library(deSolve)

pred <- function(t, y, p) {

H <- y[1]

Z <- y[2]

with(as.list(p), {

dH.dt <- (r \* H)\*(1-(H/K)) - b\*H\*Z

dZ.dt <- (c \* H \* Z) - m\*Z

return(list(c(dH.dt, dZ.dt)))

})

}

t<- 1:100

yO <- c('H'=1, 'Z'= .1)

p <- c('r' = 1, 'b'= 1, 'c'= 1, 'm'= .1, 'K'=1)

sim <- ode(y = yO, times = t, func = pred, parms = p, method = 'lsoda')

sim <- as.data.frame(sim)

plot(H ~ Z, type = 'l', col= 'blue', bty = 'l', data= sim, ylim = c(0, 6), xlim = c(0,2.7))

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