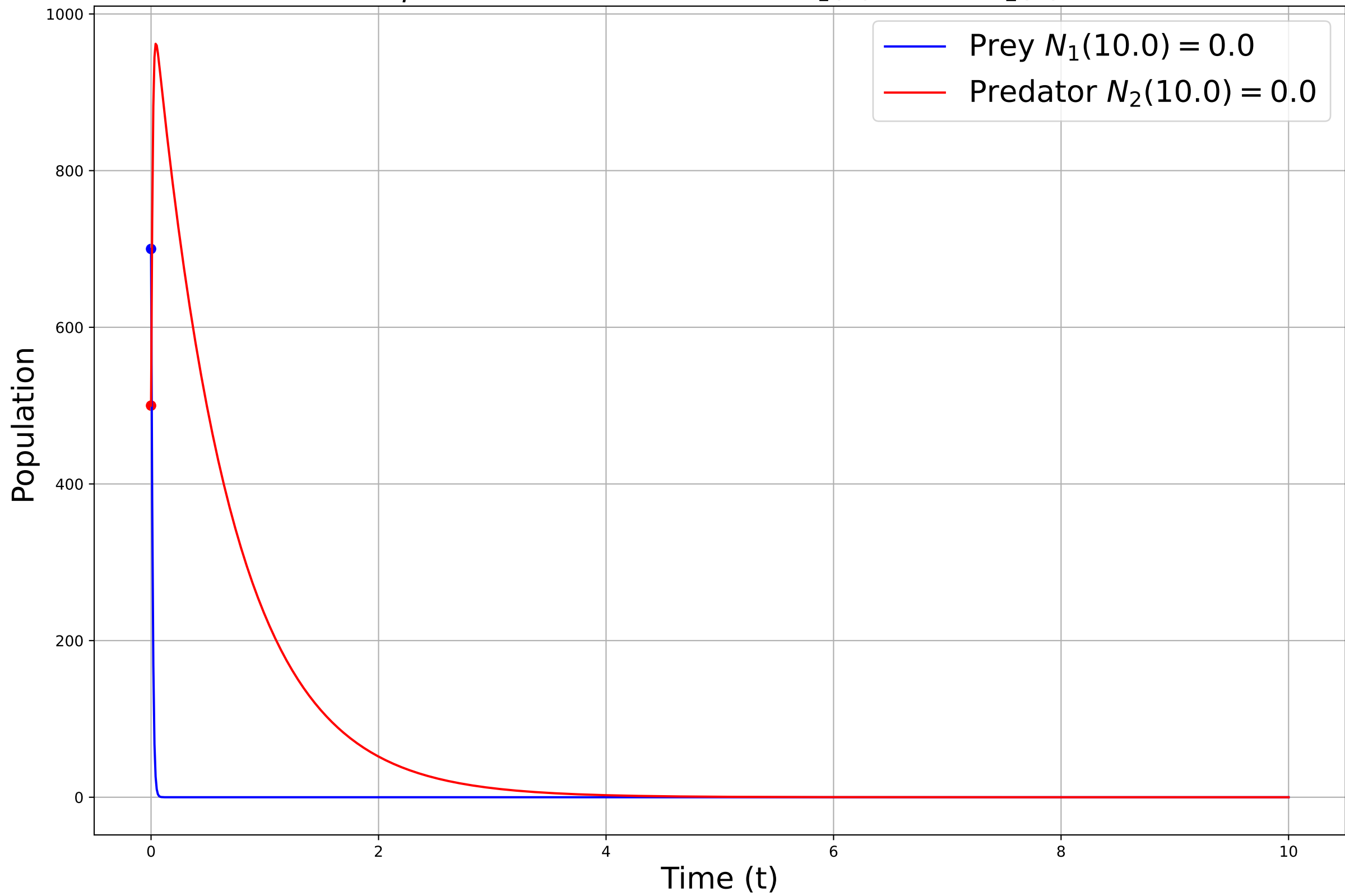


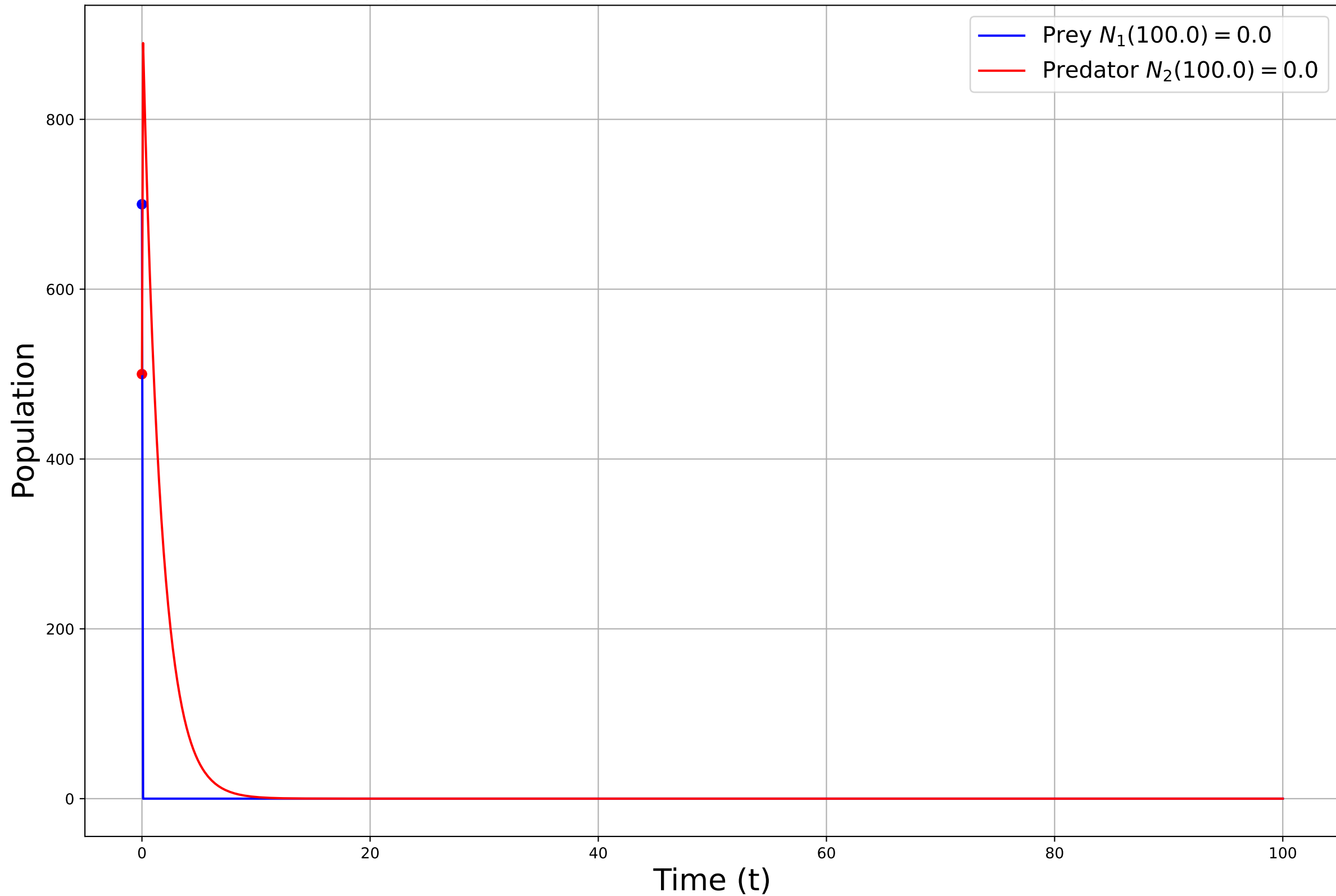
$$\alpha = 0.9, \beta = 0.1, \delta = 0.075, \lambda = 1.5, N_1(0) = 500, N_2(0) = 700$$



