R Notebook

```
\# model with just the coefficient of variation - coeffVarEVI = sd(residual) / mean(mean)
lm1 <- lm(coeffVarEVI ~ (speciesRichness + FDis + FDiv + FEve)^2 + (</pre>
      tempAnnual + # temperature
     precipitation + aridity + # precipitation
      soilpH + soilSOC + soilClay + # soil
      topoElevation + topoSlope + bedrockDepth + # topography
      cloudCover + windSpeed + soilMoisture + # environ stress
      forestRegrowth + forestAge + burntAreas + rootMass + # disturbance
      humanFootprint + forestIntegrity + # human influence
      intactLandscapes + growingSeason)
      + biome + managed,
            data = dataMaster)
summary(lm1)
##
## Call:
## lm(formula = coeffVarEVI ~ (speciesRichness + FDis + FDiv + FEve)^2 +
##
       (tempAnnual + precipitation + aridity + soilpH + soilSOC +
##
           soilClay + topoElevation + topoSlope + bedrockDepth +
##
           cloudCover + windSpeed + soilMoisture + forestRegrowth +
          forestAge + burntAreas + rootMass + humanFootprint +
##
##
           forestIntegrity + intactLandscapes + growingSeason) +
##
       biome + managed, data = dataMaster)
##
## Residuals:
##
      Min
                1Q Median
                                3Q
                                       Max
## -6.6187 -0.0171 -0.0050 0.0097 4.4961
##
## Coefficients:
##
                                           Estimate Std. Error t value Pr(>|t|)
## (Intercept)
                                          1.145e-01 1.952e-02 5.867 4.47e-09
## speciesRichness
                                          1.075e-03 9.082e-04
                                                               1.183 0.236766
## FDis
                                         -4.043e-03 3.490e-03 -1.158 0.246719
## FDiv
                                          2.732e-03 7.108e-03 0.384 0.700751
## FEve
                                          3.251e-03 8.639e-03 0.376 0.706703
                                          1.098e-04 1.284e-05 8.550 < 2e-16
## tempAnnual
## precipitation
                                          6.998e-06 1.227e-06
                                                               5.703 1.19e-08
## aridity
                                         -3.971e-07 1.123e-07 -3.536 0.000406
                                         -3.608e-04 6.786e-05 -5.317 1.06e-07
## soilpH
## soilSOC
                                          2.289e-04 1.523e-05 15.033 < 2e-16
                                          2.098e-04 5.033e-05
                                                                4.168 3.08e-05
## soilClay
## topoElevation
                                          8.203e-06 8.095e-07 10.134 < 2e-16
                                          5.073e-04 6.828e-05
## topoSlope
                                                                7.429 1.11e-13
                                         -6.903e-05 2.571e-05 -2.685 0.007262
## bedrockDepth
## cloudCover
                                         -2.008e-06 8.274e-07 -2.427 0.015238
## windSpeed
                                          2.729e-03 4.603e-04 5.929 3.07e-09
```

```
-3.138e-05 2.938e-05 -1.068 0.285497
## soilMoisture
## forestRegrowth
                                         6.214e-03 1.627e-02 0.382 0.702561
                                         4.968e-06 2.899e-05 0.171 0.863932
## forestAge
## burntAreas
                                         2.746e-02 1.896e-03 14.478 < 2e-16
## rootMass
                                         9.723e-05 4.397e-05
                                                              2.212 0.027001
## humanFootprint
                                        -1.036e-04 3.658e-05 -2.833 0.004609
## forestIntegrity
                                        -3.933e-03 1.012e-04 -38.860 < 2e-16
                                        9.724e-05 1.064e-05
                                                              9.137 < 2e-16
## intactLandscapes
## growingSeason
                                        -6.699e-05 6.744e-06 -9.934 < 2e-16
## biomeFlooded grasslands
                                        -1.840e-03 1.171e-02 -0.157 0.875135
## biomeMangroves
                                        2.386e-01 2.256e-02 10.573 < 2e-16
## biomeMediterranean woodlands
                                        -1.986e-02 7.568e-03 -2.624 0.008694
## biomeTemperate broadleaf forests
                                        -1.786e-02 6.005e-03 -2.975 0.002932
## biomeTemperate conifer forests
                                        -2.160e-02 6.053e-03 -3.569 0.000359
## biomeTemperate grasslands
                                        -1.411e-02 6.070e-03 -2.325 0.020085
                                        -1.035e-02 9.275e-03 -1.116 0.264329
## biomeTropical coniferous forests
## biomeTropical dry broadleaf forests
                                         1.591e-02 1.256e-02 1.267 0.205279
## biomeTropical grasslands
                                         1.653e-02 8.072e-03 2.048 0.040603
