**Supplementary Table 6.** Multiple linear regression model statistics for plant and fungal community estimators predicted by land use history (LU) and mean annual precipitation (MAP) normalized around the mean precipitation (730.01 mm yr-1) main effects and their interaction (LU x MAP) with native prairie as reference (0) compared to post-agricultural site (1). Statistically significant models and predictors (P<0.05) are bold-faced. Parameter estimate significances are denoted as 'ns' for not significant, ‘(\*)’ for 0.05≤P<0.10, ‘\*’ for 0.01≤P<0.05, ‘\*\*’ for 0.001≤P<0.01, and ‘\*\*\*’ for P<0.001. Response variables with outliers were analyzed with and without the identified outliers. Models shown here do not include potential outliers.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Response | Model | Predictor | Estimate±SE | |t –value| |
| Plant FQIadj | **F3,11 =9.57\*, R2adj=0.647, AIC=103.47** | **Intercept** | **31.78±2.25** | **14.11\*\*\*** |
|  |  | Land Use (LU) | –5.15±3.34 | –1.54ns |
|  |  | **MAP** | **5.16x10-2±1.08x10-2** | **4.79\*\*\*** |
|  |  | **LU x MAP** | **–7.13x10-2±1.64x10-2** | **–4.35\*\*** |
|  |  |  |  |  |
| Plant Diversity (H') | **F3,11 =8.00\*, R2adj=0.600, AIC=18.15** | **Intercept** | **2.54±1.43x10-1** | **17.78\*\*\*** |
|  |  | **LU** | **–6.80x10-1 ±1.94x10-1** | **–3.51\*\*** |
|  |  | MAP | 9.34x10-4±7.20x10-4 | 1.30ns |
|  |  | LU x MAP | 8.91x10-4±9.53x10-4 | 0.94ns |
|  |  |  |  |  |
| Plant PCoA Axis 2 | F3,12=0.11ns, R2adj=–0.237, AIC= 0.39 | Intercept | –4.94x10-2±7.89x10-2 | –0.63ns |
|  |  | LU | 3.27x10-2±1.07x10-1 | 0.31ns |
|  |  | MAP | 8.24x10-5±3.98x10-4 | 0.21ns |
|  |  | LU x MAP | 6.93x10-5±5.27x10-4 | 0.13ns |
|  |  |  |  |  |
| ASV Richness (SObs) | F3,11=0.19ns, R2adj= –0.21, AIC=208.31 | **Intercept** | **1151.76±81.06** | **14.21\*\*\*** |
|  |  | LU | –5.07x10-1±109.90 | –0.01ns |
|  |  | MAP | –6.02x10-2±4.08x10-1 | –0.15ns |
|  |  | LU x MAP | 3.21x10-1±5.40x10-1 | 0.59ns |
|  |  |  |  |  |
| OTU Richness (SObs) | F3,11=0.73ns, R2ad**j**= –0.061, AIC=189.33 | **Intercept** | **755.85±43.05** | **17.56\*\*\*** |
|  |  | LU | –59.19±58.37 | –1.01ns |
|  |  | MAP | –2.38x10-2±2.17x10-1 | –0.11ns |
|  |  | LU x MAP | 2.21x10-1±2.87x10-1 | 0.77ns |