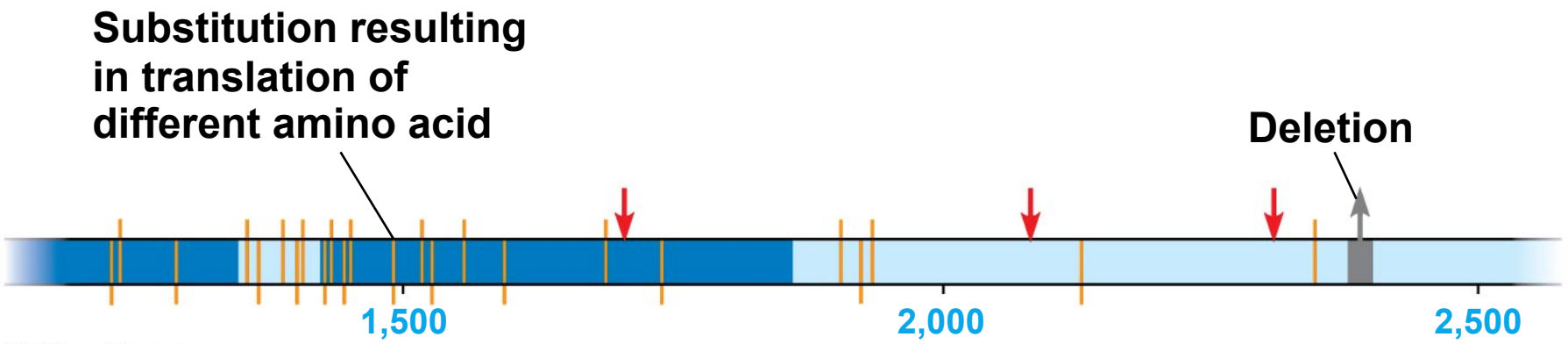
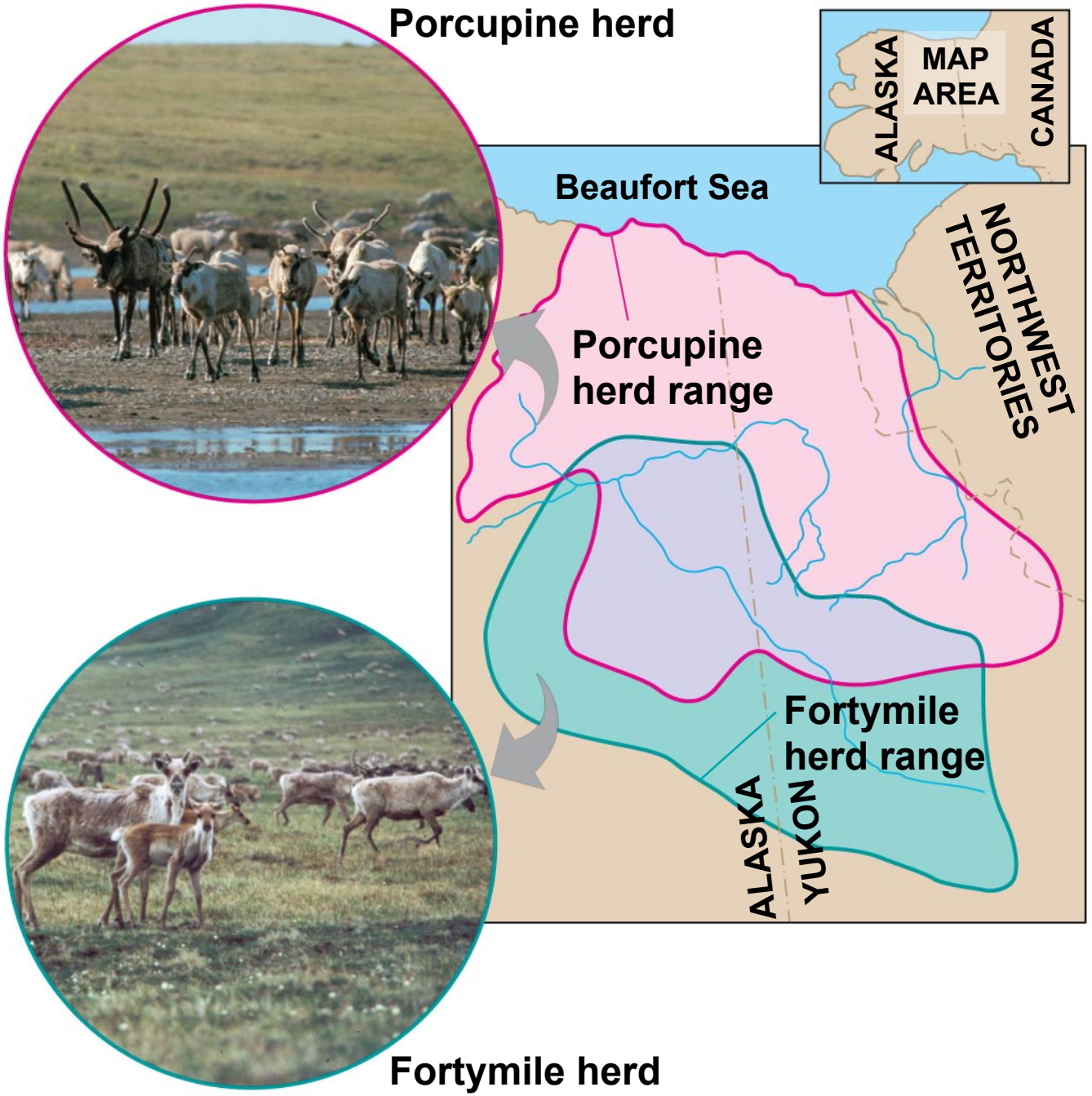






