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: 2020 | Family | NA | NA | 0.175 | 1 | 0.3375 |
| Monarch butterfly: 2020 | Population | 0.02 | 1.375 | 0.000 | 1 | 0.5 |

Table 2: Quantify variance explained by transect

| Variable | Predictor | χ2 | p |
| --- | --- | --- | --- |
| Monarch butterfly: 2020 | Block | 6.567 | 0.087 |
| Subtransect | 0.053 | 0.817 |
| Distance to City Center | 0.426 | 0.514 |
| Subtransect x Distance to City Center | 0.671 | 0.413 |

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: 2020 | Family | NA | NA | 0.223 | 1 | 0.3185 |
| Monarch butterfly: 2020 | Population | 0.022 | 1.535 | 0.000 | 1 | 0.5 |

Table 4: Quantify variance explained by transect

| Variable | Predictor | χ2 | p |
| --- | --- | --- | --- |
| Monarch butterfly: 2020 | Block | 6.679 | 0.083 |
| Subtransect | 0.009 | 0.926 |
| Urbanization Score | 0.629 | 0.428 |
| Subtransect x Urbanization Score | 0.015 | 0.903 |