Table 1: Soil temperature

Averaged model, linear model

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Estimate** | **Std. Error** | **Adjusted SE** | **z value** | **Pr(>|z|)** |
| (Intercept) | 18.212 | 0.382 | 0.383 | 47.53 | 0.000 |
| popR | -1.503 | 0.537 | 0.538 | 2.79 | 0.005 |
| popT | 0.099 | 0.479 | 0.480 | 0.21 | 0.837 |
| veg\_h\_mean | -0.045 | 0.011 | 0.011 | 4.20 | 0.000 |
| popR:veg\_h\_mean | 0.019 | 0.016 | 0.016 | 1.17 | 0.242 |
| popT:veg\_h\_mean | 0.018 | 0.016 | 0.016 | 1.12 | 0.262 |

Best model

Multiple R-squared: 0.4413, Adjusted R-squared: 0.4317

F-statistic: 45.66 on 5 and 289 DF, p-value: < 2.2e-16H

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Estimate** | **Std. Error** | **t value** | **Pr(>|t|)** |
| (Intercept) | 18.379 | 0.394 | 46.60 | 0.000 |
| veg\_h\_mean | -0.050 | 0.011 | -4.59 | 0.000 |

Multiple R-squared: 0.1787, Adjusted R-squared: 0.1702

F-statistic: 21.11 on 1 and 97 DF, p-value: 1.306e-05

R

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Estimate** | **Std. Error** | **t value** | **Pr(>|t|)** |
| (Intercept) | 16.618 | 0.263 | 63.31 | 0.000 |
| veg\_h\_mean | -0.023 | 0.008 | -2.76 | 0.007 |

Multiple R-squared: 0.07731, Adjusted R-squared: 0.06717

F-statistic: 7.625 on 1 and 91 DF, p-value: 0.006963

T

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Estimate** | **Std. Error** | **t value** | **Pr(>|t|)** |
| (Intercept) | 18.254 | 0.166 | 109.88 | 0.000 |
| veg\_h\_mean | -0.024 | 0.007 | -3.32 | 0.001 |

Multiple R-squared: 0.09857, Adjusted R-squared: 0.08965

F-statistic: 11.04 on 1 and 101 DF, p-value: 0.00124

Table 2: Phenology

Best model (only one with deltaAIC<2), linear model

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Estimate** | **Std. Error** | **t value** | **Pr(>|t|)** |
| (Intercept) | -1.640 | 0.986 | -1.66 | 0.097 |
| meanT | 0.229 | 0.056 | 4.07 | 0.000 |
| popR | 4.301 | 1.585 | 2.71 | 0.007 |
| popT | 0.178 | 1.926 | 0.09 | 0.926 |
| veg\_h\_mean | 0.016 | 0.004 | 3.69 | 0.000 |
| meanT:popR | -0.255 | 0.098 | -2.60 | 0.010 |
| meanT:popT | 0.058 | 0.110 | 0.52 | 0.601 |

Multiple R-squared: 0.4475, Adjusted R-squared: 0.4359. F-statistic: 38.87 on 6 and 288 DF, p-value: < 2.2e-16

H

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Estimate** | **Std. Error** | **t value** | **Pr(>|t|)** |
| (Intercept) | -1.001 | 1.154 | -0.87 | 0.388 |
| meanT | 0.204 | 0.061 | 3.33 | 0.001 |
| veg\_h\_mean | 0.009 | 0.007 | 1.21 | 0.231 |

Multiple R-squared: 0.1037, Adjusted R-squared: 0.08502

F-statistic: 5.553 on 2 and 96 DF, p-value: 0.005224,

R

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Estimate** | **Std. Error** | **t value** | **Pr(>|t|)** |
| (Intercept) | 2.097 | 1.624 | 1.29 | 0.200 |
| meanT | -0.003 | 0.097 | -0.03 | 0.973 |
| veg\_h\_mean | 0.022 | 0.008 | 2.78 | 0.007 |

Multiple R-squared: 0.08558, Adjusted R-squared: 0.06526

F-statistic: 4.212 on 2 and 90 DF, p-value: 0.01784

T

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Estimate** | **Std. Error** | **t value** | **Pr(>|t|)** |
| (Intercept) | -1.462 | 1.521 | -0.96 | 0.339 |
| meanT | 0.286 | 0.083 | 3.45 | 0.001 |
| veg\_h\_mean | 0.016 | 0.006 | 2.42 | 0.017 |

Multiple R-squared: 0.1218, Adjusted R-squared: 0.1043

F-statistic: 6.937 on 2 and 100 DF, p-value: 0.00151

Table 3: Ants

Averaged model, negative binomial GLM

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Estimate** | **Std. Error** | **Adjusted SE** | **z value** | **Pr(>|z|)** |
| (Intercept) | 14.902 | 4.916 | 4.932 | 3.02 | 0.003 |
| meanT | -0.870 | 0.298 | 0.299 | 2.91 | 0.004 |
| popR | -0.978 | 0.641 | 0.644 | 1.52 | 0.129 |
| popT | 2.526 | 0.938 | 0.940 | 2.69 | 0.007 |
| veg\_h\_mean | -0.286 | 0.152 | 0.152 | 1.88 | 0.060 |
| meanT:veg\_h\_mean | 0.019 | 0.009 | 0.009 | 2.03 | 0.042 |
| popR:veg\_h\_mean | 0.001 | 0.018 | 0.018 | 0.04 | 0.971 |
| popT:veg\_h\_mean | -0.036 | 0.033 | 0.033 | 1.08 | 0.280 |

Best model

Null deviance: 386.12 on 294 degrees of freedom

Residual deviance: 305.70 on 287 degrees of freedom

2 x log-likelihood: -1457.1780

r.squaredLR 0.2100833 (adj 0.2112779)

NagelkerkeR2 0.3269069

Not including models for each population because interactions with population are not significant.

Figure 1: Temperature



Figure 2: Phenology



Figure 3: Ants (choose one)





Figure 4