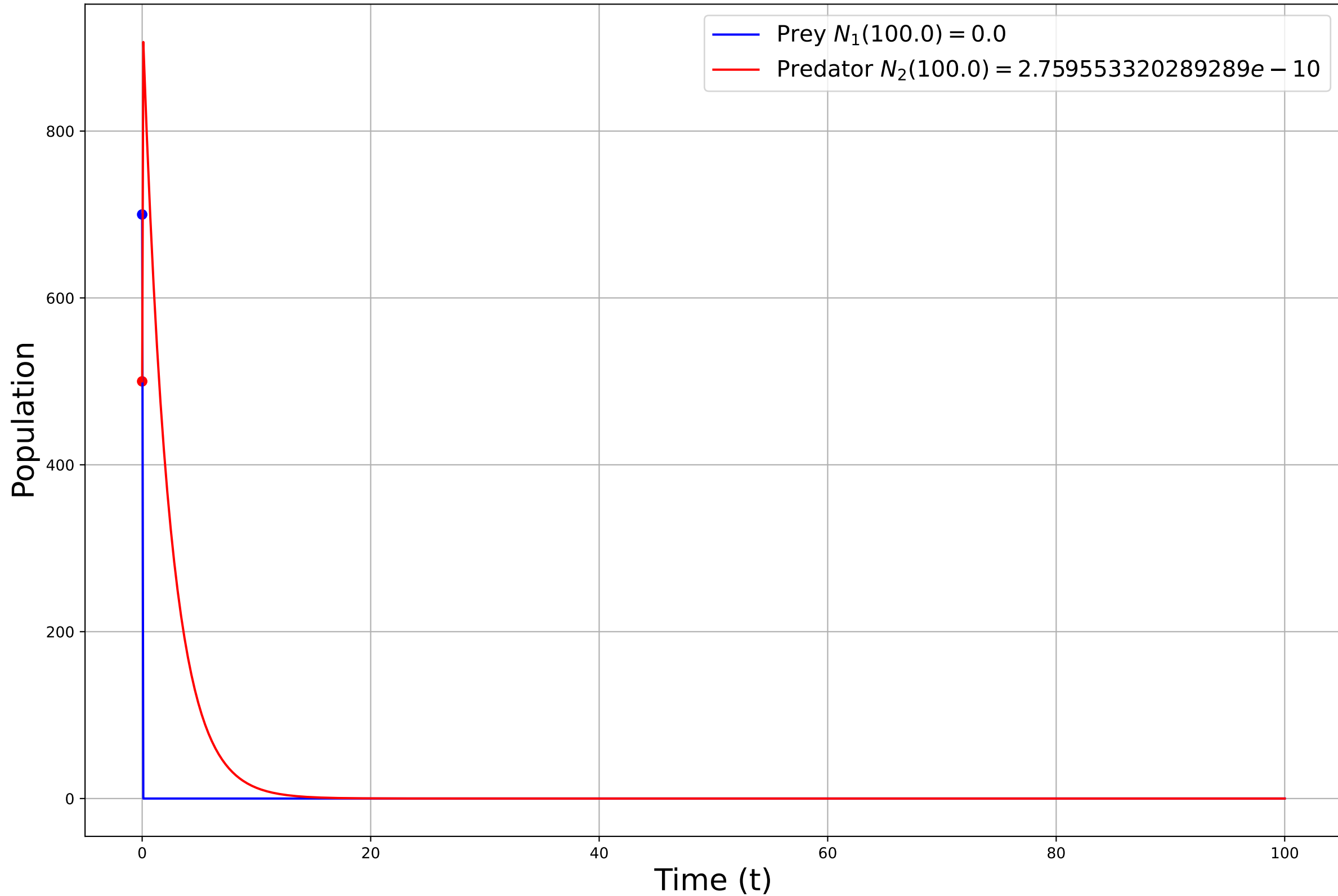
Simulation 1

$$\alpha = 1.49, \beta = 0.52, \delta = 0.33, \gamma = 0.62, N_1(0) = 500, N_2(0) = 700$$

Moderate prey growth, predators decline after initial rise. Results death to both prey and predator



