

Poisson population model

$$\log(\text{Count}) = \beta_0 + \beta_1 \cdot \text{Date}$$

$$\text{Count} = e^{\beta_0 + \beta_1 \cdot \text{Date}}$$

$$\text{Count} = e^{\beta_0} \cdot e^{\beta_1 \cdot \text{Date}}$$

$$x(t) = x_0 \cdot e^{kt}$$

Exponential growth model

Annual rate
of population
change