

Genetic Variation in Populations Problem Set

Conservation Biology

Spring 2009

Math answers to problem set

Locu s		Population #1	Population #2
A	Freq(A)	1	0.01
	Freq(a)	0	0.99
	Is locus A polymorphic?	NO	NO
	Freq of Aa heterozygotes	0 (E=0)	0.02 (E=0.0198)
B	Freq(B)	0	0.12
	Freq(b)	1	0.88
	Is locus B polymorphic?	NO	YES
	Freq of Bb heterozygotes	0 (E=0)	0.08 (E=0.2112)
C	Freq(C)	0.3	0.78
	Freq(c)	0.7	0.22
	Is locus C polymorphic?	YES	YES
	Freq of Cc heterozygotes	0 (E=0.42)	0.28 (E=0.3432)
D	Freq(D)	0.4	0.46
	Freq(d)	0.6	0.54
	Is locus D polymorphic?	YES	YES
	Freq of Dd heterozygotes	0.6 (E=0.48)	0.6 (E=0.4968)
E	Freq(E)	0.5	0.96
	Freq(e)	0.5	0.04
	Is locus E polymorphic?	YES	NO
	Freq of Ee heterozygotes	1.0 (E=0.5)	0.08 (E=0.0768)
F	Freq(F)	0.55	0.46
	Freq(f)	0.45	0.54
	Is locus F polymorphic?	YES	YES
	Freq of Ff heterozygotes	0.5 (E= 0.495)	0.72 (E = 4968)
	Polymorphism (P)	$4/6 = 0.67$	$=3/6 = 0.5$
	Heterozygosity (H)	$H = (0.6+1.0+0.5)/6=0.35$	$H = (0.02+0.08+0.28+0.6+0.08+0.72)/6=0.3$
	Expected Heterozygosity	$He = (0.42+0.48+0.5+0.495)/6=0.32$	$He = (0.198+.2112+.3432+.4968+.0768+.4968)/6 =0.274$