(a) Caterpillars raised on a diet of oak flowers

(b) Caterpillars raised on a diet of oak leaves

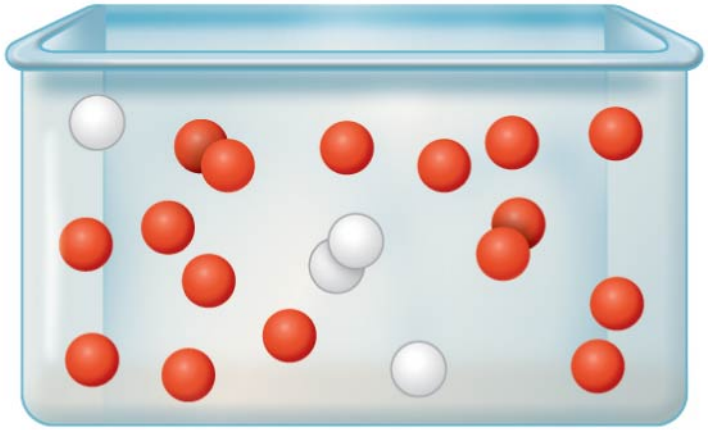


Frequencies of alleles

p = frequency of C^R allele = 0.8

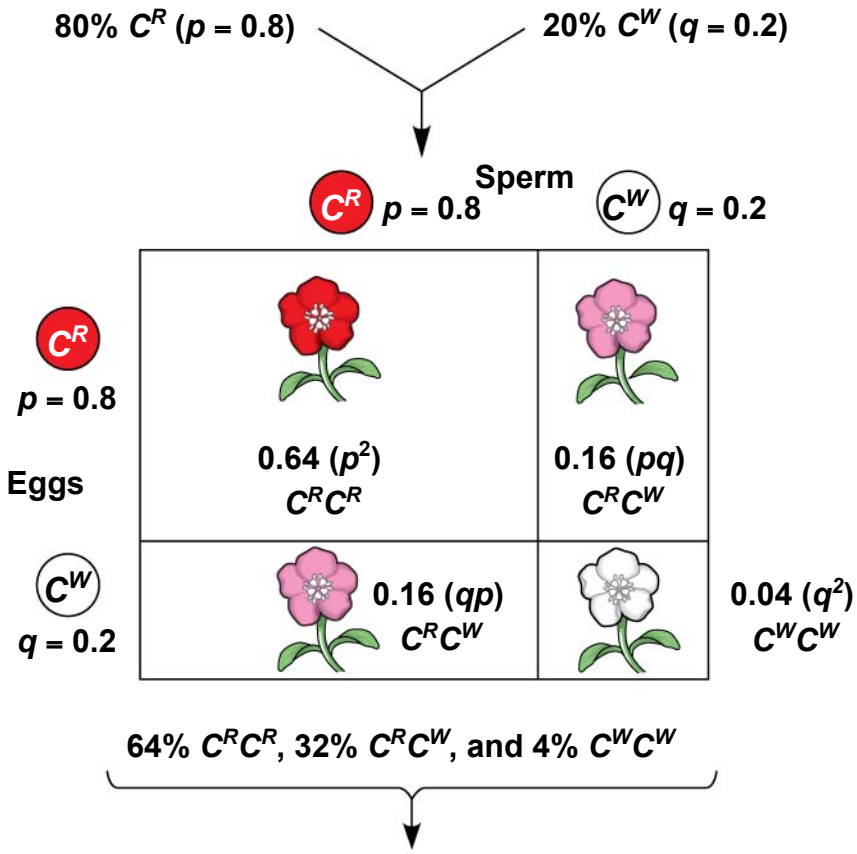
q = frequency of C^W allele = 0.2

Alleles in the population



Gametes produced

Each egg:		Each sperm:	
80% chance	20% chance	80% chance	20% chance



64% C^RC^R, 32% C^RC^W, and 4% C^WC^W

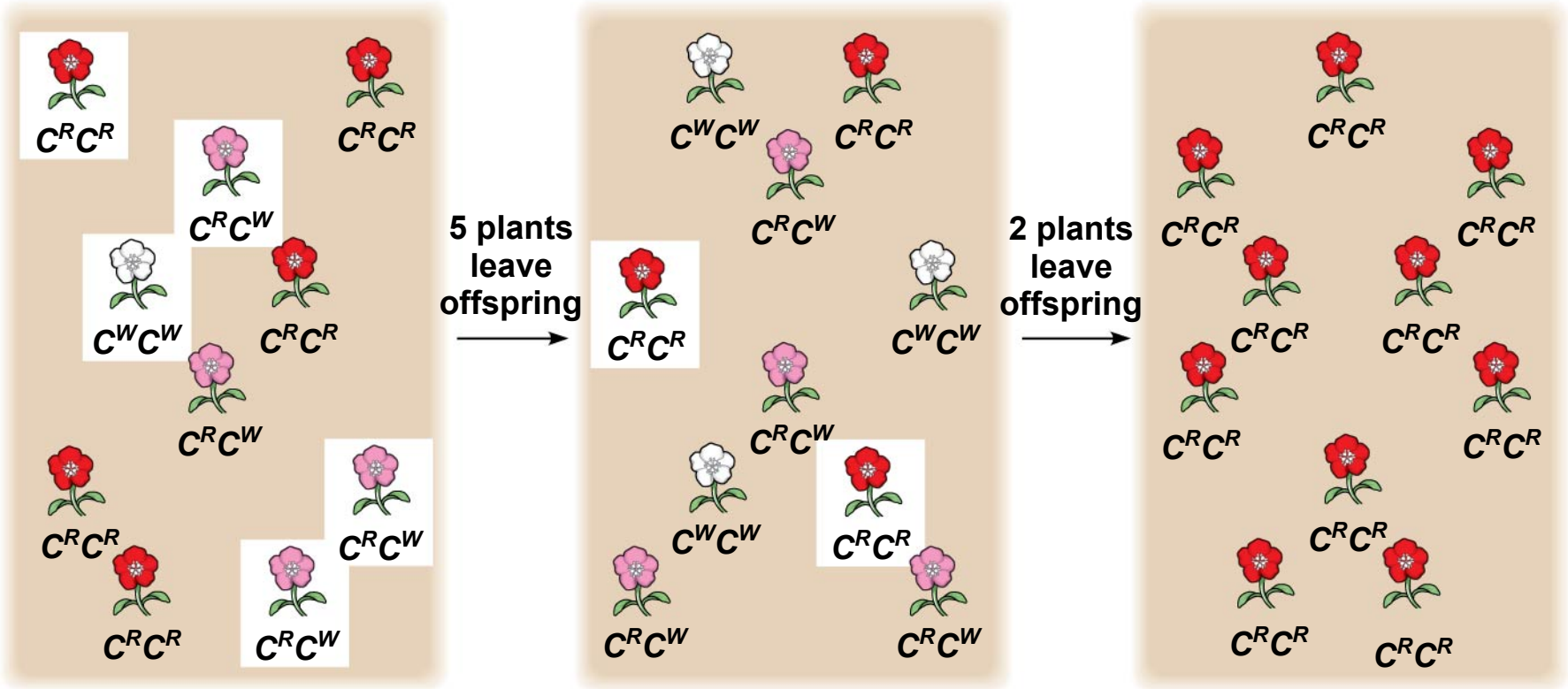
Gametes of this generation:

