Full statistical results.

1. Richness vs human development, linear vs polynomial models

a. Analysis of variance table output for fixed effects of models predicting species richness. We report mean square (MS), degrees of freedom (df), F-values (F), and p-values. Models also included Year and Site ID as random effects. HD is human development extent, Protocol is the sampling protocol used by ABMI technicians to assess vascular plant occurrences, and Exotics is the proportion of exotic species.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model | Fixed effect | df | MS | F | p-value |
| Linear | HD | 1 | 1030.5 | 14.6 | <0.001 |
|  | Protocol | 1 | 16890.9 | 239.4 | <0.001 |
| Polynomial | HD2 | 2 | 4432.4 | 60.9 | <0.001 |
|  | Protocol | 1 | 20872.5 | 286.9 | <0.001 |
| Polynomial x Exotics | HD2 | 2 | 1946.0 | 26.1 | <0.001 |
|  | Protocol | 1 | 24169.6 | 324.0 | <0.001 |
|  | Exotics | 1 | 3801.6 | 51.0 | <0.001 |
|  | HD2 x Exotics | 2 | 739.8 | 9.9 | <0.001 |

b. Chi-squared likelihood ratio test of the (a) linear and (b) polynomial models predicting species richness. We report degrees of freedom (df), AIC scores, log-likelihoods (LL), and Χ2 and p-values for the better model.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model | df | AIC | LL | Χ2 | p-value |
| Linear | 6 | 16757 | -8372.1 |  |  |
| Polynomial | 7 | 16697 | -8321.6 | 101.1 | <0.001 |

c. Chi-squared likelihood ratio test of the (a) polynomial and (b) polynomial interaction (i.e. HD2 x Exotics) models predicting species richness. We report degrees of freedom (df), AIC scores, log-likelihoods (LL), and Χ2 and p-values for the better model.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model | df | AIC | LL | Χ2 | p-value |
| Polynomial | 7 | 16657 | -8321.6 |  |  |
| Polynomial x Exotics | 10 | 16599 | -8289.4 | 64.35 | <0.001 |

2. Species specialization vs human development, linear vs polynomial models

a. Analysis of variance table output for fixed effects of models predicting species specialization. We report mean square (MS), degrees of freedom (df), F-values (F), and p-values. Models also included Year and Site ID as random effects. HD is human development extent and Protocol is the sampling protocol used by ABMI technicians to assess vascular plant occurrences.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model | Fixed effect | df | MS | F | p-value |
| Linear | HD | 1 | 0.33 | 103.1 | <0.001 |
|  | Protocol | 1 | 0.10 | 33.5 | <0.001 |
| Polynomial | HD2 | 2 | 0.33 | 96.9 | <0.001 |
|  | Protocol | 1 | 0.09 | 26.7 | <0.001 |

b. Chi-squared likelihood ratio test of the (a) linear and (b) polynomial models predicting species specialization. We report degrees of freedom (df), AIC scores, log-likelihoods (LL), and Χ2 and p-values for the better model.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model | df | AIC | LL | Χ2 | p-value |
| Linear | 6 | -2732.8 | 1372.4 |  |  |
| Polynomial | 7 | -2809.8 | 1411.9 | 78.92 | <0.001 |