## biomeTropical moist broadleaf forests -2.646e-02 1.101e-02 -2.403 0.016261
                                        -2.075e-03 7.692e-03 -0.270 0.787336
## biomeTundra
## biomeXeric shrublands
                                        -4.358e-02 6.415e-03 -6.793 1.11e-11
## managed
                                        -2.060e-03 6.663e-04 -3.091 0.001994
                                       -3.353e-04 2.063e-04 -1.625 0.104223
## speciesRichness:FDis
                                        -8.730e-04 1.037e-03 -0.842 0.399926
## speciesRichness:FDiv
## speciesRichness:FEve
                                       -6.885e-04 7.671e-04 -0.897 0.369471
## FDis:FDiv
                                       4.520e-03 3.666e-03 1.233 0.217568
                                         1.606e-03 1.998e-03 0.804 0.421482
## FDis:FEve
## FDiv:FEve
                                         1.170e-03 9.601e-03
                                                              0.122 0.903007
##
## (Intercept)
                                        ***
## speciesRichness
## FDis
## FDiv
## FEve
## tempAnnual
## precipitation
                                        ***
## aridity
## soilpH
                                        ***
## soilSOC
## soilClay
                                        ***
## topoElevation
## topoSlope
                                        ***
## bedrockDepth
                                        **
## cloudCover
## windSpeed
## soilMoisture
## forestRegrowth
## forestAge
## burntAreas
                                        ***
## rootMass
## humanFootprint
## forestIntegrity
## intactLandscapes
                                        ***
## growingSeason
                                        ***
```

```
## biomeFlooded grasslands
## biomeMangroves
                                       ***
## biomeMediterranean woodlands
## biomeTemperate broadleaf forests
                                       **
## biomeTemperate conifer forests
## biomeTemperate grasslands
## biomeTropical coniferous forests
## biomeTropical dry broadleaf forests
## biomeTropical grasslands
## biomeTropical moist broadleaf forests *
## biomeTundra
## biomeXeric shrublands
                                       ***
## managed
                                       **
## speciesRichness:FDis
## speciesRichness:FDiv
## speciesRichness:FEve
## FDis:FDiv
## FDis:FEve
## FDiv:FEve
## Signif. codes: 0 '***' 0.001 '**' 0.05 '.' 0.1 ' ' 1
## Residual standard error: 0.053 on 54081 degrees of freedom
## Multiple R-squared: 0.07498,
                                Adjusted R-squared: 0.07424
## F-statistic: 101.9 on 43 and 54081 DF, p-value: < 2.2e-16
vif(lm1)
## there are higher-order terms (interactions) in this model
## consider setting type = 'predictor'; see ?vif
                           GVIF Df GVIF<sup>(1/(2*Df))</sup>
## speciesRichness
                       87.361223 1 9.346723
## FDis
                       93.709161 1
                                          9.680349
## FDiv
                       15.104574 1
                                         3.886460
## FEve
                       56.707710 1
                                          7.530452
## tempAnnual
                      9.545170 1
                                         3.089526
## precipitation
                      7.839903 1
                                         2.799983
## aridity
                       7.438996 1
                                         2.727452
## soilpH
                                         1.890349
                      3.573419 1
## soilSOC
                      2.818192 1
                                         1.678747
                        2.311994 1
                                        1.520524
## soilClay
                      7.468551 1
                                         2.732865
## topoElevation
                                         1.569725
## topoSlope
                       2.464038 1
## bedrockDepth
                      1.481929 1
                                         1.217345
## cloudCover
                        3.245861 1
                                         1.801627
## windSpeed
                       1.646458 1
                                          1.283144
## soilMoisture
                      3.345166 1
                                         1.828979
                     10.247801 1
## forestRegrowth
                                         3.201219
## forestAge
                       4.201370 1
                                         2.049724
## burntAreas
                       1.072739 1
                                         1.035731
## rootMass
                       1.127428 1
                                          1.061804
## humanFootprint
                       1.394031 1
                                          1.180691
                       1.848193 1
## forestIntegrity
                                          1.359483
## intactLandscapes
                       1.254143 1