64% C^R (from C^RC^R plants) + 16% C^R (from C^RC^W plants) = 80% C^R = 0.8 = p

4% C^W (from C^WC^W plants) + 16% C^W (from C^RC^W plants) = 20% C^W = 0.2 = q

With random mating, these gametes will result in the same mix of genotypes in the next generation:

64% C^RC^R, 32% C^RC^W, and 4% C^WC^W plants



Generation 1

p (frequency of C^R) = 0.7
q (frequency of C^W) = 0.3

Generation 2

p = 0.5
q = 0.5

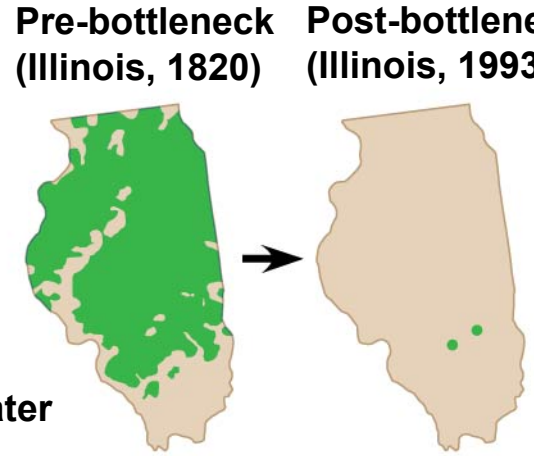
Generation 3

p = 1.0
q = 0.0

(a) By chance, blue marbles are overrepresented in the surviving population.

(b) Florida panther (*Puma concolor coryi*)