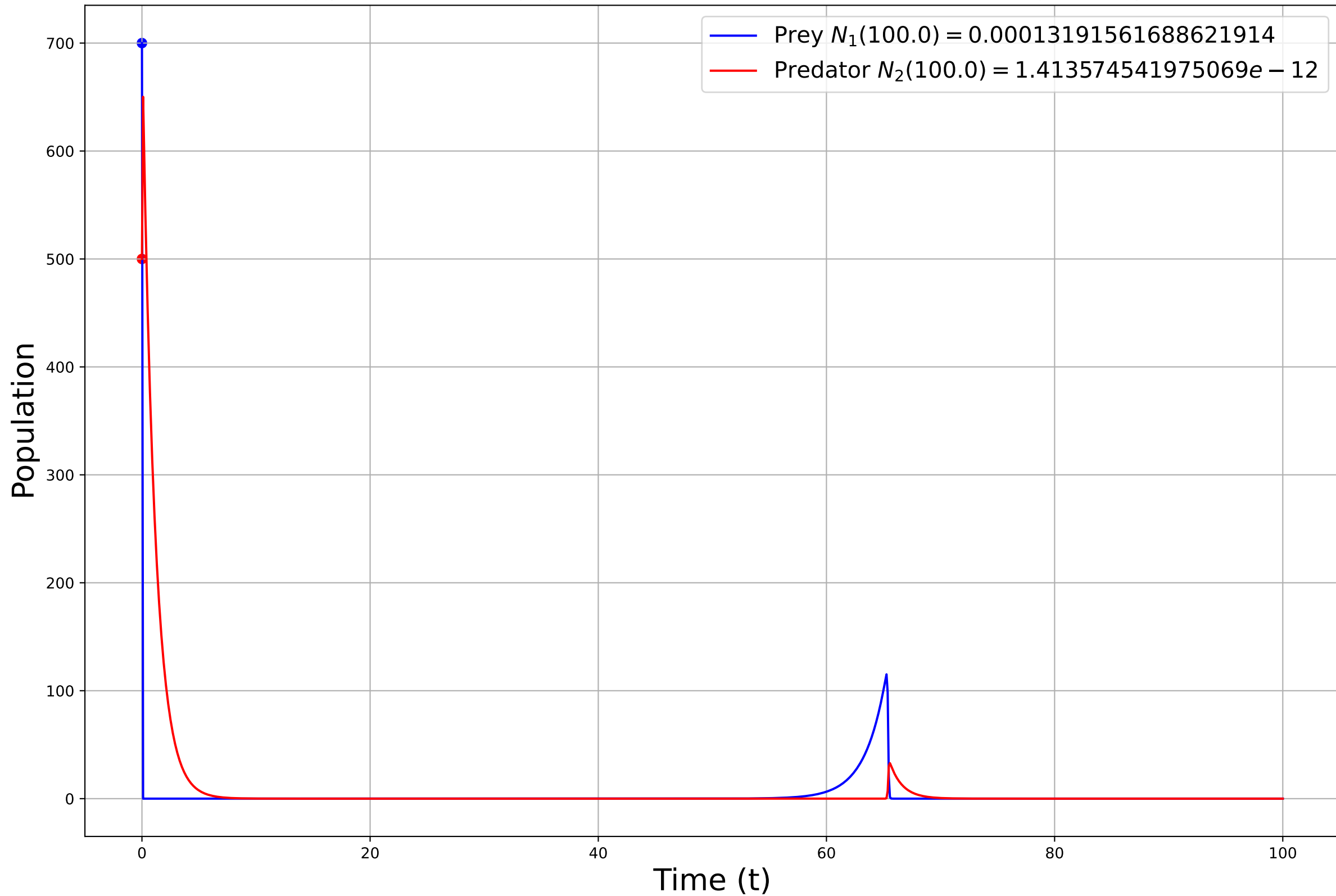
Simulation 2
 $\alpha = 1.52, \beta = 0.52, \delta = 0.33, \gamma = 0.43, N_1(0) = 500, N_2(0) = 700$
Stable oscillations as prey grows and predators recover due to lower death rates.