                                          1.119885
```

```
## growingSeason
                        7.566624 1
                                           2.750750
## biome
                       68.272090 12
                                           1.192413
## managed
                        1.085431 1
                                           1.041840
## speciesRichness:FDis 31.318478 1
                                           5.596291
## speciesRichness:FDiv 78.334985 1
                                           8.850705
## speciesRichness:FEve 38.547298 1
                                          6.208647
## FDis:FDiv
                       84.341104 1
                                          9.183741
## FDis:FEve
                       21.961989 1
                                          4.686362
## FDiv:FEve
                       55.974454 1
                                           7.481608
# model with the variance in residuals - sdResidEVI = sd(residual)
lm2 <- lm(sdResidEVI ~ (speciesRichness + FDis + FDiv + FEve)^2 + (</pre>
      tempAnnual + # temperature
      precipitation + aridity + # precipitation
      soilpH + soilSOC + soilClay + # soil
      topoElevation + topoSlope + bedrockDepth + # topography
      cloudCover + windSpeed + soilMoisture + # environ stress
      forestRegrowth + forestAge + burntAreas + rootMass + # disturbance
      humanFootprint + forestIntegrity + # human influence
      intactLandscapes + growingSeason)
      + biome + managed,
            data = dataMaster)
summary(lm2)
##
## Call:
## lm(formula = sdResidEVI ~ (speciesRichness + FDis + FDiv + FEve)^2 +
##
       (tempAnnual + precipitation + aridity + soilpH + soilSOC +
##
          soilClay + topoElevation + topoSlope + bedrockDepth +
##
           cloudCover + windSpeed + soilMoisture + forestRegrowth +
##
          forestAge + burntAreas + rootMass + humanFootprint +
##
           forestIntegrity + intactLandscapes + growingSeason) +
       biome + managed, data = dataMaster)
##
##
## Residuals:
               1Q Median
      Min
                               3Q
                                      Max
## -887.17 -77.15 -18.90 52.59 1605.14
##
## Coefficients:
##
                                          Estimate Std. Error t value Pr(>|t|)
                                        -1.521e+02 4.433e+01 -3.431 0.000602
## (Intercept)
                                         4.040e+00 2.062e+00
## speciesRichness
                                                               1.959 0.050110
## FDis
                                         6.198e+00 7.925e+00
                                                               0.782 0.434178
## FDiv
                                        -1.843e+01 1.614e+01 -1.142 0.253525
## FEve
                                        -1.001e+01 1.962e+01 -0.510 0.609760
## tempAnnual
                                         1.798e-01 2.915e-02 6.168 6.95e-10
## precipitation
                                         2.968e-02 2.786e-03 10.652 < 2e-16
## aridity
                                        -1.517e-03 2.550e-04 -5.950 2.70e-09
                                        -6.149e+00 1.541e-01 -39.907 < 2e-16
## soilpH
## soilSOC
                                         5.045e-01 3.457e-02 14.594 < 2e-16
## soilClay
                                         2.697e+00 1.143e-01 23.604 < 2e-16
                                         2.211e-03 1.838e-03
## topoElevation
                                                               1.203 0.229011
## topoSlope
                                         4.238e+00 1.550e-01 27.332 < 2e-16
## bedrockDepth
                                         3.679e-01 5.838e-02 6.301 2.98e-10
## cloudCover
                                        -1.971e-02 1.879e-03 -10.492 < 2e-16
```

```
1.652e+01 1.045e+00 15.803 < 2e-16
## windSpeed
## soilMoisture
                                         4.635e-01 6.671e-02 6.948 3.74e-12
## forestRegrowth
                                         7.247e+02 3.695e+01 19.614 < 2e-16
## forestAge
                                         4.314e-01 6.582e-02 6.555 5.62e-11
                                         6.290e+01 4.306e+00 14.609 < 2e-16
## burntAreas
## rootMass
                                         9.201e-01 9.983e-02 9.216 < 2e-16
## humanFootprint
                                       -4.559e-01 8.306e-02 -5.489 4.06e-08
                                        -1.171e+01 2.298e-01 -50.941 < 2e-16
## forestIntegrity
## intactLandscapes
                                        6.917e-02 2.417e-02
                                                              2.862 0.004210
## growingSeason
                                        -1.646e-01 1.531e-02 -10.753 < 2e-16
## biomeFlooded grasslands
                                        8.200e+01 2.659e+01 3.084 0.002046
                                         1.435e+02 5.123e+01 2.800 0.005106
## biomeMangroves
## biomeMediterranean woodlands
                                        -1.251e+02 1.718e+01 -7.280 3.39e-13
