Biology 4605 / 7220   Name _____
Quiz 9a   24 November 2004

1. For the following data situations, state the name of the unit of analysis and whether the response variable is poisson (counts within unit of analysis) or binomial (scoring of each unit as yes/no).

1a. A mark recapture study involving 50 marked salamanders recaptured in 4 different streams.

1b. A study of survival rates of caribou calves born early and late during the breeding season, for experienced and inexperienced mothers.

1c. A study of the number of parasites in the gills of fish of many different ages.

1d. A study of number of seeds sprouting in small quadrats in the Mojave desert, counted on successive days after a rainstorm.

	Name of unit of analysis	Binomial/ Poisson	Symbol	Link	Error Type
1a	_____	_____	_____	_____	_____
1b	_____	_____	_____	_____	_____
1c	_____	_____	_____	_____	_____
1d	_____	_____	_____	_____	_____

2. Assign a symbol to each variable in the table above, state the link and error type you would use in a generalized linear model to analyze that response variable.

Identity link $Y = \mu$ Log link $Y = e^{\mu}$ Logit link $\ln(p/(1-p)) = \mu$

Error types: normal, poisson, binomial, gamma, negative binomial

3. For data situation (1d) list an explanatory variable, assign a symbol, and then using the symbol you assigned, write a generalized linear model of the form:

$\mu = \Sigma \beta_i X_i = \beta_o + \beta_i X_i + \beta_i X_i$ .... *etc*

Explanatory variable _____   Symbol _____(not X)

$\mu = $ _____