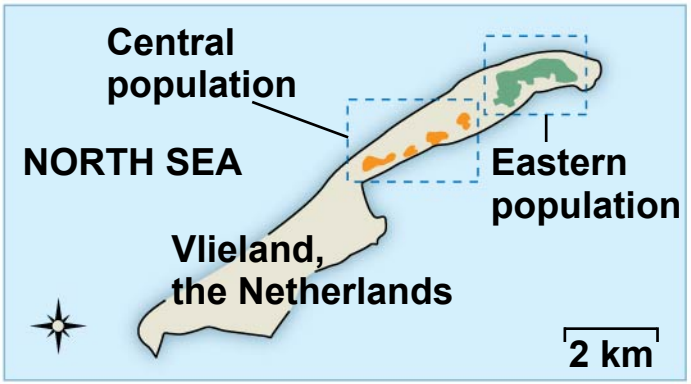
Greater prairie chicken



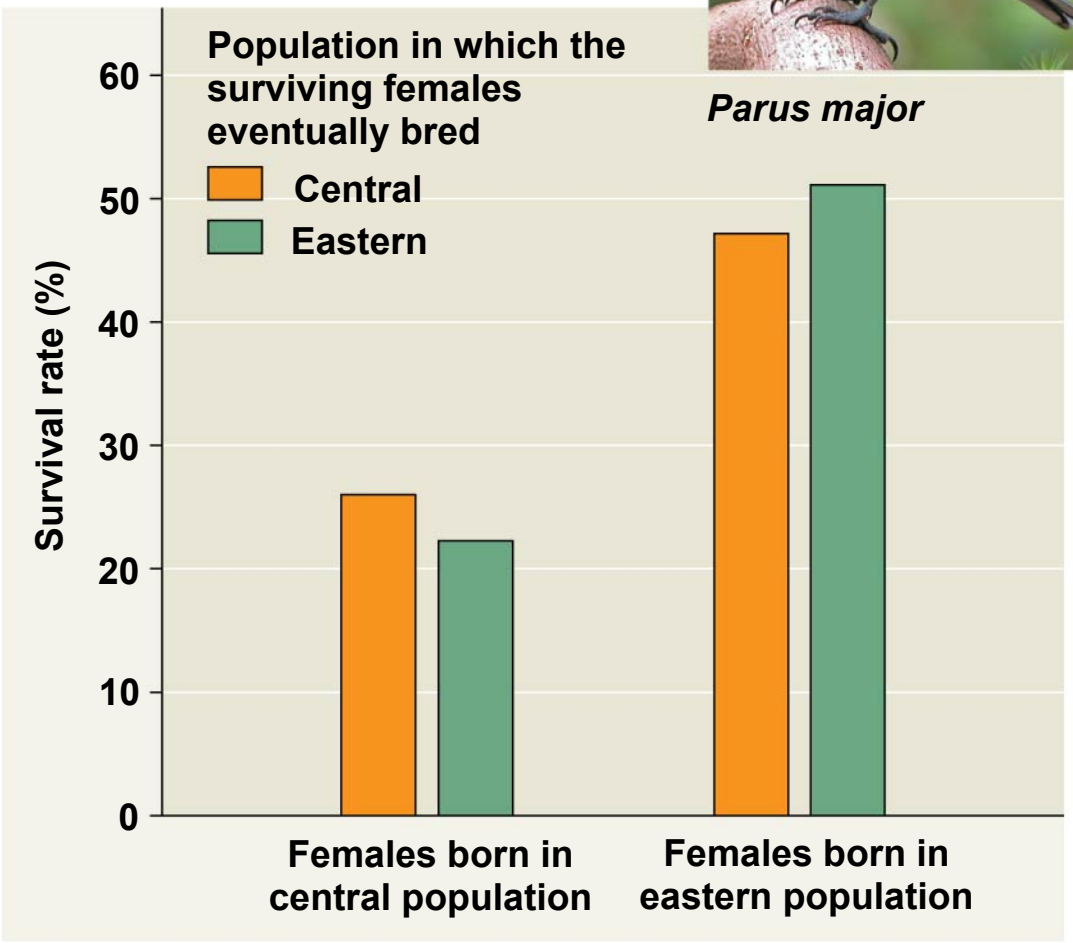
(a)

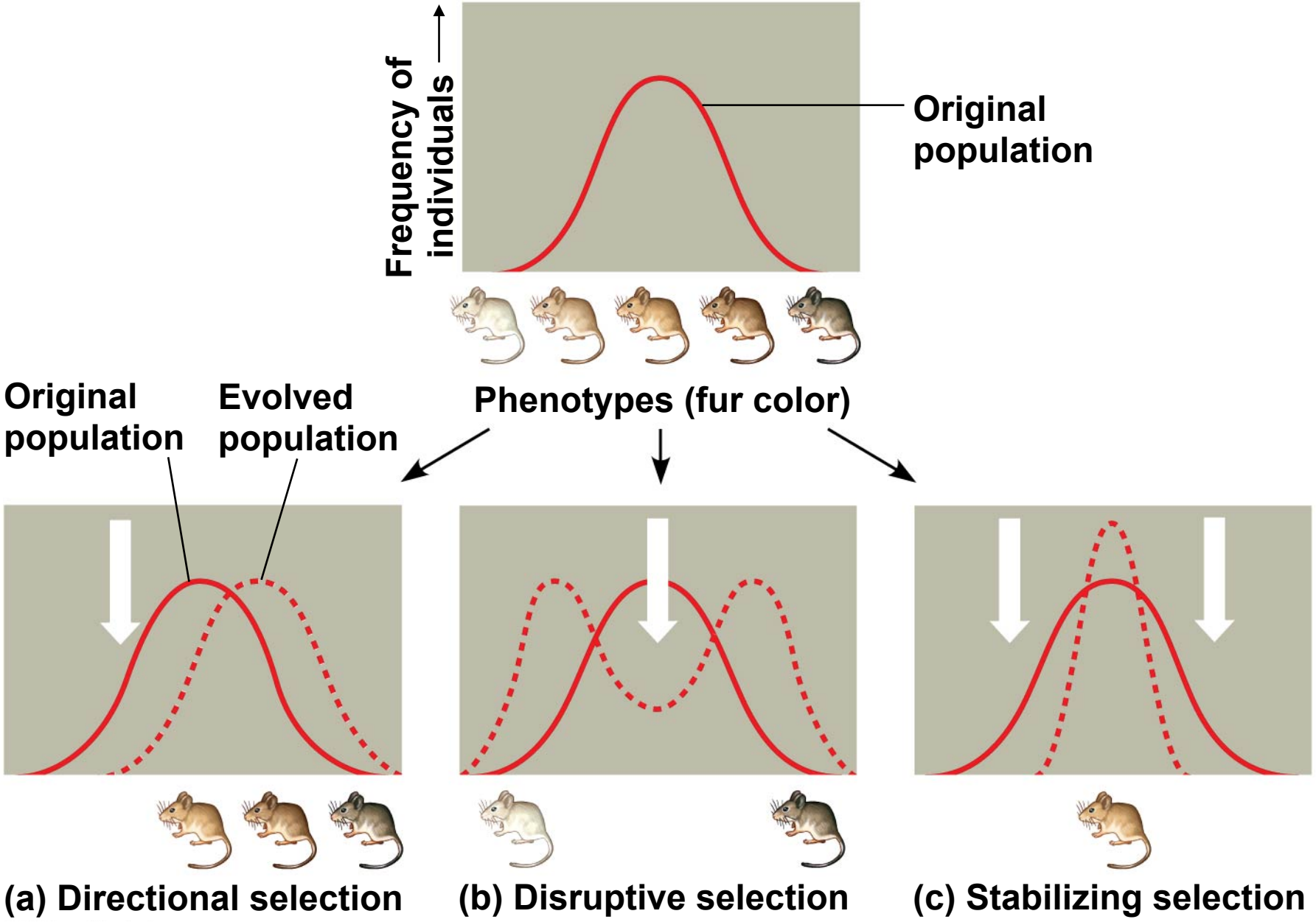
Location	Population size	Number of alleles per locus	Percentage of eggs hatched
Illinois			
1930–1960s	1,000–25,000	5.2	93
1993	<50	3.7	<50
Kansas, 1998 (no bottleneck)	750,000	5.8	99
Nebraska, 1998 (no bottleneck)	75,000–200,000	5.8	96