## biomeTemperate broadleaf forests
                                        -2.719e+01 1.363e+01 -1.994 0.046130
## biomeTemperate conifer forests
                                        -1.038e+02 1.374e+01 -7.555 4.27e-14
                                        -2.993e+01 1.378e+01 -2.171 0.029899
## biomeTemperate grasslands
## biomeTropical coniferous forests
                                        -4.237e+01 2.106e+01 -2.012 0.044217
## biomeTropical dry broadleaf forests
                                         5.371e+02 2.851e+01 18.839 < 2e-16
## biomeTropical grasslands
                                         1.151e+02 1.833e+01
                                                              6.280 3.40e-10
## biomeTropical moist broadleaf forests 3.618e+02 2.500e+01 14.473 < 2e-16
## biomeTundra
                                         1.438e+01 1.746e+01 0.824 0.410215
## biomeXeric shrublands
                                        -1.746e+02 1.457e+01 -11.990 < 2e-16
                                         1.181e+00 1.513e+00
                                                              0.781 0.434874
## managed
## speciesRichness:FDis
                                        -4.747e+00 4.685e-01 -10.131 < 2e-16
## speciesRichness:FDiv
                                         3.540e+00 2.355e+00 1.503 0.132816
## speciesRichness:FEve
                                         3.034e+00 1.742e+00
                                                              1.742 0.081521
                                         1.178e+01 8.323e+00
## FDis:FDiv
                                                              1.415 0.157003
## FDis:FEve
                                         4.372e+00 4.536e+00
                                                               0.964 0.335154
## FDiv:FEve
                                         1.553e+00 2.180e+01
                                                              0.071 0.943217
##
## (Intercept)
                                        ***
## speciesRichness
## FDis
## FDiv
## FEve
## tempAnnual
                                        ***
## precipitation
## aridity
                                        ***
## soilpH
## soilSOC
                                        ***
## soilClay
## topoElevation
## topoSlope
                                        ***
## bedrockDepth
## cloudCover
## windSpeed
                                        ***
## soilMoisture
                                        ***
## forestRegrowth
## forestAge
                                        ***
## burntAreas
                                        ***
## rootMass
                                        ***
## humanFootprint
                                        ***
## forestIntegrity
                                        ***
## intactLandscapes
                                        **
```

```
## growingSeason
                                        ***
## biomeFlooded grasslands
                                        **
## biomeMangroves
## biomeMediterranean woodlands
## biomeTemperate broadleaf forests
## biomeTemperate conifer forests
                                        ***
## biomeTemperate grasslands
## biomeTropical coniferous forests
## biomeTropical dry broadleaf forests
## biomeTropical grasslands
## biomeTropical moist broadleaf forests ***
## biomeTundra
## biomeXeric shrublands
## managed
## speciesRichness:FDis
## speciesRichness:FDiv
## speciesRichness:FEve
## FDis:FDiv
## FDis:FEve
## FDiv:FEve
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 120.3 on 54081 degrees of freedom
## Multiple R-squared: 0.2981, Adjusted R-squared: 0.2975
## F-statistic: 534.1 on 43 and 54081 DF, p-value: < 2.2e-16
## there are higher-order terms (interactions) in this model
## consider setting type = 'predictor'; see ?vif
                            GVIF Df GVIF^(1/(2*Df))
##
## speciesRichness
                       87.361223 1
                                           9.346723
## FDis
                       93.709161 1
                                           9.680349
## FDiv
                       15.104574 1
                                           3.886460
## FEve
                       56.707710 1
                                           7.530452
## tempAnnual
                        9.545170 1
                                           3.089526
## precipitation
                        7.839903 1
                                           2.799983
                        7.438996 1
## aridity
                                           2.727452
## soilpH
                        3.573419 1
                                          1.890349
                        2.818192 1
## soilSOC
                                           1.678747
## soilClay
                        2.311994 1
                                           1.520524
## topoElevation
                       7.468551 1
                                           2.732865
