## Supplementary Material

Modelling the management of an invasive species at landscape scale: are oral contraceptives the missing ingredient for success?
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Table S1: Universal trapping. Summary model outputs describing speed of population reduction and corresponding effort (labour cost) for different live trapping routines (duration and density of trap deployment) given different initial population levels ( $100 \%, 80 \%, 60 \%$ and $20 \%$ saturation). Main values reflect the median ( $50^{\text {th }}$ percentile) across all simulations. Values in square brackets denote the range of values across all simulation.

| Days | Density | Trap visits / yr. | \% Reduction (yr. 1) | Eradication time (yrs.) |
| :---: | :---: | :---: | :---: | :---: |
| Initial population $100 \%$ saturation |  |  |  |  |
| 5 | 0.12500 | 14112.00000 | 0.003 [0.000,0.004] | >100 [ $>100,>100]$ |
| 5 | 0.25000 | 23548.00000 | 0.004 [0.002,0.006] | >100 [>100,>100] |
| 5 | 0.50000 | 43764.00000 | 0.018 [0.012,0.028] | 38 [30,67] |
| 5 | 1.00000 | 85267.00000 | 0.382 [0.357,0.415] | 12 [10,21] |
| 5 | 2.00000 | 169659.00000 | 0.813 [0.794,0.829] | $9[7,13]$ |
| 5 | 4.00000 | 339178.00000 | 0.978 [0.974,0.983] | 7 [5,10] |
| 10 | 0.12500 | 28224.00000 | 0.009 [0.005,0.012] | >100 [ $>100,>100]$ |
| 10 | 0.25000 | 47096.00000 | 0.024 [0.017,0.031] | 39 [30,64] |
| 10 | 0.50000 | 87528.00000 | 0.385 [0.365,0.421] | $12[9,18]$ |
| 10 | 1.00000 | 170534.00000 | 0.813 [0.796,0.824] | $8[7,12]$ |
| 10 | 2.00000 | 339318.00000 | 0.978 [0.973,0.982] | 7 [5,11] |
| 10 | 4.00000 | 678356.00000 | 0.997 [0.995,0.998] | 4 [3,7] |
| 15 | 0.12500 | 42336.00000 | 0.023 [0.018,0.030] | >100 [ $>100,>100]$ |
| 15 | 0.25000 | 70644.00000 | 0.199 [0.175,0.231] | $16[13,24]$ |
| 15 | 0.50000 | 131292.00000 | 0.665 [0.643,0.679] | $8[7,12]$ |
| 15 | 1.00000 | 255801.00000 | 0.942 [0.933,0.949] | 7 [5,10] |
| 15 | 2.00000 | 508977.00000 | 0.993 [0.991,0.995] | $5[4,9]$ |
| 15 | 4.00000 | 1017534.00000 | 0.999 [0.998,0.999] | 3 [2,5] |
| 30 | 0.12500 | 84672.00000 | 0.246 [0.214,0.273] | 19 [14,33] |
| 30 | 0.25000 | 141288.00000 | 0.678 [0.653,0.693] | 7 [5,9] |
| 30 | 0.50000 | 262584.00000 | 0.947 [0.94,0.955] | $5[4,7]$ |
| 30 | 1.00000 | 511602.00000 | 0.994 [0.992,0.996] | 4 [3,7] |
| 30 | 2.00000 | 1017954.00000 | 0.999 [0.998,0.999] | 3 [2,6] |
| 30 | 4.00000 | 2035068.00000 | 1.000 [1.000,1.000] | $2[1,3]$ |
| 45 | 0.12500 | 127008.00000 | 0.527 [0.505,0.555] | 10 [8,14] |
| 45 | 0.25000 | 211932.00000 | 0.879 [0.866,0.893] | 4 [4,5] |
| 45 | 0.50000 | 393876.00000 | 0.990 [0.988,0.993] | 4 [3,5] |
| 45 | 1.00000 | 767403.00000 | 0.998 [0.997,0.999] | 3 [2,5] |
| 45 | 2.00000 | 1526931.00000 | 1.000 [0.999,1.000] | $2[2,5]$ |
| 45 | 4.00000 | 3052602.00000 | 1.000 [1.000,1.000] | 1 [1,2] |
| Initial population $80 \%$ saturation ( $20 \%$ reduction based on 1 year trapping at 3.75 trap days/ha, a cost of 70644 trap visits) |  |  |  |  |
| 0 | 0.00000 | 0.00000 | -0.212 [-0.246,-0.178] | >100 [ $>100,>100]$ |
| 5 | 0.12500 | 14112.00000 | -0.178 [-0.216,-0.147] | >100 [ $>100,>100]$ |
| 5 | 0.25000 | 23548.00000 | -0.108 [-0.147,-0.082] | >100 [ $>100,>100]$ |