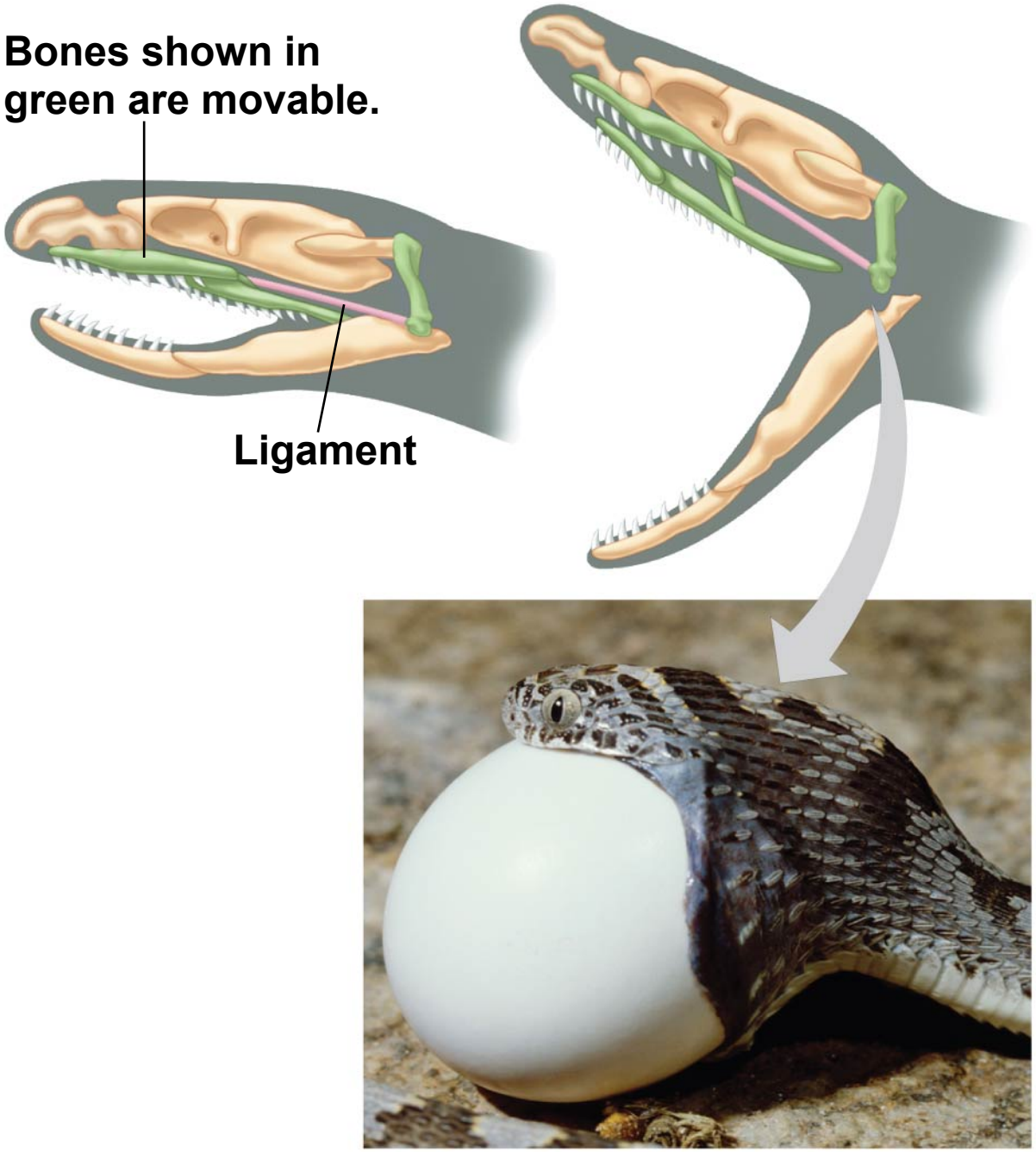
(b)