## topoSlope
                        2.464038 1
                                           1.569725
## bedrockDepth
                        1.481929 1
                                           1.217345
## cloudCover
                        3.245861 1
                                           1.801627
## windSpeed
                       1.646458 1
                                          1.283144
## soilMoisture
                       3.345166 1
                                          1.828979
## forestRegrowth
                       10.247801 1
                                           3.201219
## forestAge
                       4.201370 1
                                           2.049724
## burntAreas
                       1.072739 1
                                           1.035731
## rootMass
                        1.127428 1
                                           1.061804
```

1.180691

1.359483

1.394031 1

1.848193 1

humanFootprint

forestIntegrity

```
## intactLandscapes
                       1.254143 1
                                           1.119885
                       7.566624 1
## growingSeason
                                           2.750750
## biome
                       68.272090 12
                                           1.192413
## managed
                        1.085431 1
                                           1.041840
## speciesRichness:FDis 31.318478 1
                                           5.596291
## speciesRichness:FDiv 78.334985 1
                                          8.850705
## speciesRichness:FEve 38.547298 1
                                          6.208647
                       84.341104 1
## FDis:FDiv
                                          9.183741
## FDis:FEve
                       21.961989 1
                                           4.686362
## FDiv:FEve
                       55.974454 1
                                           7.481608
\# lm(sd \sim u * (a + b + c), meanEVI = mean(mean)
lm3 <- lm(sdResidEVI ~ meanEVI * (FDis + FDiv + FEve)^2 + (</pre>
      speciesRichness + shannonDiversity + # species diversity
     tempAnnual + # temperature
     precipitation + aridity + # precipitation
     soilpH + soilSOC + soilClay + # soil
     topoElevation + topoSlope + bedrockDepth + # topography
      cloudCover + windSpeed + soilMoisture + # environ stress
     forestRegrowth + forestAge + burntAreas + rootMass + # disturbance
     humanFootprint + forestIntegrity + # human influence
      intactLandscapes + growingSeason)
     + biome + managed,
           data = dataMaster)
summary(lm3)
##
## Call:
## lm(formula = sdResidEVI ~ meanEVI * (FDis + FDiv + FEve)^2 +
##
       (speciesRichness + shannonDiversity + tempAnnual + precipitation +
##
          aridity + soilpH + soilSOC + soilClay + topoElevation +
##
          topoSlope + bedrockDepth + cloudCover + windSpeed + soilMoisture +
##
          forestRegrowth + forestAge + burntAreas + rootMass +
##
          humanFootprint + forestIntegrity + intactLandscapes +
##
          growingSeason) + biome + managed, data = dataMaster)
##
## Residuals:
      Min
               1Q Median
                               3Q
                                      Max
## -838.54 -75.85 -19.22 50.22 1646.69
## Coefficients:
                                          Estimate Std. Error t value Pr(>|t|)
                                        -1.662e+02 5.952e+01 -2.793 0.005226
## (Intercept)
## meanEVI
                                         3.048e-02 9.000e-03 3.386 0.000710
                                         9.654e+01 2.462e+01 3.921 8.83e-05
## FDis
## FDiv
                                         1.458e+01 4.911e+01 0.297 0.766559
## FEve
                                        -6.089e+01 6.094e+01 -0.999 0.317681
## speciesRichness
                                        -2.112e+00 4.910e-01 -4.302 1.70e-05
                                         1.572e+01 2.671e+00
                                                               5.886 3.97e-09
## shannonDiversity
## tempAnnual
                                         2.629e-01 2.923e-02 8.997 < 2e-16
## precipitation
                                         2.637e-02 2.772e-03
                                                               9.513 < 2e-16
                                        -1.253e-03 2.535e-04 -4.942 7.75e-07
## aridity
## soilpH
                                        -5.277e+00 1.568e-01 -33.653 < 2e-16
                                         6.140e-01 3.466e-02 17.714 < 2e-16
## soilSOC
## soilClay
                                         2.193e+00 1.148e-01 19.095 < 2e-16
```

```
## topoElevation
                                         1.451e-02 1.882e-03
                                                               7.709 1.29e-14
                                         3.756e+00 1.556e-01 24.133 < 2e-16
## topoSlope
## bedrockDepth
                                         3.952e-01 5.874e-02
