## S.3.5 Bayesian Generalized Linear Models

Table S.3.5.1: Results from the Bayesian models with movement speed as the dependent variable and Gaussian distribution. Effect sizes were deemed clearly determined when 0 was not included in the 95% credibility intervals of the posteriors (indicated by \*).

|  |  |  |
| --- | --- | --- |
|  | Posterior mean | 95% confidence interval |
| Flying speed (all data) |  |  |
| Intercept | 3.85 | [3.65; 4.04] \* |
| Body size | 0.25 | [0.06; 0.44] \* |
| Temperature | -0.09 | [-0.29; 0.65] |
| Wind speed | 0.45 | [0.25; 0.65] \* |
| *Phylogenetic correction* |  |  |
| Intercept | 2.77 | [-0.29; 5.67] |
| Body size | 0.36 | [0.10; 0.61] \* |
| Temperature | -0.04 | [-0.20; 0.12] |
| Wind speed | 0.36 | [0.20; 0.52] \* |
| Flying speed (tailwind) |  |  |
| Intercept | 4.41 | [4.12; 4.70] \* |
| Body size | 0.25 | [0.00; 0.51] |
| Temperature | -0.07 | [-0.40; 0.27] |
| Wind speed | 0.54 | [0.24; 0.83] \* |
| *Phylogenetic correction* |  |  |
| Intercept | 3.28 | [0.19; 6.23] \* |
| Body size | 0.57 | [0.20; 0.93] \* |
| Temperature | -0.19 | [-0.44; 0.07] |
| Wind speed | 0.37 | [0.13; 0.60] \* |
| Flying speed (upwind) |  |  |
| Intercept | 3.05 | [2.69; 3.42] \* |
| Body size | -0.18 | [-0.54; 0.18] |
| Temperature | -0.21 | [-0.58; 0.15] |
| Wind speed | -0.16 | [-0.59; 0.28] |
| *Phylogenetic correction* |  |  |
| Intercept | 2.01 | [-0.88; 4.99] |
| Body size | 0.17 | [-0.26; 0.59] |
| Temperature | -0.04 | [-0.20; 0.12] |
| Wind speed | 0.01 | [-0.28; 0.30] |
| Cursorial speed (all data) |  |  |
| Intercept | 0.09 | [0.07; 0.10] \* |
| Body size | 0.01 | [-0.01; 0.02] |
| Temperature | 0.04 | [0.02; 0.05] \* |
| Wind speed | -0.00 | [-0.02; 0.01] |
| *Phylogenetic correction* |  |  |
| Intercept | 0.12 | [-0.19; 0.44] |
| Body size | -0.00 | [-0.02; 0.02] |
| Temperature | 0.03 | [0.01; 0.04] \* |
| Wind speed | -0.01 | [-0.02; 0.01] |
| Cursorial speed (tailwind) |  |  |
| Intercept | 0.10 | [0.05; 0.14] \* |
| Body size | -0.02 | [-0.06; 0.02] |
| Temperature | 0.03 | [-0.01; 0.07] |
| Wind speed | -0.00 | [-0.04; 0.03] |
|  |  |  |
| *Phylogenetic correction* |  |  |
| Intercept | 0.12 | [-0.14; 0.40] |
| Body size | -0.03 | [-0.08; 0.02] |
| Temperature | 0.02 | [-0.02; 0.06] |
| Wind speed | -0.01 | [-0.04; 0.03] |
| Cursorial speed (upwind) |  |  |
| Intercept | 0.05 | [0.02; 0.08] \* |
| Body size | -0.00 | [-0.03; 0.02] |
| Temperature | 0.02 | [-0.00; 0.05] |
| Wind speed | -0.00 | [-0.03; 0.03] |
| *Phylogenetic correction* |  |  |
| Intercept | 0.06 | [-0.19; 0.35] |
| Body size | 0.01 | [-0.02; 0.04] |
| Temperature | 0.02 | [-0.00; 0.05] |
| Wind speed | 0.00 | [-0.02; 0.03] |

Table S.3.5.2: Results from the Bayesian models with movement direction as the dependent variable and binomial distribution with logit link function. Effect sizes were deemed clearly determined when 0 was not included in the 95% credibility intervals of the posteriors (indicated by \*).

|  |  |  |
| --- | --- | --- |
|  | Posterior mean | 95% confidence interval |
| Flying navigation (all data) |  |  |
| Intercept | 0.22 | [0.05; 0.39] \* |
| Body size | 0.26 | [0.09; 0.44] \* |
| Wind speed | -0.26 | [-0.44; -0.09] \* |
| *Phylogenetic correction* |  |  |
| Intercept | 0.09 | [-0.75; 0.64] |
| Body size | 0.27 | [0.08; 0.45] \* |
| Wind speed | -0.27 | [-0.45; -0.09] \* |
| Flying navigation (tailwind) |  |  |
| Intercept | 0.25 | [0.01; 0.50] \* |
| Body size | 0.14 | [-0.09; 0.40] |
| Wind speed | -0.19 | [-0.42; 0.04] |
| *Phylogenetic correction* |  |  |
| Intercept | -0.12 | [-1.88; 1.49] |
| Body size | 0.16 | [-0.11; 0.44] |
| Wind speed | -0.22 | [-0.47; 0.03] |
| Flying navigation (upwind) |  |  |
| Intercept | 0.11 | [-0.32; 0.54] |
| Body size | 0.30 | [-0.11; 0.72] |
| Wind speed | -0.94 | [-1.45; -0.47] \* |
| *Phylogenetic correction* |  |  |
| Intercept | -0.19 | [-2.33; 1.69] |
| Body size | 0.26 | [-0.22; 0.77] |
| Wind speed | -1.08 | [-1.66; -0.54] \* |
| Cursorial navigation (all data) |  |  |
| Intercept | 0.35 | [0.12; 0.58] \* |
| Body size | -0.26 | [-0.50; -0.02] \* |
| Wind speed | -0.09 | [-0.32; 0.14] |
| *Phylogenetic correction* |  |  |
| Intercept | 0.31 | [-0.97; 1.52] |
| Body size | -0.07 | [-0.37; 0.25] |
| Wind speed | -0.14 | [-0.39; 0.10] |
| Cursorial navigation (tailwind) |  |  |
| Intercept | 0.59 | [0.18; 1.01] \* |
| Body size | -0.22 | [-0.64; 0.22] \* |
| Wind speed | -0.02 | [-0.41; 0.36] |
| *Phylogenetic correction* |  |  |
| Intercept | 0.58 | [-0.31; 1.45] |
| Body size | -0.18 | [-0.70; 0.34] |
| Wind speed | -0.02 | [-0.39; 0.36] |
| Cursorial navigation (upwind) |  |  |
| Intercept | 0.21 | [-0.25; 0.67] |
| Body size | -0.48 | [-0.98; -0.02] \* |
| Wind speed | -0.68 | [-1.18; -0.20] \* |
| *Phylogenetic correction* |  |  |
| Intercept | 0.18 | [-1.11; 1.44] |
| Body size | -0.60 | [-1.27; -0.01] \* |
| Wind speed | -0.69 | [-1.24; -0.18] \* |