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 | 0.264 | 4.899 | 0.000 | 0.000 |
| Population | 0.000 | 0.000 | 0.060 | 1.115 | 0.000 | 0.476 |
| Block | 0.011 | 2.142 | 0.296 | 5.487 | 0.000 | 0.000 |
| Residual | 0.485 | 97.858 | 4.774 | 88.500 | 0.007 | 99.524 |

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 | 0.000 | 0.265 | 4.881 | 0.000 | 0.0 |
| Population | 0.000 | 0.000 | 0.091 | 1.673 | 0.000 | 0.8 |
| Block | 0.010 | 2.113 | 0.299 | 5.506 | 0.000 | 0.0 |
| Residual | 0.483 | 97.887 | 4.776 | 87.940 | 0.007 | 99.2 |

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 | 0.263 | 4.849 | 0.000 | 0 |
| Population | 0.002 | 0.437 | 0.086 | 1.583 | 0.000 | 0 |
| Block | 0.011 | 2.160 | 0.296 | 5.460 | 0.000 | 0 |
| Residual | 0.484 | 97.403 | 4.776 | 88.107 | 0.007 | 100 |