| 5 | 0.50000 | 43764.00000 | 0.145 [0.106,0.186] | $35[28,50]$ |
| 5 | 1.00000 | 85267.00000 | 0.526 [0.499,0.544] | 11 [9,19] |
| 5 | 2.00000 | 169659.00000 | 0.863 [0.847,0.877] | $8[6,12]$ |
| 5 | 4.00000 | 339178.00000 | 0.986 [0.982,0.990] | $5[4,9]$ |
| 10 | 0.12500 | 28224.00000 | -0.091 [-0.112,-0.062] | >100 [ $>100,>100]$ |
| 10 | 0.25000 | 47096.00000 | 0.145 [0.113,0.189] | 37 [28,52] |
| 10 | 0.50000 | 87528.00000 | 0.524 [0.502,0.544] | 11 [9,24] |
| 10 | 1.00000 | 170534.00000 | 0.862 [0.848,0.878] | $8[6,13]$ |
| 10 | 2.00000 | 339318.00000 | 0.986 [0.981,0.989] | $6[4,9]$ |


| 10 | 4.00000 | 678356.00000 | 0.998 [0.997,0.999] | 4 [2,6] |
| :---: | :---: | :---: | :---: | :---: |
| 15 | 0.12500 | 42336.00000 | 0.050 [0.014,0.076] | >100 [ $>100,>100]$ |
| 15 | 0.25000 | 70644.00000 | 0.367 [0.344,0.388] | 15 [12,26] |
| 15 | 0.50000 | 131292.00000 | 0.746 [0.727,0.764] | $8[6,14]$ |
| 15 | 1.00000 | 255801.00000 | 0.960 [0.954,0.967] | $6[4,10]$ |
| 15 | 2.00000 | 508977.00000 | 0.996 [0.994,0.998] | 5 [3,9] |
| 15 | 4.00000 | 1017534.00000 | 0.999 [0.999,1.000] | 3 [2,5] |
| 30 | 0.12500 | 84672.00000 | 0.402 [0.374,0.427] | 17 [13,35] |
| 30 | 0.25000 | 141288.00000 | 0.749 [0.733,0.769] | 6 [5,9] |
| 30 | 0.50000 | 262584.00000 | 0.962 [0.954,0.970] | $4[3,7]$ |
| 30 | 1.00000 | 511602.00000 | 0.997 [0.996,0.998] | 4 [3,6] |
| 30 | 2.00000 | 1017954.00000 | 0.999 [0.999,1.000] | 3 [2,5] |
| 30 | 4.00000 | 2035068.00000 | 1.000 [1.000,1.000] | $2[1,3]$ |
| 45 | 0.12500 | 127008.00000 | 0.625 [0.605,0.655] | $9[7,13]$ |
| 45 | 0.25000 | 211932.00000 | 0.907 [0.893,0.921] | $4[3,7]$ |
| 45 | 0.50000 | 393876.00000 | 0.994 [0.991,0.995] | 3 [2,5] |
| 45 | 1.00000 | 767403.00000 | 0.999 [0.998,0.999] | 3 [2,5] |
| 45 | 2.00000 | 1526931.00000 | 1.000 [0.999,1.000] | 2 [2,4] |
| 45 | 4.00000 | 3052602.00000 | 1.000 [1.000,1.000] | 1 [1,2] |
| Initial population $60 \%$ saturation ( $40 \%$ reduction based on 1 year trapping at 5 trap days/ha, a cost of 87528 trap visits) |  |  |  |  |
| 0 | 0.00000 | 0.00000 | -0.441 [-0.476,-0.410] | >100 [ $>100,>100]$ |
| 5 | 0.12500 | 14112.00000 | -0.259 [-0.303,-0.223] | $>100[>100,>100]$ |
| 5 | 0.25000 | 23548.00000 | -0.111 [-0.147,-0.072] | >100 [ $>100,>100]$ |
| 5 | 0.50000 | 43764.00000 | 0.155 [0.121,0.192] | $35[25,58]$ |
| 5 | 1.00000 | 85267.00000 | 0.536 [0.507,0.567] | 11 [9,18] |
| 5 | 2.00000 | 169659.00000 | 0.863 [0.845,0.877] | $8[6,10]$ |
| 5 | 4.00000 | 339178.00000 | 0.984 [0.98,0.987] | $6[4,10]$ |
| 10 | 0.12500 | 28224.00000 | -0.086 [-0.119,-0.047] | >100 [ $>100,>100]$ |
| 10 | 0.25000 | 47096.00000 | 0.171 [0.147,0.195] | 33 [25,55] |
| 10 | 0.50000 | 87528.00000 | 0.536 [0.505,0.565] | 11 [8,17] |
| 10 | 1.00000 | 170534.00000 | 0.863 [0.846,0.878] | $8[6,11]$ |
| 10 | 2.00000 | 339318.00000 | 0.984 [0.978,0.988] | $6[4,10]$ |
| 10 | 4.00000 | 678356.00000 | 0.997 [0.997,0.998] | 4 [2,6] |
| 15 | 0.12500 | 42336.00000 | 0.072 [0.041,0.108] | >100 [ $>100,>100]$ |
| 15 | 0.25000 | 70644.00000 | 0.387 [0.360,0.410] | 14 [11,21] |
| 15 | 0.50000 | 131292.00000 | 0.749 [0.718,0.767] | $8[6,13]$ |
| 15 | 1.00000 | 255801.00000 | 0.957 [0.948,0.964] | $6[4,9]$ |
| 15 | 2.00000 | 508977.00000 | 0.995 [0.993,0.997] | $5[3,8]$ |