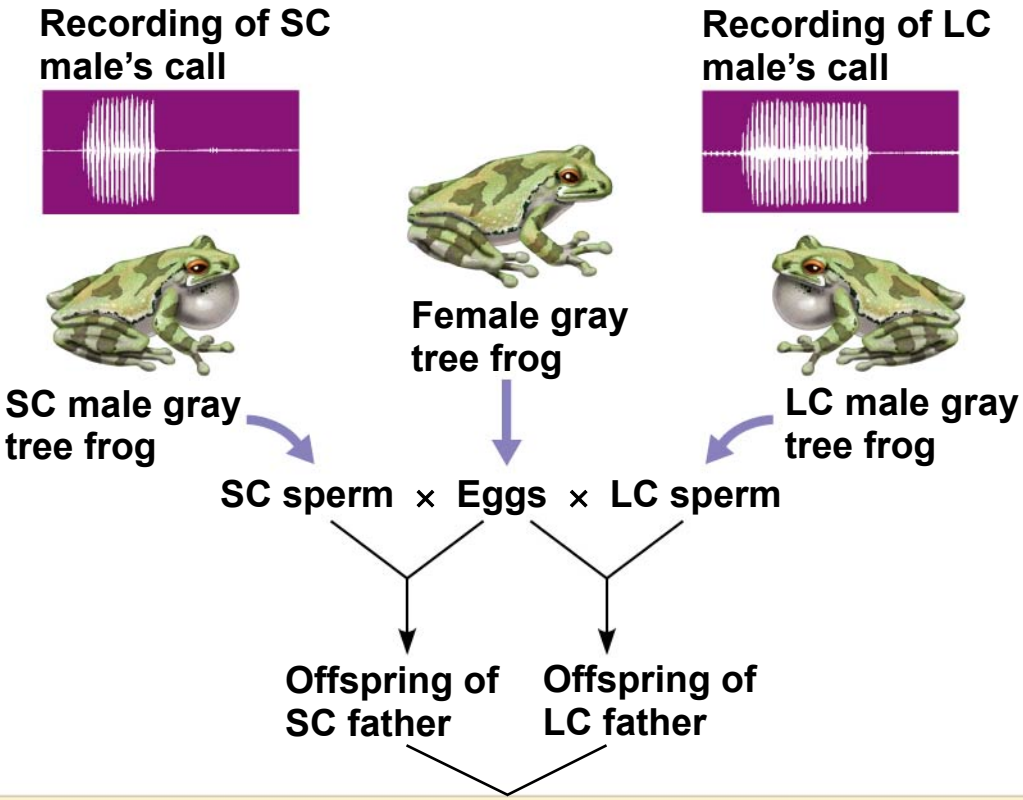
Parus major







Experiment



Results

Offspring Performance	1995	1996
Larval survival	LC better	NSD
Larval growth	NSD	LC better
Time to metamorphosis	LC better (shorter)	LC better (shorter)

NSD = no significant difference; LC better = offspring of LC males superior to offspring of SC males.