Table 1: Assess how much variance is explained by transect

Urbanization = Distance to the City Center

Model: Monarch\_Quantity\_Observed ~ Block + (1 | Population) + (1 | Population:Fam\_uniq) + Transect\_ID + City\_dist + Transect\_ID:City\_dist

| Variable | Group | Variance | PVE | χ2 | df | p |
| --- | --- | --- | --- | --- | --- | --- |
| Monarch butterfly: 2021 | Family | NA | NA | 0 | 1 | 0.5 |
| Monarch butterfly: 2021 | Population | NA | NA | 0 | 1 | 0.5 |

Table 2: Quantify variance explained by transect

| Variable | Predictor | χ2 | p |
| --- | --- | --- | --- |
| Monarch butterfly: 2021 | Block | 11.523 | **0.009\*\*** |
| Subtransect | 0.095 | 0.758 |
| Distance to City Center | 4.266 | **0.039\*** |
| Subtransect x Distance to City Center | 1.404 | 0.236 |

Table 3: Assess how much variance is explained by transect

Urbanization = Urbanization Score

Model: Monarch\_Quantity\_Observed ~ Block + (1 | Population) + (1 | Population:Fam\_uniq) + Transect\_ID + Urb\_score + Transect\_ID:Urb\_score

| Variable | Group | Variance | PVE | χ2 | df | p |
| --- | --- | --- | --- | --- | --- | --- |
| Monarch butterfly: 2021 | Family | NA | NA | 0 | 1 | 0.5 |
| Monarch butterfly: 2021 | Population | 0 | 0 | 0 | 1 | 0.5 |

Table 4: Quantify variance explained by transect

| Variable | Predictor | χ2 | p |
| --- | --- | --- | --- |
| Monarch butterfly: 2021 | Block | 11.543 | **0.009\*\*** |
| Subtransect | 0.006 | 0.939 |
| Urbanization Score | 0.215 | 0.643 |
| Subtransect x Urbanization Score | 1.799 | 0.18 |