| 15 | 4.00000 | 1017534.00000 | 0.999 [0.998,1.000] | 3 [2,5] |
| 30 | 0.12500 | 84672.00000 | 0.424 [0.383, 0.462$]$ | 16 [12,34] |
| 30 | 0.25000 | 141288.00000 | 0.764 [0.748,0.782] | $6[5,8]$ |
| 30 | 0.50000 | 262584.00000 | 0.960 [0.953,0.968] | $4[3,8]$ |
| 30 | 1.00000 | 511602.00000 | 0.995 [0.993,0.997] | $4[3,6]$ |
| 30 | 2.00000 | 1017954.00000 | 0.999 [0.998,0.999] | 3 [2,6] |
| 30 | 4.00000 | 2035068.00000 | 1.000 [1.000,1.000] | $2[1,3]$ |
| 45 | 0.12500 | 127008.00000 | 0.645 [0.622,0.669] | $9[7,12]$ |
| 45 | 0.25000 | 211932.00000 | 0.912 [0.900,0.924] | 4 [4,5] |
| 45 | 0.50000 | 393876.00000 | 0.992 [0.989,0.995] | 3 [2,5] |
| 45 | 1.00000 | 767403.00000 | 0.998 [0.997,0.999] | 3 [2,4] |
| 45 | 2.00000 | 1526931.00000 | 1.000 [0.999,1.000] | 2 [2,4] |
| 45 | 4.00000 | 3052602.00000 | 1.000 [1.000,1.000] | 1 [1,2] |


| Initial population $20 \%$ saturation ( $80 \%$ reduction based on 1 year trapping at 10 trap days/ha, a cost of 170534 trap visits) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| 0 | 0 | 0 | -0.409 [-0.491,-0.340] | >100 [ $>100,>100]$ |
| 5 | 0.125 | 14112 | -0.182 [-0.248,-0.135] | $>100[>100,>100]$ |
| 5 | 0.25 | 23548 | -0.029 [-0.096,0.038] | $>100[>100,>100]$ |
| 5 | 0.5 | 43764 | 0.222 [0.156,0.298] | 25 [18,41] |
| 5 | 1 | 85267 | 0.564 [0.499,0.610] | 10 [8,15] |
| 5 | 2 | 169659 | 0.855 [0.822,0.883] | $8[6,10]$ |
| 5 | 4 | 339178 | 0.972 [0.962,0.980] | $6[4,9]$ |
| 10 | 0.125 | 28224 | 0.007 [-0.065,0.060] | >100 [ $>100,>100]$ |
| 10 | 0.25 | 47096 | 0.244 [0.181,0.311] | $26[17,49]$ |
| 10 | 0.5 | 87528 | 0.575 [0.536,0.626] | $9[7,17]$ |
| 10 | 1 | 170534 | 0.855 [0.826,0.887] | $7[5,11]$ |
| 10 | 2 | 339318 | 0.971 [0.961,0.978] | $6[4,9]$ |
| 10 | 4 | 678356 | 0.993 [0.988,0.996] | $4[2,9]$ |
| 15 | 0.125 | 42336 | 0.160 [0.080,0.243] | $>100[57,>100]$ |
| 15 | 0.25 | 70644 | 0.453 [0.413,0.501] | $12[9,16]$ |
| 15 | 0.5 | 131292 | 0.768 [0.731,0.808] | $7[5,11]$ |
| 15 | 1 | 255801 | 0.943 [0.926,0.958] | $6[4,9]$ |
| 15 | 2 | 508977 | 0.987 [0.981,0.991] | $5[3,8]$ |
| 15 | 4 | 1017534 | 0.997 [0.995,0.999] | 3 [2,5] |
| 30 | 0.125 | 84672 | 0.500 [0.446,0.571] | 12 [10,20] |
| 30 | 0.25 | 141288 | 0.798 [0.766,0.832] | 5 [4,7] |
| 30 | 0.5 | 262584 | 0.958 [0.937,0.970] | $4[3,8]$ |
| 30 | 1 | 511602 | 0.988 [0.982,0.992] | $4[3,7]$ |
| 30 | 2 | 1017954 | 0.997 [0.994,0.998] | 3 [2,5] |
| 30 | 4 | 2035068 | 1.000 [0.999,1.000] | $2[1,3]$ |
| 45 | 0.125 | 127008 | 0.702 [0.664,0.746] | 7 [5,10] |
| 45 | 0.25 | 211932 | 0.927 [0.893,0.943] | 4 [3,6] |
| 45 | 0.5 | 393876 | 0.989 [0.984,0.992] | 3 [2,5] |
| 45 | 1 | 767403 | 0.995 [0.991,0.998] | 3 [2,5] |
| 45 | 2 | 1526931 | 0.999 [0.998,1.000] | $2[2,3]$ |
| 45 | 4 | 3052602 | 1.000 [1.000,1.000] | 1 [1,2] |

Table S2: Universal contraception. Summary model outputs describing speed of population reduction and corresponding effort (labour cost) for different contraceptive delivery routines (density and duration of hopper deployment) and contraception efficacy given different initial population levels ( $100 \%, 80 \%, 60 \%$ and $20 \%$ saturation). Main values reflect the median ( $50^{\text {th }}$ percentile) across all simulations. Values in square brackets denote the range of values across all simulation.

