As far as we know, there isn't a solid way to calculate percent variance explained for variables with a non-Gaussian distribution. The way that we handled this was to refit our non-Gaussian models (generalized linear mixed models) to general linear mixed models, then extract PVE for the last year of data collection. These new PVEs will be estimates. This is not a perfect solution but it will help us approximate PVE for these variables.

Table 1: Test for variance among families and populations

|  | **Danaus plexippus** | | **Liriomyza asclepiadis** | | **Labidomera clivicollis** | |
| --- | --- | --- | --- | --- | --- | --- |
| Group | Variance | PVE | Variance | PVE | Variance | PVE |
| Family | 0.000 | 0.000 | 0.326 | 3.388 | 0.000 | 0.00 |
| Population | 0.000 | 0.000 | 0.061 | 0.637 | 0.000 | 0.21 |
| Block | 0.010 | 0.936 | 0.294 | 3.061 | 0.000 | 0.00 |
| Residual | 1.085 | 99.064 | 8.929 | 92.913 | 0.014 | 99.79 |

Table 2: Assess how much variance is explained by urbanization

Urbanization = Distance to the City Center

|  | **Danaus plexippus** | | **Liriomyza asclepiadis** | | **Labidomera clivicollis** | |
| --- | --- | --- | --- | --- | --- | --- |
| Group | Variance | PVE | Variance | PVE | Variance | PVE |
| Family | 0.000 | 0.00 | 0.327 | 3.385 | 0.000 | 0.000 |
| Population | 0.000 | 0.00 | 0.092 | 0.957 | 0.000 | 0.373 |
| Block | 0.010 | 0.92 | 0.297 | 3.078 | 0.000 | 0.000 |
| Residual | 1.083 | 99.08 | 8.931 | 92.579 | 0.014 | 99.627 |

Table 3: Assess how much variance is explained by urbanization

Urbanization = Urbanization Score

|  | **Danaus plexippus** | | **Liriomyza asclepiadis** | | **Labidomera clivicollis** | |
| --- | --- | --- | --- | --- | --- | --- |
| Group | Variance | PVE | Variance | PVE | Variance | PVE |
| Family | 0.000 | 0.000 | 0.325 | 3.368 | 0.000 | 0 |
| Population | 0.000 | 0.000 | 0.087 | 0.904 | 0.000 | 0 |
| Block | 0.010 | 0.941 | 0.294 | 3.053 | 0.000 | 0 |
| Residual | 1.086 | 99.059 | 8.931 | 92.674 | 0.014 | 100 |