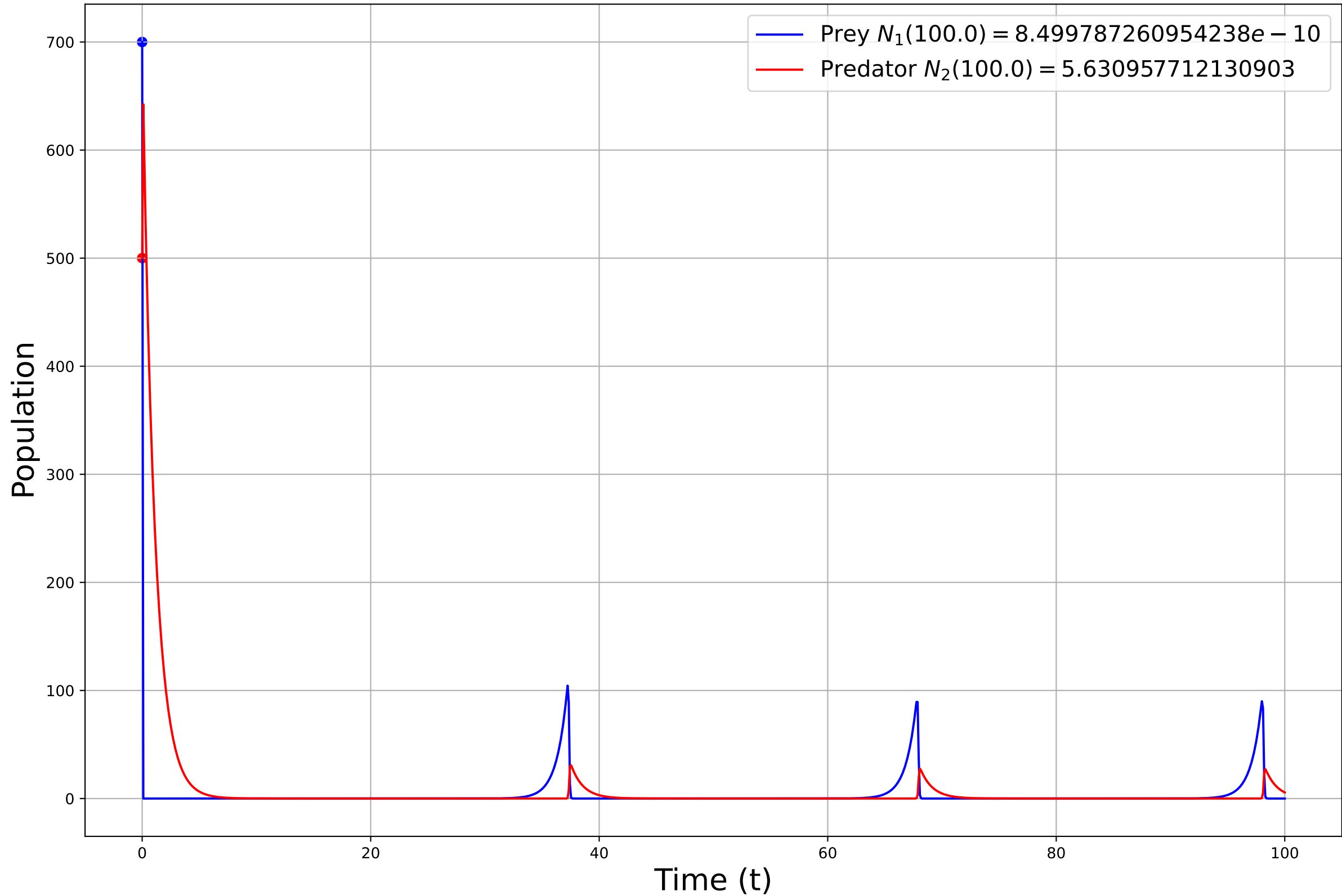
Simulation 3

$$\alpha = 0.55, \beta = 0.86, \delta = 0.26, \gamma = 0.91, N_1(0) = 500, N_2(0) = 700$$

High predation with weak prey growth. Predators crash after an initial rise due to high mortality.