| Days | Density | Efficacy | Hopper visits / yr. | \% Reduction (yr. 1) | Eradication time (yrs.) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Initial population $100 \%$ saturation |  |  |  |  |  |
| 5 | 0.5 | 0.5 | 18756 | 0.001 [-0.001,0.002] | >100 [ $>100,>100$ ] |
| 5 | 0.5 | 0.6 | 18756 | 0.001 [-0.001,0.002] | $>100$ [ $>100,>100]$ |
| 5 | 0.5 | 0.7 | 18756 | 0.001 [-0.001,0.002] | $>100$ [ $>100,>100]$ |
| 5 | 0.5 | 0.8 | 18756 | 0.001 [0.000,0.003] | $>100$ [ $>100,>100]$ |
| 5 | 0.5 | 0.9 | 18756 | 0.001 [-0.001,0.003] | $>100[>100,>100]$ |
| 5 | 0.5 | 1 | 18756 | 0.001 [-0.001,0.004] | $>100$ [ $>100,>100]$ |
| 5 | 1 | 0.5 | 36543 | 0.001 [0.000,0.003] | $>100$ [ $>100,>100]$ |
| 5 | 1 | 0.6 | 36543 | 0.002 [0.000,0.004] | $>100[>100,>100]$ |
| 5 | 1 | 0.7 | 36543 | 0.002 [0.001,0.005] | $>100$ [ $>100,>100]$ |
| 5 | 1 | 0.8 | 36543 | 0.003 [0.001,0.007] | $>100$ [ $>100,>100$ ] |
| 5 | 1 | 0.9 | 36543 | 0.004 [0.002,0.008] | $>100$ [ $>100,>100$ ] |
| 5 | 1 | 1 | 36543 | 0.006 [0.003,0.010] | >100 [ $>100,>100$ ] |
| 5 | 2 | 0.5 | 72711 | 0.003 [0.001,0.007] | >100 [ $>100,>100$ ] |
| 5 | 2 | 0.6 | 72711 | 0.005 [0.003,0.009] | $>100$ [ $>100,>100]$ |
| 5 | 2 | 0.7 | 72711 | 0.009 [0.005,0.013] | $>100$ [ $>100,>100]$ |
| 5 | 2 | 0.8 | 72711 | 0.018 [0.012,0.025] | $>100$ [ $>100,>100]$ |
| 5 | 2 | 0.9 | 72711 | 0.056 [0.039,0.073] | 49 [36,81] |
| 5 | 2 | 1 | 72711 | 0.136 [0.116,0.162] | 28 [23,38] |
| 5 | 4 | 0.5 | 145362 | 0.006 [0.004,0.010] | $>100$ [ $>100,>100$ ] |
| 5 | 4 | 0.6 | 145362 | 0.012 [0.008,0.018] | $>100$ [ $>100,>100]$ |
| 5 | 4 | 0.7 | 145362 | 0.027 [0.019,0.039] | $>100$ [93,>100] |
| 5 | 4 | 0.8 | 145362 | 0.098 [0.076,0.117] | 42 [36,62] |
| 5 | 4 | 0.9 | 145362 | 0.209 [0.194,0.229] | 26 [23,30] |
| 5 | 4 | 1 | 145362 | 0.325 [0.306,0.340] | 17 [15,21] |
| 10 | 0.5 | 0.5 | 37512 | 0.001 [-0.001,0.003] | $>100$ [ $>100,>100$ ] |
| 10 | 0.5 | 0.6 | 37512 | 0.001 [0.000,0.003] | $>100$ [ $>100,>100]$ |
| 10 | 0.5 | 0.7 | 37512 | 0.001 [0.000,0.003] | $>100$ [ $>100,>100$ ] |
| 10 | 0.5 | 0.8 | 37512 | 0.001 [0.000,0.003] | >100 [ $>100,>100$ ] |
| 10 | 0.5 | 0.9 | 37512 | 0.002 [0.001,0.004] | >100 [ $>100,>100]$ |
| 10 | 0.5 | 1 | 37512 | 0.002 [0.000,0.005] | >100 [ $>100,>100$ ] |
| 10 | 1 | 0.5 | 73086 | 0.002 [0.000,0.007] | $>100$ [ $>100,>100]$ |
| 10 | 1 | 0.6 | 73086 | 0.003 [0.001,0.006] | $>100$ [ $>100,>100$ ] |
| 10 | 1 | 0.7 | 73086 | 0.005 [0.002,0.008] | $>100$ [ $>100,>100$ ] |
| 10 | 1 | 0.8 | 73086 | 0.007 [0.004,0.011] | >100 [ $>100,>100$ ] |
| 10 | 1 | 0.9 | 73086 | 0.012 [0.007,0.020] | >100 [ $>100,>100$ ] |
| 10 | 1 | 1 | 73086 | 0.028 [0.017,0.038] | $>100$ [ $>100,>100]$ |
| 10 | 2 | 0.5 | 145422 | 0.005 [0.002,0.007] | $>100$ [ $>100,>100]$ |
