Supplementary Table S1: Posterior Summaries of the Bayesian Models for the Relationship between Human Modification Index (HMI) and Taxonomic Richness, Functional Richness, Taxonomic Diversity, and Rao's Quadratic Entropy

This table provides a summary of the parameter estimates, including the median, 95% credible intervals (CI), posterior probability (PP), Rhat diagnostic, and effective sample size (ESS) for each model component, across the different response variables.

### Taxonomic Richness

| Parameter | Median | 95% CI | PP | Rhat | ESS |
| --- | --- | --- | --- | --- | --- |
| Intercept | 4.845 | [4.839, 4.852] | 1.00- | 1.000 | 5,884.033 |
| poly(HMI)1 | -2.597 | [-2.775, -2.425] | 1.000 | 1.000 | 3,902.965 |
| poly(HMI)2 | -1.023 | [-1.211, -0.845] | 1.000 | 1.001 | 3,155.617 |
| poly(HMI)3 | -1.201 | [-1.379, -1.028] | 1.000 | 1.002 | 3,257.117 |

### Functional Richness

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Intercept | 5.323 | [5.318, 5.329] | 1.000 | 1.000 | 4,555.938 |
| poly(HMI)1 | -6.465 | [-6.599, -6.328] | 1.000 | 1.001 | 3,157.263 |
| poly(HMI)2 | 0.251 | [0.109, 0.392] | 0.999 | 1.001 | 3,342.404 |
| poly(HMI)3 | -0.921 | [-1.061, -0.781] | 1.000 | 1.000 | 3,394.878 |

### Taxonomic Diversity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Intercept | 1.491 | [1.485, 1.498] | 1.000 | 0.999 | 5,618.438 |
| poly(HMI)1 | -0.691 | [-0.867, -0.513] | 1.000 | 1.000 | 4,686.430 |
| poly(HMI)2 | -0.256 | [-0.432, -0.087] | 0.998 | 1.000 | 4,045.793 |
| poly(HMI)3 | -0.306 | [-0.482, -0.126] | 1.000 | 1.000 | 4,550.697 |
| Shape | 121.616 | [108.793, 135.435] | 1.000 | 1.000 | 4,748.038 |

### Rao's Quadratic Entropy

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Intercept | 1.125 | [1.116, 1.133] | 1.000 | 1.000 | 5,704.688 |
| poly(HMI)1 | 0.609 | [0.371, 0.834] | 1.000 | 1.000 | 4,896.580 |
| poly(HMI)2 | 0.551 | [0.325, 0.787] | 1.000 | 1.000 | 4,656.651 |
| poly(HMI)3 | -0.252 | [-0.481, -0.025] | 0.985 | 1.000 | 4,655.796 |
| Shape | 72.394 | [64.928, 80.253] | 1.000 | 1.000 | 4,527.065 |