$$\frac{dN_t}{dt} = r_0 \times (1 - \frac{N_t}{K})$$

where:

N_t = the population size at time t

r_0 = maximum growth rate [1/time step]

K = Carrying capacity

$$N_t = \frac{K}{1 + (\frac{K}{N_0} - 1)e^{-r_0 t}}$$

where:

N_0 = initial population size