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 | 0.137 | 2.320 | 0.000 | 0.000 |
| Population | 0.002 | 0.354 | 0.128 | 2.159 | 0.000 | 0.675 |
| Block | 0.020 | 3.238 | 0.227 | 3.831 | 0.000 | 0.533 |
| Residual | 0.585 | 96.408 | 5.431 | 91.690 | 0.007 | 98.793 |

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 | 0.004 | 0.138 | 2.322 | 0.000 | 0.000 |
| Population | 0.001 | 0.209 | 0.137 | 2.304 | 0.000 | 0.772 |
| Block | 0.020 | 3.231 | 0.227 | 3.831 | 0.000 | 0.532 |
| Residual | 0.586 | 96.556 | 5.431 | 91.543 | 0.007 | 98.696 |

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 | 0.001 | 0.084 | 0.137 | 2.318 | 0.000 | 0.000 |
| Population | 0.000 | 0.056 | 0.131 | 2.201 | 0.000 | 0.730 |
| Block | 0.020 | 3.278 | 0.231 | 3.894 | 0.000 | 0.502 |
| Residual | 0.586 | 96.582 | 5.431 | 91.586 | 0.007 | 98.768 |