| 10 | 2 | 0.6 | 145422 | 0.008 [0.005,0.013] | $>100$ [ $>100,>100$ ] |
| 10 | 2 | 0.7 | 145422 | 0.014 [0.009,0.020] | >100 [ $>100,>100$ ] |
| 10 | 2 | 0.8 | 145422 | 0.039 [0.026,0.058] | 70 [54,> 100] |
| 10 | 2 | 0.9 | 145422 | 0.115 [0.095,0.145] | 32 [28,40] |
| 10 | 2 | 1 | 145422 | 0.216 [0.195,0.236] | 21 [18,26] |
| 10 | 4 | 0.5 | 290724 | 0.007 [0.003,0.011] | >100 [ $>100,>100$ ] |


| 10 | 4 | 0.6 | 290724 | 0.013 [0.009,0.020] | >100 [ $>100,>100]$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 10 | 4 | 0.7 | 290724 | 0.030 [0.018,0.039] | >100 [86,>100] |
| 10 | 4 | 0.8 | 290724 | 0.105 [0.091,0.123] | 41 [36,59] |
| 10 | 4 | 0.9 | 290724 | 0.220 [0.205,0.246] | 26 [22,31] |
| 10 | 4 | 1 | 290724 | 0.335 [0.318,0.346] | 16 [14,19] |
| Initial population $80 \%$ saturation ( $20 \%$ reduction based on 1 year trapping at 3.75 trap days/ha, a cost of 70644 trap visits) |  |  |  |  |  |
| 5 | 0.5 | 0.5 | 18756 | -0.197 [-0.229,-0.163] | >100 [ $>100,>100]$ |
| 5 | 0.5 | 0.6 | 18756 | -0.193 [-0.229,-0.161] | $>100[>100,>100]$ |
| 5 | 0.5 | 0.7 | 18756 | -0.187 [-0.229,-0.149] | $>100[>100,>100]$ |
| 5 | 0.5 | 0.8 | 18756 | -0.179 [-0.206,-0.156] | $>100[>100,>100]$ |
| 5 | 0.5 | 0.9 | 18756 | -0.169 [-0.202,-0.14] | >100 [ $>100,>100]$ |
| 5 | 0.5 | 1 | 18756 | -0.160 [-0.187,-0.128] | $>100[>100,>100]$ |
| 5 | 1 | 0.5 | 36543 | -0.159 [-0.188,-0.135] | >100 [ $>100,>100]$ |
| 5 | 1 | 0.6 | 36543 | -0.130 [-0.152,-0.096] | $>100[>100,>100]$ |
| 5 | 1 | 0.7 | 36543 | -0.093 [-0.117,-0.067] | $>100[>100,>100]$ |
| 5 | 1 | 0.8 | 36543 | -0.047 [-0.078,-0.014] | $>100[>100,>100]$ |
| 5 | 1 | 0.9 | 36543 | 0.002 [-0.026,0.028] | >100 [ $>100,>100]$ |
| 5 | 1 | 1 | 36543 | 0.056 [0.026,0.079] | >100 [ $>100,>100]$ |
| 5 | 2 | 0.5 | 72711 | -0.075 [-0.104,-0.052] | >100 [ $>100,>100]$ |
| 5 | 2 | 0.6 | 72711 | -0.005 [-0.034,0.023] | $>100[>100,>100]$ |
| 5 | 2 | 0.7 | 72711 | 0.074 [0.047,0.105] | $>100[>100,>100]$ |
| 5 | 2 | 0.8 | 72711 | 0.153 [0.129,0.179] | >100 [ $>100,>100]$ |
| 5 | 2 | 0.9 | 72711 | 0.234 [0.205,0.261] | $42[33,73]$ |
| 5 | 2 | 1 | 72711 | 0.314 [0.297,0.336] | $25[22,33]$ |
| 5 | 4 | 0.5 | 145362 | -0.020 [-0.042,0.003] | >100 [ $>100,>100]$ |
| 5 | 4 | 0.6 | 145362 | 0.072 [0.047,0.092] | $>100[>100,>100]$ |
| 5 | 4 | 0.7 | 145362 | 0.167 [0.142,0.191] | $>100[81,>100]$ |
| 5 | 4 | 0.8 | 145362 | 0.260 [0.240,0.282] | $39[32,56]$ |
| 5 | 4 | 0.9 | 145362 | 0.355 [0.340,0.375] | 24 [21,30] |
| 5 | 4 | 1 | 145362 | 0.445 [0.432,0.461] | 16 [15,19] |
| 10 | 0.5 | 0.5 | 37512 | -0.180 [-0.216,-0.152] | >100 [ $>100,>100]$ |
| 10 | 0.5 | 0.6 | 37512 | -0.170 [-0.204,-0.131] | >100 [ $>100,>100]$ |
| 10 | 0.5 | 0.7 | 37512 | -0.151 [-0.178,-0.125] | >100 [>100, > 100] |
