Table 1: Test for variance among families and populations

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

PVE for population: 3.586. PVE for family: 1.618

| Variable | Group | p |
| --- | --- | --- |
| Monarch butterfly: 2020 | Family | 0.1835 |
| Population | 0.2965 |

Table 2: Assess how much variance is explained by urbanization

Urbanization = Distance to the City Center

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

PVE for population: 3.531. PVE for family: 1.588

| Variable | Group | p |
| --- | --- | --- |
| Monarch butterfly: 2020 | Family | 0.1825 |
| Population | 0.311 |

Table 3: Quantify variance explained by urbanization

| Variable | Predictor | Ï‡2 | p |
| --- | --- | --- | --- |
| Monarch butterfly: 2020 | Block | 13.718 | **0.003\*\*** |
| Distance to City Center | 0.306 | 0.58 |

Table 4: Assess how much variance is explained by urbanization

Urbanization = Urbanization Score

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

PVE for population: 3.458. PVE for family: 1.512

| Variable | Group | p |
| --- | --- | --- |
| Monarch butterfly: 2020 | Family | 0.1815 |
| Population | 0.3275 |

Table 5: Quantify variance explained by urbanization

| Variable | Predictor | Ï‡2 | p |
| --- | --- | --- | --- |
| Monarch butterfly: 2020 | Block | 13.690 | **0.003\*\*** |
| Urbanization Score | 0.653 | 0.419 |