Biology 4605/7220 Name _____
Quiz #11a 26 November 2003

1. Ainley *et al.* (1995, *Marine Ecology Progress Series* 118:69-79) used a 21 year time series from the Farallon Islands to investigate productivity (number of chicks fledged per year) for 6 seabird species in relation to proximate and remote factors leading to variation in food supply to chicks. They obtained measurements of 7 physical factors and 1 biological factor. How many pairwise correlations are there in the set of 8 environmental factors ?

For n objects the formula for number of pairs will be $Pairs = \frac{n(n-1)}{2}$

2. A conservation biologist is interested in the factors that affect seed set (Nseed) by an endangered plant. In addition to Nseed, the following variables were measured for individual plants.

Variable	Direction of effect	Reason
Insect damage to leaves (scored from 0 to 3)	_____	_____
Soil phosphate (ppm)	_____	_____
Size of plant (basal diameter)	_____	_____
Leaf area	_____	_____

2a State the direction of effect (plus, minus, or zero) on Nseed for each of these 4 variables. Give a brief reason for each (if you use the other side of this sheet of paper to write out reasons, be sure to label each reason clearly)..

2b. State three relations that you think might be important, within the set of 4 explanatory variables.

2c Draw a box and arrow diagram that shows these three relations, in addition to the relation of Nseed to each of these 4 variables. Draw the arrows in the direction of effect. Place a plus or minus sign over each of your 7 arrows, to show whether the relation is positive or negative.