                                                              6.727 1.74e-11
                                        -1.636e-02 1.885e-03 -8.680 < 2e-16
## cloudCover
                                         1.494e+01 1.039e+00 14.376 < 2e-16
## windSpeed
## soilMoisture
                                         3.899e-01 6.665e-02
                                                               5.850 4.94e-09
## forestRegrowth
                                         5.841e+02 3.728e+01 15.667 < 2e-16
                                         2.631e-01 6.599e-02
                                                               3.987 6.70e-05
## forestAge
                                         6.942e+01 4.283e+00 16.209 < 2e-16
## burntAreas
## rootMass
                                         8.906e-01 9.908e-02
                                                              8.989 < 2e-16
## humanFootprint
                                        -5.043e-01 8.247e-02 -6.115 9.73e-10
                                        -1.277e+01 2.333e-01 -54.719 < 2e-16
## forestIntegrity
                                         1.387e-01 2.412e-02
## intactLandscapes
                                                               5.752 8.88e-09
                                        -2.074e-01 1.532e-02 -13.536 < 2e-16
## growingSeason
## biomeFlooded grasslands
                                        6.296e+01 2.641e+01
                                                               2.384 0.017121
## biomeMangroves
                                         1.186e+02 5.085e+01
                                                                2.333 0.019666
## biomeMediterranean woodlands
                                        -1.223e+02 1.705e+01 -7.170 7.60e-13
## biomeTemperate broadleaf forests
                                        -4.436e+01 1.355e+01 -3.273 0.001064
## biomeTemperate conifer forests
                                        -1.061e+02 1.364e+01 -7.779 7.42e-15
                                        -4.031e+01 1.369e+01 -2.945 0.003231
## biomeTemperate grasslands
                                        -5.881e+01 2.091e+01 -2.813 0.004915
## biomeTropical coniferous forests
## biomeTropical dry broadleaf forests
                                         4.528e+02 2.862e+01 15.824 < 2e-16
                                         1.028e+02 1.820e+01
## biomeTropical grasslands
                                                               5.647 1.64e-08
## biomeTropical moist broadleaf forests 2.727e+02 2.521e+01 10.816 < 2e-16
## biomeTundra
                                         7.557e+00 1.734e+01
                                                              0.436 0.662884
## biomeXeric shrublands
                                        -1.790e+02 1.446e+01 -12.380 < 2e-16
## managed
                                        -1.358e+00 1.507e+00 -0.901 0.367518
## FDis:FDiv
                                        -8.322e+01 2.728e+01 -3.051 0.002283
## FDis:FEve
                                         3.326e+01 1.362e+01
                                                              2.442 0.014629
## FDiv:FEve
                                         1.576e+00 7.276e+01
                                                              0.022 0.982720
## meanEVI:FDis
                                        -2.515e-02 5.080e-03 -4.952 7.38e-07
## meanEVI:FDiv
                                        -3.192e-03 1.033e-02 -0.309 0.757303
## meanEVI:FEve
                                        1.529e-02 1.310e-02
                                                              1.167 0.243198
## meanEVI:FDis:FDiv
                                         2.070e-02 5.602e-03
                                                              3.694 0.000221
                                        -6.112e-03 2.886e-03 -2.118 0.034205
## meanEVI:FDis:FEve
## meanEVI:FDiv:FEve
                                        -1.669e-03 1.557e-02 -0.107 0.914652
##
## (Intercept)
                                        **
## meanEVI
                                        ***
## FDis
                                        ***
## FDiv
## FEve
## speciesRichness
                                        ***
## shannonDiversity
## tempAnnual
## precipitation
                                        ***
## aridity
                                        ***
## soilpH
## soilSOC
                                        ***
## soilClay
                                        ***
## topoElevation
                                        ***
## topoSlope
                                        ***
## bedrockDepth
                                        ***
## cloudCover
                                        ***
```

```
## windSpeed
                                        ***
## soilMoisture
                                        ***
## forestRegrowth
## forestAge
## burntAreas
## rootMass
                                        ***