| 10 | 0.5 | 0.8 | 37512 | -0.125 [-0.149,-0.090] | >100 [ $>100,>100]$ |
| 10 | 0.5 | 0.9 | 37512 | -0.096 [-0.130,-0.067] | >100 [ $>100,>100]$ |
| 10 | 0.5 | 1 | 37512 | -0.065 [-0.092,-0.033] | >100 [ $>100,>100]$ |
| 10 | 1 | 0.5 | 73086 | -0.115 [-0.140,-0.086] | >100 [ $>100,>100]$ |
| 10 | 1 | 0.6 | 73086 | -0.063 [-0.092,-0.036] | $>100[>100,>100]$ |
| 10 | 1 | 0.7 | 73086 | 0.002 [-0.037,0.043] | >100 [ $>100,>100]$ |
| 10 | 1 | 0.8 | 73086 | 0.067 [0.026,0.090] | $>100[>100,>100]$ |
| 10 | 1 | 0.9 | 73086 | 0.135 [0.106,0.164] | $>100[>100,>100]$ |
| 10 | 1 | 1 | 73086 | 0.205 [0.179,0.233] | $>100[63,>100]$ |
| 10 | 2 | 0.5 | 145422 | -0.051 [-0.073,-0.009] | >100 [ $>100,>100]$ |
| 10 | 2 | 0.6 | 145422 | 0.034 [0.003,0.061] | >100 [ $>100,>100]$ |
| 10 | 2 | 0.7 | 145422 | 0.119 [0.096,0.142] | >100 [ $>100,>100]$ |
| 10 | 2 | 0.8 | 145422 | 0.207 [0.184,0.238] | 61 [41,>100] |
| 10 | 2 | 0.9 | 145422 | 0.294 [0.278,0.317] | 28 [23,46] |
| 10 | 2 | 1 | 145422 | 0.381 [0.363,0.397] | 18 [16,23] |
| 10 | 4 | 0.5 | 290724 | -0.015 [-0.044,0.013] | >100 [ $>100,>100]$ |
| 10 | 4 | 0.6 | 290724 | 0.078 [0.055,0.113] | >100 [ $>100,>100]$ |
| 10 | 4 | 0.7 | 290724 | 0.171 [0.148,0.193] | $94[71,>100]$ |
| 10 | 4 | 0.8 | 290724 | 0.267 [0.238,0.297] | $39[33,54]$ |


| 10 | 4 | 0.9 | 290724 | 0.363 [0.345,0.383] | $24[21,28]$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 10 | 4 | 1 | 290724 | 0.452 [0.437,0.468] | 15 [13,18] |
| Initial population 60\% saturation ( $40 \%$ reduction based on 1 year trapping at 5 trap days/ha, a cost of 87528 trap visits) |  |  |  |  |  |
| 5 | 0.5 | 0.5 | 18756 | -0.317 [-0.36,-0.277] | >100 [ $>100,>100]$ |
| 5 | 0.5 | 0.6 | 18756 | -0.288 [-0.328,-0.250] | >100 [ $>100,>100]$ |
| 5 | 0.5 | 0.7 | 18756 | -0.266 [-0.304,-0.221] | >100 [ $>100,>100]$ |
| 5 | 0.5 | 0.8 | 18756 | -0.236 [-0.272,-0.200] | >100 [ $>100,>100]$ |
| 5 | 0.5 | 0.9 | 18756 | -0.204 [-0.241,-0.162] | >100 [ $>100,>100]$ |
| 5 | 0.5 | 1 | 18756 | -0.179 [-0.213,-0.129] | >100 [ $>100,>100]$ |
| 5 | 1 | 0.5 | 36543 | -0.190 [-0.233,-0.157] | >100 [ $>100,>100]$ |
| 5 | 1 | 0.6 | 36543 | -0.139 [-0.168,-0.102] | >100 [ $>100,>100]$ |
| 5 | 1 | 0.7 | 36543 | -0.080 [-0.114,-0.045] | >100 [ $>100,>100]$ |
| 5 | 1 | 0.8 | 36543 | -0.022 [-0.053,0.010] | >100 [ $>100,>100]$ |
| 5 | 1 | 0.9 | 36543 | 0.030 [-0.006,0.061] | >100 [ $>100,>100]$ |
| 5 | 1 | 1 | 36543 | 0.086 [0.052,0.123] | >100 [ $>100,>100]$ |
| 5 | 2 | 0.5 | 72711 | -0.070 [-0.099,-0.036] | $>100[>100,>100]$ |
| 5 | 2 | 0.6 | 72711 | 0.009 [-0.031,0.050] | >100 [ $>100,>100]$ |
| 5 | 2 | 0.7 | 72711 | 0.093 [0.067,0.131] | >100 [ $>100,>100]$ |
| 5 | 2 | 0.8 | 72711 | 0.176 [0.132,0.206] | >100 [72,>100] |
