**Appendix 9**. Full model results for the Generalized Additive Models, assessing a checklist-level responses of biodiversity (species richness, abundance, Shannon diversity, and phylogenetic diversity) with parametric terms for urbanness, water, tree, and mean EVI.

Species richness

Family: gaussian

Link function: identity

Formula:

log(species\_richness) ~ s(DURATION\_MINUTES) + s(EFFORT\_DISTANCE\_KM) +

s(LATITUDE, LONGITUDE) + urbanness + proportion\_water.list +

tree\_mean.list + mean\_EVI.list + s(season2, bs = "cc",

k = 4) + s(city, bs = "re")

Parametric coefficients:

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

(Intercept) 2.3291306 0.0137897 168.90 <2e-16 \*\*\*

urbanness -0.0534694 0.0003593 -148.81 <2e-16 \*\*\*

proportion\_water.list -0.0065029 0.0004651 -13.98 <2e-16 \*\*\*

tree\_mean.list -0.0563630 0.0006644 -84.83 <2e-16 \*\*\*

mean\_EVI.list -0.0110510 0.0003951 -27.97 <2e-16 \*\*\*

---

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

Approximate significance of smooth terms:

edf Ref.df F p-value

s(DURATION\_MINUTES) 8.999 9.00 225138.9 <2e-16 \*\*\*

s(EFFORT\_DISTANCE\_KM) 8.996 9.00 33842.8 <2e-16 \*\*\*

s(LATITUDE,LONGITUDE) 28.876 28.96 387.3 <2e-16 \*\*\*

s(season2) 2.000 2.00 2430392.3 <2e-16 \*\*\*

s(city) 1560.044 1580.00 163.8 <2e-16 \*\*\*

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

R-sq.(adj) = 0.449 Deviance explained = 45%

fREML = 5.7117e+06 Scale est. = 0.38314 n = 6075827

Shannon diversity

Family: gaussian

Link function: identity

Formula:

shannon\_diversity ~ s(DURATION\_MINUTES) + s(EFFORT\_DISTANCE\_KM) +

s(LATITUDE, LONGITUDE) + urbanness + proportion\_water.list +

tree\_mean.list + mean\_EVI.list + s(season2, bs = "cc",

k = 4) + s(city, bs = "re")

Parametric coefficients:

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

(Intercept) 1.8105799 0.0099520 181.931 < 2e-16 \*\*\*

urbanness -0.0274278 0.0003765 -72.858 < 2e-16 \*\*\*

proportion\_water.list -0.0034703 0.0004850 -7.155 8.38e-13 \*\*\*

tree\_mean.list -0.0028529 0.0006948 -4.106 4.02e-05 \*\*\*

mean\_EVI.list 0.0418992 0.0004171 100.454 < 2e-16 \*\*\*

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

Approximate significance of smooth terms:

edf Ref.df F p-value

s(DURATION\_MINUTES) 8.996 9.00 147043.1 <2e-16 \*\*\*

s(EFFORT\_DISTANCE\_KM) 8.993 9.00 15082.0 <2e-16 \*\*\*

s(LATITUDE,LONGITUDE) 28.806 28.92 254.1 <2e-16 \*\*\*

s(season2) 2.000 2.00 2877734.0 <2e-16 \*\*\*

s(city) 1544.767 1580.00 117.6 <2e-16 \*\*\*

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

R-sq.(adj) = 0.382 Deviance explained = 38.2%

fREML = 5.3177e+06 Scale est. = 0.39018 n = 5602803

Abundance

Family: gaussian

Link function: identity

Formula:

log(abundance) ~ s(DURATION\_MINUTES) + s(EFFORT\_DISTANCE\_KM) +

s(LATITUDE, LONGITUDE) + urbanness + proportion\_water.list +

tree\_mean.list + mean\_EVI.list + s(season2, bs = "cc",

k = 4) + s(city, bs = "re")

Parametric coefficients:

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

(Intercept) 3.9178063 0.0485721 80.660 <2e-16 \*\*\*

urbanness -0.0987323 0.0006960 -141.866 <2e-16 \*\*\*

proportion\_water.list 0.0004911 0.0009038 0.543 0.587

tree\_mean.list -0.1997563 0.0012807 -155.976 <2e-16 \*\*\*

mean\_EVI.list -0.1548959 0.0007735 -200.253 <2e-16 \*\*\*

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

Approximate significance of smooth terms:

edf Ref.df F p-value

s(DURATION\_MINUTES) 8.998 9.00 82064.0 <2e-16 \*\*\*

s(EFFORT\_DISTANCE\_KM) 8.990 9.00 24479.2 <2e-16 \*\*\*

s(LATITUDE,LONGITUDE) 28.946 28.99 839.8 <2e-16 \*\*\*

s(season2) 2.000 2.00 3126899.2 <2e-16 \*\*\*

s(city) 1571.798 1580.00 207.1 <2e-16 \*\*\*

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

R-sq.(adj) = 0.306 Deviance explained = 30.6%

fREML = 8.7303e+06 Scale est. = 1.3184 n = 5602803

Phylogenetic Diversity

Family: gaussian

Link function: identity

Formula:

log(PD) ~ s(DURATION\_MINUTES) + s(EFFORT\_DISTANCE\_KM) + s(LATITUDE,

LONGITUDE) + urbanness + proportion\_water.list + tree\_mean.list +

mean\_EVI.list + s(season2, bs = "cc", k = 4) + s(city,

bs = "re")

Parametric coefficients:

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

(Intercept) 6.3689985 0.0185208 343.88 <2e-16 \*\*\*

urbanness -0.0426757 0.0002581 -165.37 <2e-16 \*\*\*

proportion\_water.list -0.0036505 0.0003357 -10.87 <2e-16 \*\*\*

tree\_mean.list -0.0550729 0.0004765 -115.58 <2e-16 \*\*\*

mean\_EVI.list -0.0111366 0.0002842 -39.18 <2e-16 \*\*\*

---

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

Approximate significance of smooth terms:

edf Ref.df F p-value

s(DURATION\_MINUTES) 8.998 9.00 208531.0 <2e-16 \*\*\*

s(EFFORT\_DISTANCE\_KM) 8.997 9.00 45795.0 <2e-16 \*\*\*

s(LATITUDE,LONGITUDE) 28.939 28.99 471.1 <2e-16 \*\*\*

s(season2) 2.000 2.00 9399363.9 <2e-16 \*\*\*

s(city) 1572.033 1580.00 170.4 <2e-16 \*\*\*

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

R-sq.(adj) = 0.467 Deviance explained = 46.7%

fREML = 3.6816e+06 Scale est. = 0.19633 n = 6075827