## humanFootprint
## forestIntegrity
## intactLandscapes
## growingSeason
                                        ***
## biomeFlooded grasslands
## biomeMangroves
## biomeMediterranean woodlands
                                        ***
## biomeTemperate broadleaf forests
## biomeTemperate conifer forests
                                        ***
## biomeTemperate grasslands
                                        **
## biomeTropical coniferous forests
                                        **
## biomeTropical dry broadleaf forests
## biomeTropical grasslands
## biomeTropical moist broadleaf forests ***
## biomeTundra
## biomeXeric shrublands
## managed
## FDis:FDiv
## FDis:FEve
## FDiv:FEve
## meanEVI:FDis
## meanEVI:FDiv
## meanEVI:FEve
## meanEVI:FDis:FDiv
                                        ***
## meanEVI:FDis:FEve
## meanEVI:FDiv:FEve
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## Residual standard error: 119.4 on 54076 degrees of freedom
## Multiple R-squared: 0.3089, Adjusted R-squared: 0.3083
## F-statistic: 503.5 on 48 and 54076 DF, p-value: < 2.2e-16
vif(1m3)
## there are higher-order terms (interactions) in this model
## consider setting type = 'predictor'; see ?vif
##
                           GVIF Df GVIF^(1/(2*Df))
                    566.489233 1
## meanEVI
                                         23.801034
## FDis
                     918.489597 1
                                         30.306593
                                         11.916284
## FDiv
                    141.997818 1
## FEve
                    555.763042 1
                                         23.574627
## speciesRichness 5.030292 1
                                         2.242831
                      5.809730 1
## shannonDiversity
                                          2.410338
## tempAnnual
                       9.747125 1
                                          3.122039
## precipitation
                      7.878777 1
                                          2.806916
                       7.465488 1
## aridity
                                          2.732305
## soilpH
                       3.758139 1
                                          1.938592
```

```
## soilSOC
                       2.877229 1
                                          1.696240
## soilClay
                       2.370096 1
                                          1.539512
## topoElevation
                       7.953819 1
                                          2.820252
## topoSlope
                       2.521934 1
                                          1.588060
## bedrockDepth
                       1.523453
                                1
                                          1.234282
## cloudCover
                       3.318749 1
                                          1.821743
## windSpeed
                       1.652381 1
                                          1.285450
## soilMoisture
                       3.390674 1
                                          1.841378
## forestRegrowth
                      10.594808 1
                                          3.254967
## forestAge
                       4.288385 1
                                          2.070842
## burntAreas
                       1.077781 1
                                          1.038162
## rootMass
                        1.127726
                                          1.061945
                                1
## humanFootprint
                       1.395534 1
                                          1.181327
## forestIntegrity
                       1.934879 1
                                          1.390999
## intactLandscapes
                       1.269034 1
                                          1.126514
## growingSeason
                       7.692195 1
                                          2.773481
## biome
                      80.520986 12
                                          1.200640
## managed
                       1.094047 1
                                          1.045967
## FDis:FDiv
                     920.028708 1
                                         30.331975
## FDis:FEve
                     201.150838 1
                                         14.182766
                     633.259876 1
## FDiv:FEve
                                         25.164655
## meanEVI:FDis
                     1601.510553 1
                                         40.018877
## meanEVI:FDiv
                     630.161422 1
                                         25.103016
## meanEVI:FEve
                    1092.461224 1
                                         33.052401
## meanEVI:FDis:FDiv 1465.938371 1
                                         38.287575
## meanEVI:FDis:FEve 312.617768 1
                                         17.681000
## meanEVI:FDiv:FEve 1133.194643 1
                                         33.662957
```

AIC(lm1, lm2, lm3)

```
## df AIC
## lm1 45 -164334.5
## lm2 45 672198.8
## lm3 50 671369.7
```