# Looking at the effects of 2013NOx on Leaf N (the arcsine of leaf N)

Linear mixed model fit by REML t-tests use Satterthwaite approximations to degrees of freedom [merModLmerTest

]

Formula: asin(leaf.pct.n) ~ nox.yr.2013 + (1 | site)

REML criterion at convergence: -444.2

Scaled residuals:

Min 1Q Median 3Q Max

-2.3461 -0.7347 -0.0055 0.4857 3.4046

Random effects:

Groups Name Variance Std.Dev.

site (Intercept) 6.464e-07 0.000804

Residual 1.070e-05 0.003271

Number of obs: 55, groups: site, 11

Fixed effects:

Estimate Std. Error df t value Pr(>|t|)

(Intercept) 2.164e-02 2.111e-03 9.000e+00 10.249 2.91e-06 \*\*\*

nox.yr.2013 -7.150e-06 2.191e-04 9.000e+00 -0.033 0.975

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

# Looking at all of the things that could affect leaf N in one lmer

Formula: asin(leaf.pct.n) ~ pct.urban + soil.total.n + dbh.cm + leaf.pct.herb + (1 | site)

REML criterion at convergence: -394

Scaled residuals:

Min 1Q Median 3Q Max

-2.23057 -0.63317 0.03094 0.59327 2.36210

Random effects:

Groups Name Variance Std.Dev.

site (Intercept) 8.743e-07 0.000935

Residual 9.438e-06 0.003072

Number of obs: 53, groups: site, 11

Fixed effects:

Estimate Std. Error df t value Pr(>|t|)

(Intercept) 1.844e-02 1.868e-03 1.580e+01 9.873 3.69e-08 \*\*\*

pct.urban -5.224e-04 1.928e-03 1.018e+01 -0.271 0.7918

soil.total.n 9.026e-05 4.281e-05 4.598e+01 2.108 0.0405 \*

dbh.cm 1.137e-05 2.974e-05 2.642e+01 0.382 0.7052

leaf.pct.herb 1.186e-02 6.131e-03 4.615e+01 1.935 0.0592 .

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Correlation of Fixed Effects:

(Intr) pct.rb sl.tt. dbh.cm

pct.urban -0.228

soil.totl.n -0.511 0.030

dbh.cm -0.707 -0.216 0.023

lef.pct.hrb -0.106 -0.336 -0.153 0.147

> anova(lmer.leaf.n6)

Analysis of Variance Table of type 3 with Satterthwaite

approximation for degrees of freedom

Sum Sq Mean Sq NumDF DenDF F.value Pr(>F)

pct.urban 6.9300e-07 6.9300e-07 1 10.183 0.0735 0.79179

soil.total.n 4.1957e-05 4.1957e-05 1 45.985 4.4458 0.04047 \*

dbh.cm 1.3800e-06 1.3800e-06 1 26.418 0.1463 0.70520

leaf.pct.herb 3.5322e-05 3.5322e-05 1 46.152 3.7427 0.05918 .

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

5.7.15

> summary(leaf.herb.i0)

Linear mixed model fit by REML

t-tests use Satterthwaite approximations to degrees of freedom ['merModLmerTest']

Formula: leaf.pct.herb ~ nox.yr.2013 + soil.no3.n + soil.nh4.n + pct.urban + dbh.cm + leaf.pct.n + (1 | site)

Data: all.data

REML criterion at convergence: 187.7

Scaled residuals:

Min 1Q Median 3Q Max

-4.2025 -0.3915 0.1063 0.3295 2.3984

Random effects:

Groups Name Variance Std.Dev.

site (Intercept) 1.625 1.275

Residual 1.145 1.070

Number of obs: 53, groups: site, 11

Fixed effects:

Estimate Std. Error df t value Pr(>|t|)

(Intercept) 2.204246 7.253204 27.140000 0.304 0.76352

nox.yr.2013 -0.053748 0.443750 9.790000 -0.121 0.90604

soil.no3.n 0.148623 0.042856 40.760000 3.468 0.00125 \*\*

soil.nh4.n -0.054942 0.029934 41.000000 -1.835 0.07370 .

pct.urban 0.216469 0.981132 9.330000 0.221 0.83013

dbh.cm 0.007583 0.014419 44.630000 0.526 0.60159

leaf.pct.n 1.701369 1.120760 40.970000 1.518 0.13668

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Correlation of Fixed Effects:

(Intr) n..201 sl.n3. sl.n4. pct.rb dbh.cm

nox.yr.2013 -0.776

soil.no3.n -0.186 0.005

soil.nh4.n -0.237 0.200 -0.460

pct.urban 0.734 -0.912 -0.009 -0.170

dbh.cm -0.349 0.330 0.040 0.263 -0.308

leaf.pct.n 0.637 -0.032 -0.197 -0.116 0.027 -0.006