| 5 | 2 | 0.9 | 72711 | 0.255 [0.224,0.281] | $39[29,67]$ |
| 5 | 2 | 1 | 72711 | 0.341 [0.314,0.368] | $23[20,35]$ |
| 5 | 4 | 0.5 | 145362 | -0.008 [-0.039,0.021] | >100 [ $>100,>100]$ |
| 5 | 4 | 0.6 | 145362 | 0.088 [0.048,0.120] | >100 [>100, > 100] |
| 5 | 4 | 0.7 | 145362 | 0.184 [0.153,0.209] | 92 [65,>100] |
| 5 | 4 | 0.8 | 145362 | 0.277 [0.249,0.296] | $36[31,50]$ |
| 5 | 4 | 0.9 | 145362 | 0.369 [0.343,0.389] | 23 [19,29] |
| 5 | 4 | 1 | 145362 | 0.459 [0.441,0.472] | 15 [13,18] |
| 10 | 0.5 | 0.5 | 37512 | -0.245 [-0.278,-0.196] | >100 [>100, > 100] |
| 10 | 0.5 | 0.6 | 37512 | -0.202 [-0.239,-0.164] | >100 [ $>100,>100]$ |
| 10 | 0.5 | 0.7 | 37512 | -0.158 [-0.205,-0.124] | >100 [ $>100,>100]$ |
| 10 | 0.5 | 0.8 | 37512 | -0.113 [-0.147,-0.084] | >100 [ $>100,>100]$ |
| 10 | 0.5 | 0.9 | 37512 | -0.069 [-0.107,-0.029] | >100 [>100, > 100] |
| 10 | 0.5 | 1 | 37512 | -0.024 [-0.062,0.011] | >100 [>100, > 100] |
| 10 | 1 | 0.5 | 73086 | -0.114 [-0.164,-0.077] | >100 [ $>100,>100]$ |
| 10 | 1 | 0.6 | 73086 | -0.043 [-0.075,0.003] | >100 [ $>100,>100]$ |
| 10 | 1 | 0.7 | 73086 | 0.032 [-0.025,0.074] | >100 [ $>100,>100]$ |
| 10 | 1 | 0.8 | 73086 | 0.107 [0.067,0.131] | >100 [>100, >100] |
| 10 | 1 | 0.9 | 73086 | 0.175 [0.134,0.198] | >100 [ $>100,>100]$ |
| 10 | 1 | 1 | 73086 | 0.248 [0.222,0.273] | 87 [47,>100] |
| 10 | 2 | 0.5 | 145422 | -0.033 [-0.063,-0.003] | >100 [>100, > 100] |
| 10 | 2 | 0.6 | 145422 | 0.055 [0.023,0.092] | >100 [ $>100,>100]$ |
| 10 | 2 | 0.7 | 145422 | 0.147 [0.118,0.168] | >100 [ $>100,>100]$ |
| 10 | 2 | 0.8 | 145422 | 0.234 [0.202,0.259] | 51 [38,99] |
| 10 | 2 | 0.9 | 145422 | 0.320 [0.298,0.341] | 26 [21,40] |
| 10 | 2 | 1 | 145422 | 0.407 [0.387,0.425] | 17 [15,24] |
| 10 | 4 | 0.5 | 290724 | 0.002 [-0.035,0.022] | >100 [ $>100,>100]$ |
| 10 | 4 | 0.6 | 290724 | 0.094 [0.065,0.120] | >100 [ $>100,>100]$ |
| 10 | 4 | 0.7 | 290724 | 0.190 [0.160,0.219] | 87 [68,>100] |
| 10 | 4 | 0.8 | 290724 | 0.283 [0.256,0.315] | $36[31,45]$ |
| 10 | 4 | 0.9 | 290724 | 0.378 [0.361,0.395] | 23 [19,27] |
| 10 | 4 | 1 | 290724 | 0.466 [0.454,0.479] | 14 [13,17] |


| Initial population $20 \%$ saturation ( $80 \%$ reduction based on 1 year trapping at 10 trap days/ha, a cost of 170534 trap visits) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 5 | 0.5 | 0.5 | 18756 | -0.229 [-0.294,-0.154] | $>100[>100,>100]$ |
| 5 | 0.5 | 0.6 | 18756 | -0.189 [-0.264,-0.124] | >100 [ $>100,>100]$ |
| 5 | 0.5 | 0.7 | 18756 | -0.159 [-0.226,-0.071] | >100 [ $>100,>100]$ |
| 5 | 0.5 | 0.8 | 18756 | -0.119 [-0.177,-0.040] | >100 [ $>100,>100]$ |
| 5 | 0.5 | 0.9 | 18756 | -0.089 [-0.17,-0.024] | >100 [ $>100,>100]$ |
| 5 | 0.5 | 1 | 18756 | -0.050 [-0.121,0.027] | >100 [>100, >100] |