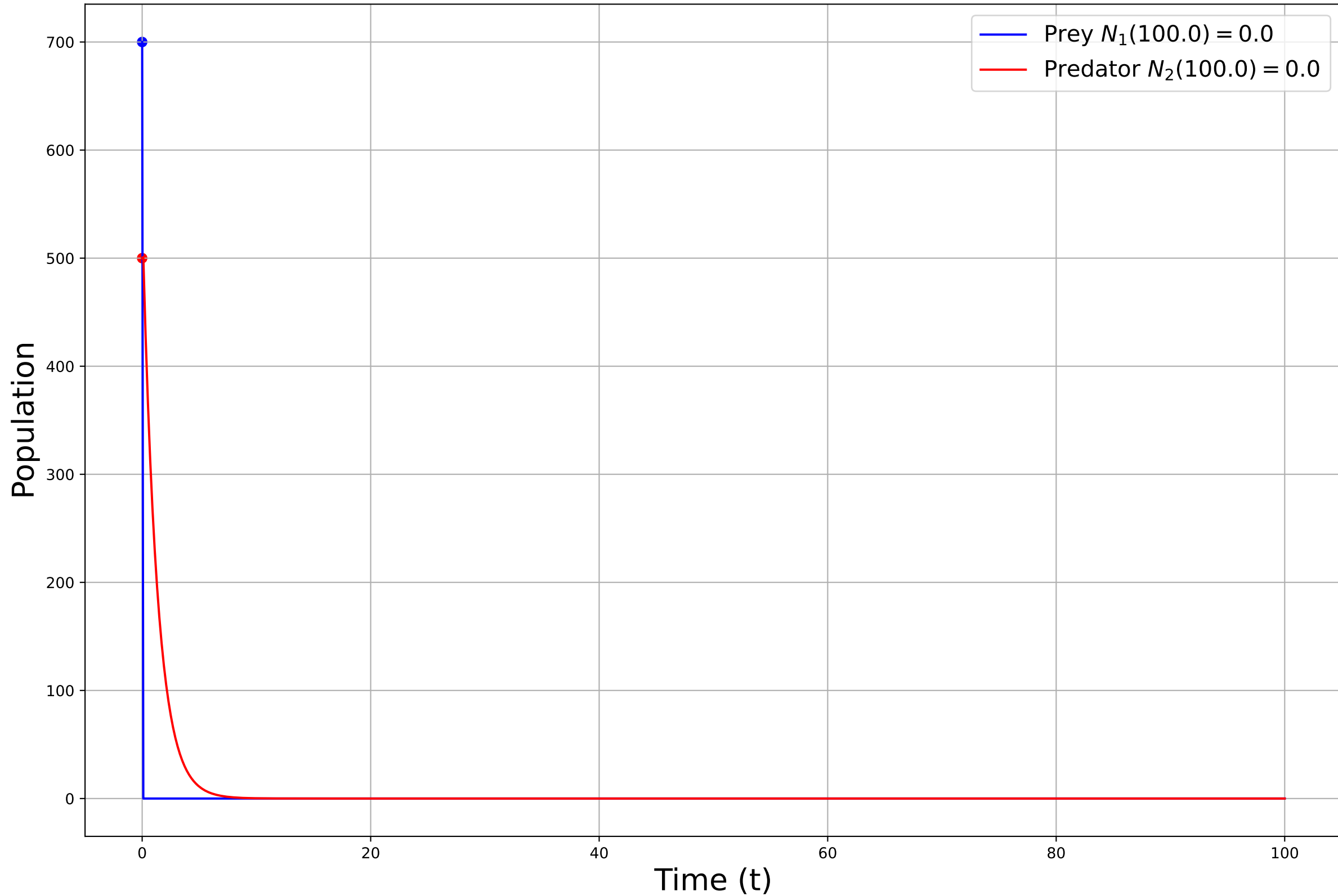
Simulation 4
 $\alpha = 1.11, \beta = 0.99, \delta = 0.29, \gamma = 0.94, N_1(0) = 500, N_2(0) = 700$
Extreme population swings, predators boom and crash after depleting prey.



