I included more variables in the full model – both x and y and variables derived from them. I hadn’t been including “run” as a variable, either.

Run = simulation runs (10x)

barr = road resistance (5 levels, 0-3000)

mort = roadkill rate (5 levels, 0-100)

x = x position (40 points, -11700 to 11700)

y = y position (20 points, -5700 to 5700)

ctrdist = distance from center of landscape (euclidean)

rddist = horizontal dist from center/distance from road/absolute value of x

ydist = vertical dist from center/absolute value of y

Landscape metrics:

mresist = matrix resistance of surface (levels are 2 for IBR20-IBR29 and 4 for IBR40-IBR49)

pdens = roadside patch density: within 3000m of road, proportion of landscape that is low resistance patch. I thought this would make sense because this is what should really affect access to the road. The landscape with really low pdens is pretty unique and has very little road crossing.

GYRATE\_AM, CLUMPY, COHESION = Fragstats metrics

VIF:

|  |  |
| --- | --- |
| run | 1.0000000641 |
| barr | 1.0000374391 |
| mort | 1.0000235389 |
| x | 1.0149663245 |
| y | 1.0132606469 |
| ctrdist | 1.8714884602 |
| rddist | 1.8630645929 |
| ydist | 1.0166590909 |
| mresist | 1.0058198174 |
| pdens | 1.9349311592 |
| GYRATE\_AM | 1.0965784245 |
| CLUMPY | 1.2091098421 |
| COHESION | 2.0139017409 |
| barr:mort | 1.0000213186 |

I’m confused about this result. I thought that y and ydist, and x and rddist would be so similar that at least one would be too high and would get kicked out, because ydist and rddist are just absolute values of the others. Univariate correlation says they’re pretty different, too.

# lm1: intercept only

lm1 = lm(A ~ 1, data=sGDs)

# lm2: full model

lm2 = lm(A ~ run + barr \* mort + x + y + ctrdist + rddist + ydist + mresist + pdens + GYRATE\_AM + CLUMPY + COHESION, data=sGDs)

# lm3: remove x and y

lm3 = lm(A ~ run + barr \* mort + ctrdist + rddist + ydist + mresist + pdens + GYRATE\_AM + CLUMPY + COHESION, data=sGDs)

# lm4: dist from center the only spatial covariate

lm4 = lm(A ~ run + barr \* mort + ctrdist + mresist + pdens + GYRATE\_AM + CLUMPY + COHESION, data=sGDs)

# lm5: remove dist from center, include ydist and rddist from road

lm5 = lm(A ~ run + barr \* mort + rddist + ydist + mresist + pdens + GYRATE\_AM + CLUMPY + COHESION, data=sGDs)

# lm6: no spatial

lm6 = lm(A ~ run + barr \* mort + mresist + pdens + GYRATE\_AM + CLUMPY + COHESION, data=sGDs)

# lm7: only spatial

lm7 = lm(A ~ run + barr \* mort + x + y + ctrdist + rddist + ydist, data=sGDs)