$$\frac{dES}{dt} = k_1 E \times S + (-k_2 - k_3) ES$$

all the loss of E turns into ES, so

$$\frac{dE}{dt} = -\frac{dES}{dt} = -k_1 E \times S + (k_2 + k_3) ES$$

$$\frac{dS}{dt} = -k_1 E \times S + k_2 ES$$

$$\frac{dP}{dt} = k_3 ES$$

(9.204693905262763, 82.64734743130053)