**Power analysis**

categories = c("M","F")

delta is the difference between the capture probability of male and female at each sample time

pm1 = 0.08

pm2 = 0.04

cap.prob = c( pm1, pm1+delta, pm2, pm2+delta)

# give the category proportions ( total should add up to 1)

lambda= c(0.6, 0.4)

# give the subsample proportions for the time 1 and 2

theta = c(0.8, 0.5)

# total numbers individuals capture for the study

sample.size = 1000

n.simulation = 10 # number of simulations to verify the power of the study.

|  |  |  |
| --- | --- | --- |
| DeltaP | PowerDevineau | PowerSimulation |
| 0 | 0.05 | 0.056 |
| 0.005 | 0.075 | 0.06 |
| 0.01 | 0.147 | 0.11 |
| 0.015 | 0.262 | 0.282 |
| 0.02 | 0.403 | 0.412 |
| 0.025 | 0.55 | 0.546 |
| 0.03 | 0.681 | 0.67 |
| 0.035 | 0.787 | 0.802 |
| 0.04 | 0.864 | 0.852 |
| 0.045 | 0.917 | 0.934 |
| 0.05 | 0.951 | 0.958 |
| 0.055 | 0.972 | 0.962 |
| 0.06 | 0.984 | 0.986 |
| 0.07 | 0.995 | 0.998 |
| 0.08 | 0.998 | 1 |
| 0.1 | 0.999 | 1 |