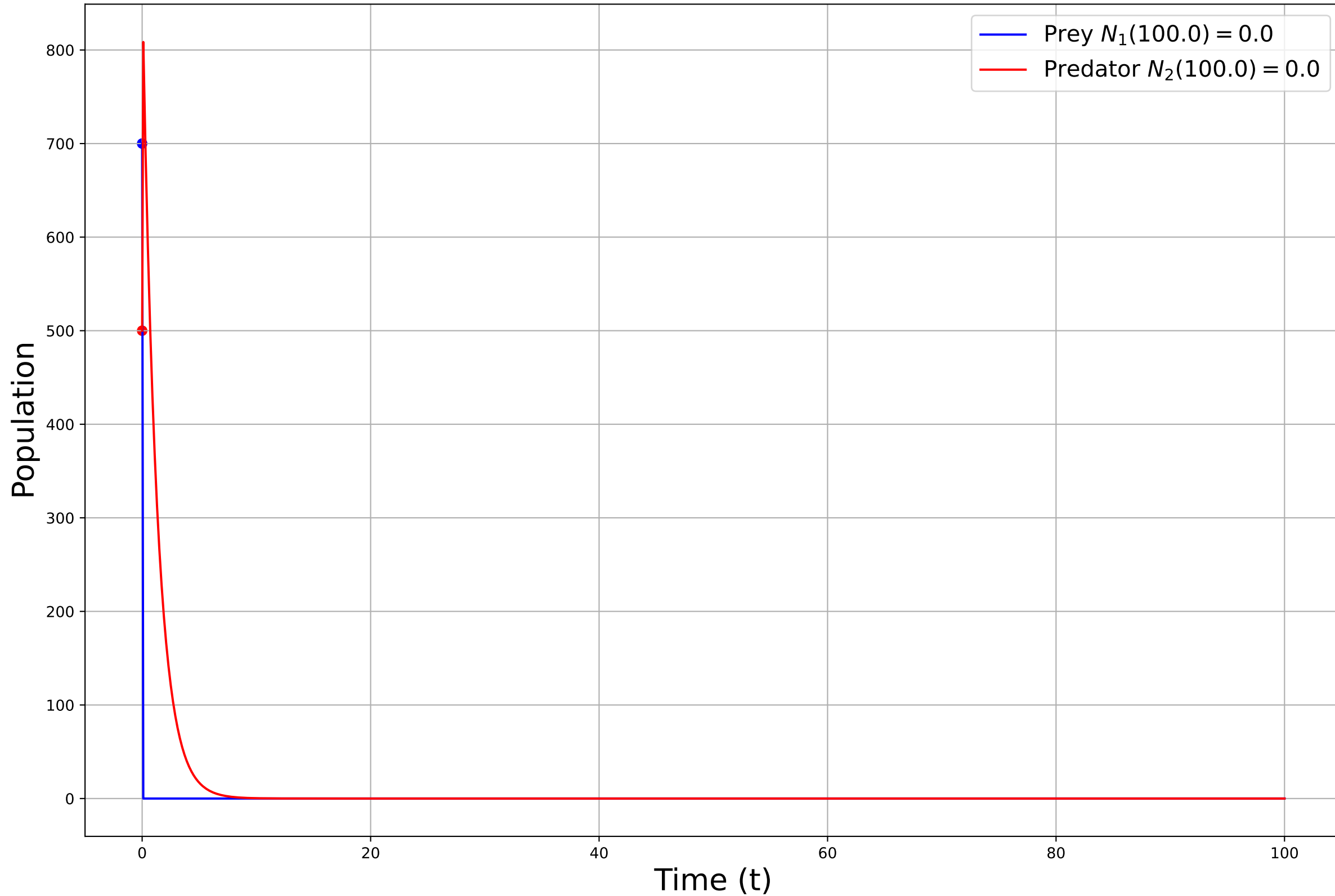
Simulation 5

$$\alpha = 1.05, \beta = 0.84, \delta = 0.05, \gamma = 0.78, N_1(0) = 500, N_2(0) = 700$$

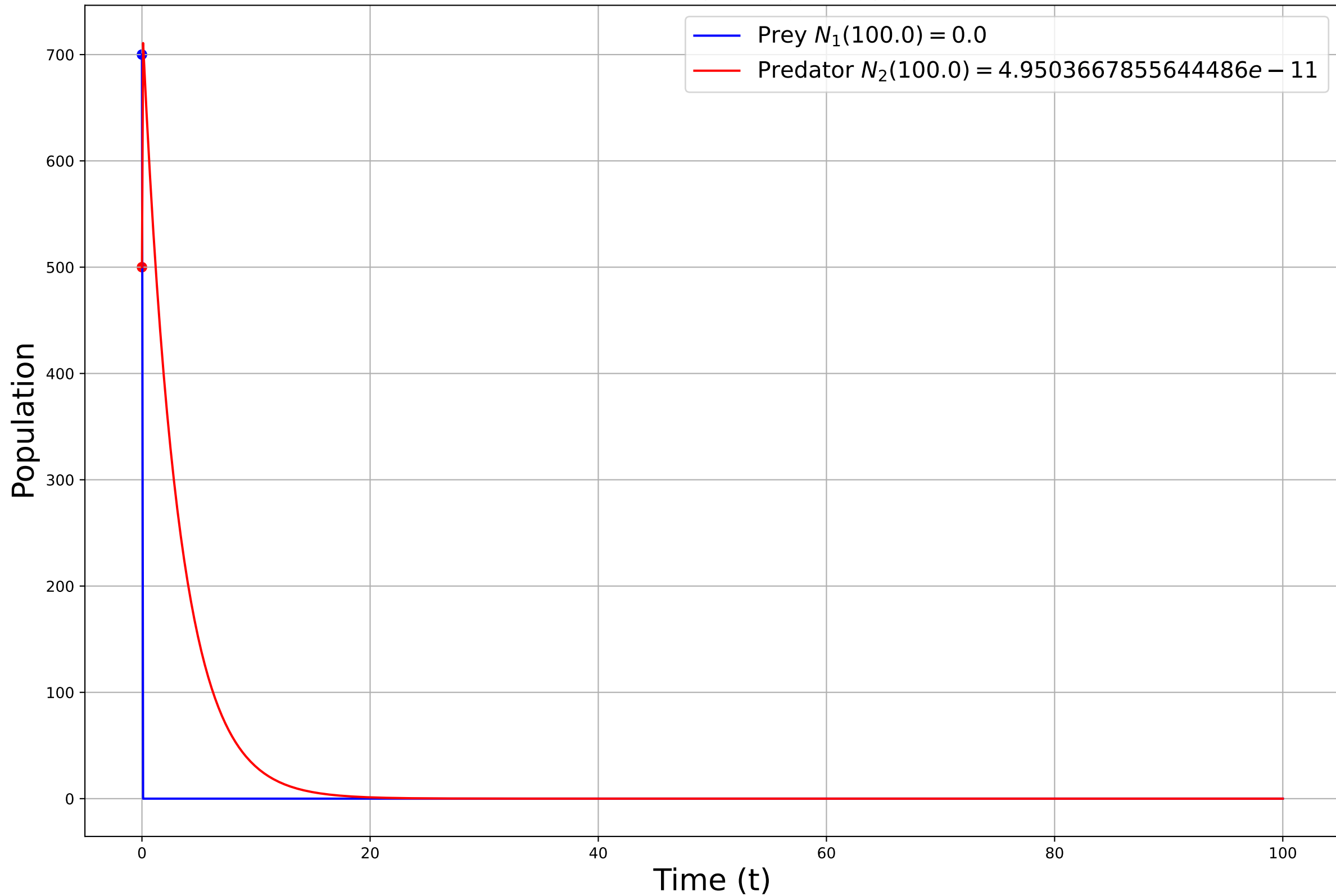
Predators struggle to reproduce despite high predation. Prey may dominate over time.



