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 |
| Population | NA | NA | 0 | 1 | 0.5 |

Table 2: Quantify variance explained by transect

| Variable | Predictor | Ï‡2 | p |
| --- | --- | --- | --- |
| Monarch butterfly: 2021 | Block | 11.544 | **0.009\*\*** |
| Subtransect | 0.091 | 0.763 |
| Distance to City Center | 4.148 | **0.042\*** |
| Subtransect x Distance to City Center | 1.430 | 0.232 |

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 |
| Population | NA | NA | 0 | 1 | 0.5 |

Table 4: Quantify variance explained by transect

| Variable | Predictor | Ï‡2 | p |
| --- | --- | --- | --- |
| Monarch butterfly: 2021 | Block | 11.698 | **0.008\*\*** |
| Subtransect | 0.003 | 0.958 |
| Urbanization Score | 0.193 | 0.66 |
| Subtransect x Urbanization Score | 1.982 | 0.159 |