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 | 0.107 | 1 | 0.372 |
| Population | 0.015 | 1.021 | 0.000 | 1 | 0.5 |

Table 2: Quantify variance explained by transect

| Variable | Predictor | Ï‡2 | p |
| --- | --- | --- | --- |
| Monarch butterfly: 2020 | Block | 6.505 | 0.089 |
| Subtransect | 0.054 | 0.817 |
| Distance to City Center | 0.432 | 0.511 |
| Subtransect x Distance to City Center | 0.670 | 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 | 0.143 | 1 | 0.353 |
| Population | 0.017 | 1.171 | 0.000 | 1 | 0.5 |

Table 4: Quantify variance explained by transect

| Variable | Predictor | Ï‡2 | p |
| --- | --- | --- | --- |
| Monarch butterfly: 2020 | Block | 6.612 | 0.085 |
| Subtransect | 0.009 | 0.925 |
| Urbanization Score | 0.628 | 0.428 |
| Subtransect x Urbanization Score | 0.014 | 0.906 |