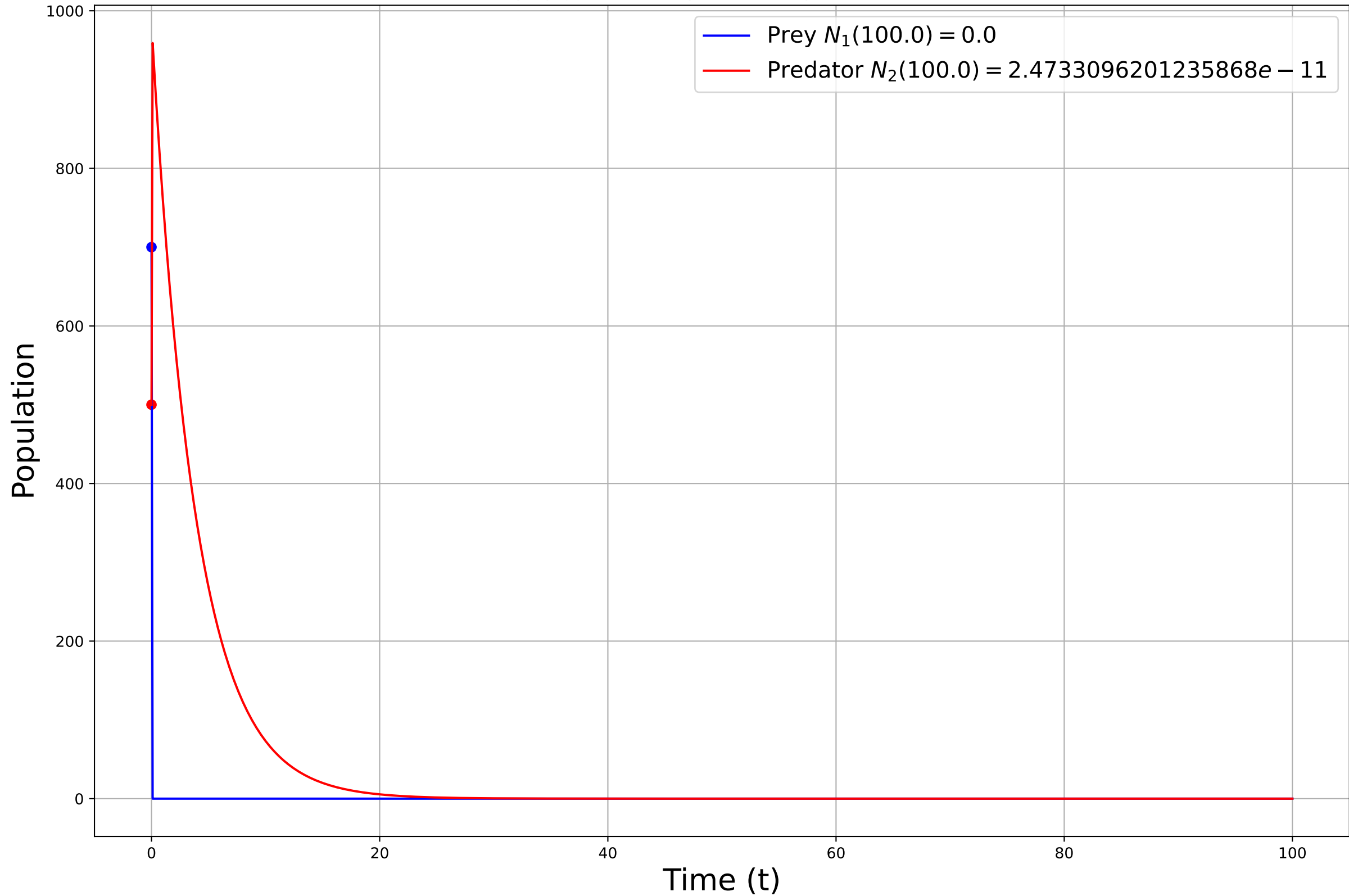
Simulation 6
 $\alpha = 1.07, \beta = 0.6, \delta = 0.32, \gamma = 0.79, N_1(0) = 500, N_2(0) = 700$
Balanced oscillations as prey and predator populations stabilize over time.