| 5 | 1 | 0.5 | 36543 | -0.109 [-0.171,-0.039] | >100 [ $>100,>100]$ |
| 5 | 1 | 0.6 | 36543 | -0.044 [-0.126,0.008] | >100 [ $>100,>100]$ |
| 5 | 1 | 0.7 | 36543 | 0.007 [-0.053,0.069] | >100 [ $>100,>100]$ |
| 5 | 1 | 0.8 | 36543 | 0.069 [0.008,0.120] | >100 [ $>100,>100]$ |
| 5 | 1 | 0.9 | 36543 | 0.133 [0.076,0.198] | >100 [>100, > 100] |
| 5 | 1 | 1 | 36543 | 0.190 [0.134,0.240] | >100 [ $>100,>100]$ |
| 5 | 2 | 0.5 | 72711 | -0.004 [-0.069,0.061] | >100 [ $>100,>100]$ |
| 5 | 2 | 0.6 | 72711 | 0.083 [0.036,0.141] | >100 [ $>100,>100]$ |
| 5 | 2 | 0.7 | 72711 | 0.163 [0.114,0.210] | >100 [ $>100,>100]$ |
| 5 | 2 | 0.8 | 72711 | 0.240 [0.201,0.281] | 49 [34,>100] |
| 5 | 2 | 0.9 | 72711 | 0.320 [0.271,0.360] | $26[20,37]$ |
| 5 | 2 | 1 | 72711 | 0.396 [0.365,0.433] | 19 [16,26] |
| 5 | 4 | 0.5 | 145362 | 0.048 [-0.007,0.113] | >100 [ $>100,>100]$ |
| 5 | 4 | 0.6 | 145362 | 0.136 [0.095,0.172] | >100 [ $>100,>100]$ |
| 5 | 4 | 0.7 | 145362 | 0.226 [0.176,0.277] | $61[45,>100]$ |
| 5 | 4 | 0.8 | 145362 | 0.317 [0.277,0.353] | 27 [22,40] |
| 5 | 4 | 0.9 | 145362 | 0.404 [0.364,0.428] | 19 [16,24] |
| 5 | 4 | 1 | 145362 | 0.475 [0.457,0.498] | 13 [10,19] |
| 10 | 0.5 | 0.5 | 37512 | -0.136 [-0.221,-0.090] | >100 [ $>100,>100]$ |
| 10 | 0.5 | 0.6 | 37512 | -0.083 [-0.155,0.006] | >100 [ $>100,>100]$ |
| 10 | 0.5 | 0.7 | 37512 | -0.019 [-0.083,0.037] | >100 [ $>100,>100]$ |
| 10 | 0.5 | 0.8 | 37512 | 0.031 [-0.026,0.087] | >100 [ $>100,>100]$ |
| 10 | 0.5 | 0.9 | 37512 | 0.089 [0.032,0.144] | >100 [ $>100,>100]$ |
| 10 | 0.5 | 1 | 37512 | 0.142 [0.072,0.193] | >100 [ $>100,>100]$ |
| 10 | 1 | 0.5 | 73086 | -0.024 [-0.100,0.045] | >100 [ $>100,>100]$ |
| 10 | 1 | 0.6 | 73086 | 0.055 [0.002,0.121] | >100 [ $>100,>100]$ |
| 10 | 1 | 0.7 | 73086 | 0.136 [0.072,0.193] | >100 [ $>100,>100]$ |
| 10 | 1 | 0.8 | 73086 | 0.215 [0.156,0.253] | >100 [>100, > 100] |
| 10 | 1 | 0.9 | 73086 | 0.282 [0.235,0.323] | 70 [25,>100] |
| 10 | 1 | 1 | 73086 | 0.356 [0.324,0.396] | $26[18,>100]$ |
| 10 | 2 | 0.5 | 145422 | 0.038 [-0.030,0.114] | >100 [>100, >100] |
| 10 | 2 | 0.6 | 145422 | 0.126 [0.049,0.193] | >100 [ $>100,>100]$ |
| 10 | 2 | 0.7 | 145422 | 0.214 [0.165,0.264] | >100 [46,>100] |
| 10 | 2 | 0.8 | 145422 | 0.296 [0.254,0.346] | 30 [24,79] |
| 10 | 2 | $0.9$ | 145422 | 0.380 [0.351,0.415] | 19 [16,26] |
| 10 | 2 | $1$ | 145422 | $0.457[0.430,0.488]$ | 14 [11,21] |
| 10 | 4 | 0.5 | 290724 | 0.060 [-0.016,0.103] | >100 [ $>100,>100]$ |
| 10 | 4 | 0.6 | 290724 | 0.152 [0.100,0.192] | >100 [>100, > 100] |
| 10 | 4 | 0.7 | 290724 | 0.242 [0.194,0.273] | 60 [43, $>100]$ |
| 10 | 4 | 0.8 | 290724 | 0.327 [0.288,0.371] | 27 [22,39] |
| 10 | 4 | 0.9 | 290724 | 0.410 [0.372,0.439] | 18 [15,26] |
| 10 | 4 | 1 | 290724 | 0.485 [0.466,0.503] | 12 [10,16] |