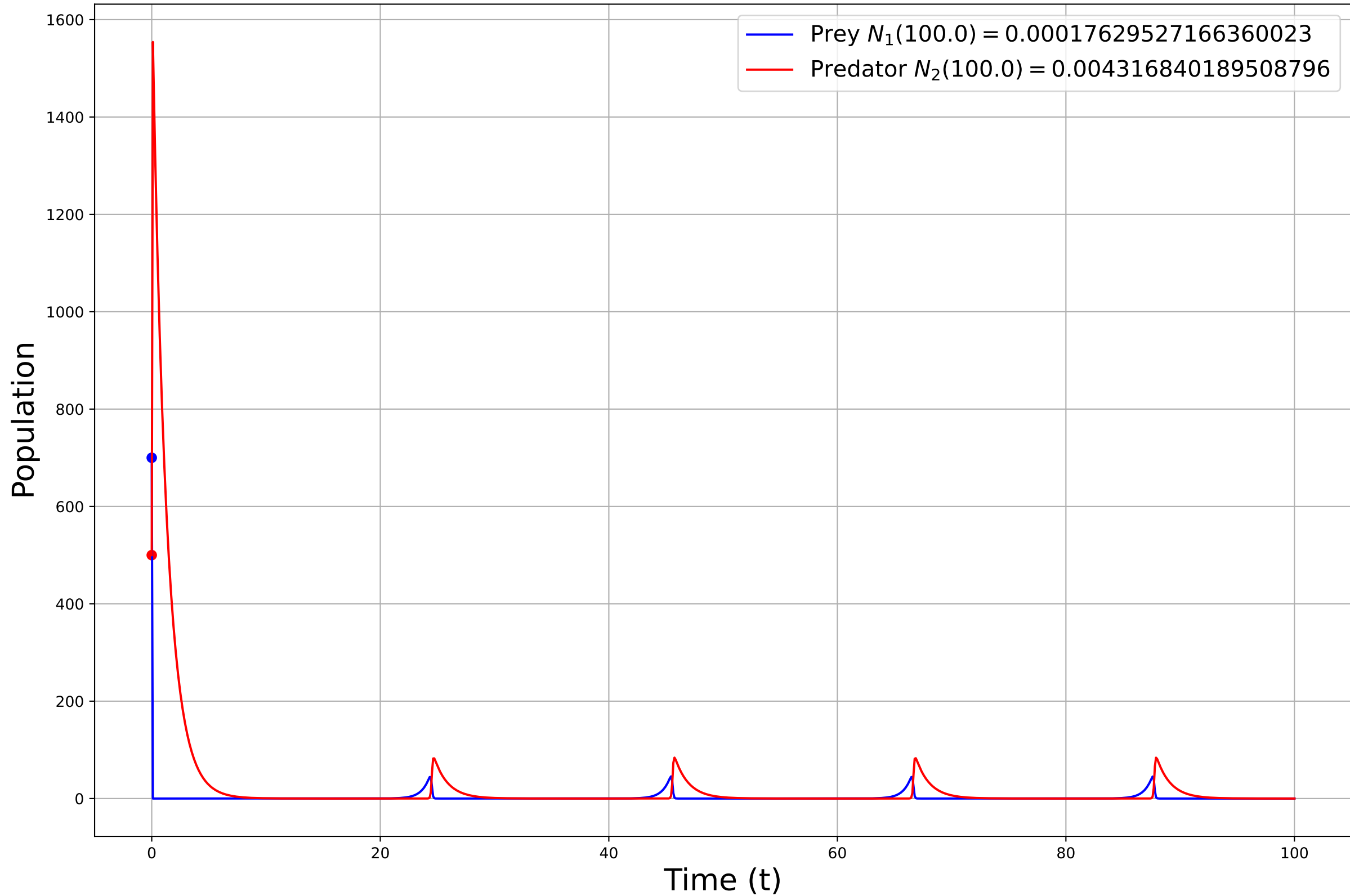
Simulation 7
 $\alpha = 1.28, \beta = 0.96, \delta = 0.32, \gamma = 0.32, N_1(0) = 500, N_2(0) = 700$
Predators thrive with strong growth, potentially driving prey numbers down.



Simulation 8
 $\alpha = 1.84, \beta = 0.61, \delta = 0.42, \gamma = 0.26, N_1(0) = 500, N_2(0) = 700$
Predators thrive as prey grows fast. Populations may stabilize after initial oscillations.



Simulation 9
 $\alpha = 1.44, \beta = 0.25, \delta = 0.42, \gamma = 0.82, N_1(0) = 500, N_2(0) = 700$
Prey grow rapidly as predation is weak. Predator decline follows after initial growth.



Simulation 10
 $\alpha = 1.69, \beta = 0.23, \delta = 0.12, \gamma = 0.97, N_1(0) = 500, N_2(0) = 700$
Predators face extinction as weak predation and reproduction favor prey dominance.

