**Supporting Information.** Adams, B. J., E. Li, C. A. Bahlai, E. K. Meineke, T. P McGlynn, and B. V. Brown. 2020. Local and landscape scale variables shape insect diversity in an urban biodiversity hotspot. Ecological Applications.

## Appendix S2

## Tables

Table S1.

The descriptions of the nine urban habitat classification types developed using 18 continuous environmental variables. Types 1 through 4 represent the less urbanized areas and Types 5 through 9 represent more urbanized areas.

| Urban Type | Description |
|---|---|
| **1** | **Low development with natural vegetation**<br>· Very high natural vegetation, primary grassland and forest<br>· Very steep terrain<br>· Very low urban development and low population density<br>· Relative high precipitation in the Los Angeles area |
| **2** | **Dams, reservoirs, and wetlands**<br>· Low very vegetation cover<br>· level terrain<br>· Very low urban development |
| **3** | **Foothill areas**<br>· Affluent and well vegetated neighborhoods<br>· Primarily residential uses<br>· Moderate terrain<br>· Moderate building site coverage and population density |
| **4** | **Urban parks and open space**<br>· High tree canopy coverage and green open space<br>· Low urban development<br>· Primarily parks, cemeteries, and golf courses |
| **5** | **Valley arterial areas**<br>· Highest traffic density and traffic noise<br>· High percentage of impervious surface |

- Low in vegetation
- Primarily highways and surrounding neighborhoods

**6 Valley less developed areas**

- Moderate terrain, mostly in the San Fernando and San Gabriel Valleys
- Relatively hotter and wetter weather
- Low tree canopy coverage and greenness
- High urban development and population
- Primarily residential uses

**7 Basin less developed areas**

- Flat terrain, mostly in the Los Angeles Basin
- Relatively milder and dryer weather
- Low tree canopy coverage and greenness
- High urban development and population
- Primarily residential uses

**8 Most developed areas**

- Very high urban development and population
- Far from regional parks with natural vegetation
- Very low tree canopy coverage and greenness
- Mixed land use

**9 Furthest from regional parks with natural vegetation**

- High urban development and population
- Very high traffic density and noise
- Low tree canopy coverage and greenness
- Furthest from regional parks with natural vegetation
- Mixed land use

Table S2.

The total morphospecies with $S_{est}$ and Chao1 estimators of maximum number of species and estimated percent community coverage for each of the seven focal taxa across the 360 samples represented in this study.

| **Taxa** | **Morphospecies** | **$S_{est}$** | **Chao1** | **Coverage** |
|---|---|---|---|---|
| Bees | 25 | 30.04 | 33.98 | 73% |
| Lepidoptera | 24 | 25.37 | 24.50 | 95% |
| Drosophildae | 22 | 23.57 | 22.66 | 93% |
| Phoridae | 99 | 102.84 | 102.99 | 96% |
| Scatopsidae | 7 | 7.00 | 7.00 | 100% |
| Syrphidae | 29 | 32.67 | 32.99 | 88% |
| Tipulidae | 11 | 12.87 | 12.00 | 85% |

Table S3.

A list of all 217 morphospecies identified from the 360 collections including the percent of collections each morphospecies was found in (Total) and the percent of collections across each represented urban type (T1 – T9, excluding T2 and T7).

| Order | Family | Morphospecies + Authority | Total | T 1 | T 3 | T 4 | T 5 | T 6 | T 8 | T 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| Diptera | Drosophilidae | *Amiota picta* (Coquillett 1904) | 0.6 | 0.0 | 1.2 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 |
| | | *Chymomyza amoena* (Loew 1862) | 0.6 | 0.0 | 1.2 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 |
| | | *Drosophila busckii* Coquillett 1901 | 15.3 | 8.3 | 15.5 | 4.2 | 16.7 | 16.7 | 28.3 | 11.9 |
| | | *Drosophila flavohirta* Malloch 1924 | 1.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 3.6 |
| | | *Drosophila gentica* Wheeler & Takada 1962 | 12.8 | 0.0 | 4.8 | 10.4 | 10.4 | 4.2 | 23.3 | 20.2 |
| | | *Drosophila immigrans* Sturtevant 1921 | 20.3 | 8.3 | 26.2 | 8.3 | 16.7 | 25.0 | 31.7 | 15.5 |
| | | *Drosophila melanogaster* Meigen 1830 | 2.2 | 0.0 | 2.4 | 0.0 | 0.0 | 0.0 | 10.0 | 0.0 |
| | | *Drosophila occidentalis* Spencer 1942 | 1.9 | 16.7 | 1.2 | 2.1 | 2.1 | 0.0 | 1.7 | 1.2 |
| | | *Drosophila simulans* Sturtevant 1919 | 15.3 | 0.0 | 21.4 | 8.3 | 10.4 | 12.5 | 21.7 | 14.3 |
| | | *Drosophila* sp1 | 16.9 | 8.3 | 20.2 | 4.2 | 6.3 | 25.0 | 31.7 | 15.5 |
| | | *Drosophila* sp2 | 2.5 | 0.0 | 1.2 | 2.1 | 0.0 | 4.2 | 6.7 | 2.4 |
| | | *Drosophila suzukii* (Matsumura 1931) | 6.7 | 0.0 | 9.5 | 0.0 | 4.2 | 4.2 | 10.0 | 8.3 |
| | | *Gitona americana* Patterson 1943 | 10.6 | 25.0 | 27.4 | 2.1 | 0.0 | 20.8 | 3.3 | 4.8 |
| | | *Gitona bivisualis* Patterson 1943 | 2.2 | 16.7 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 |
| | | *Repleta* sp1 | 19.2 | 25.0 | 46.4 | 2.1 | 16.7 | 29.2 | 8.3 | 7.1 |
| | | *Scaptomyza adusta* Loew 1862 | 0.6 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | *Scaptomyza flava* (Fallén 1823) | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 2.4 |
| | | *Scaptomyza graminum (Fallén 1823)* | 0.8 | 0.0 | 1.2 | 0.0 | 2.1 | 0.0 | 1.7 | 0.0 |
| | | *Scaptomyza paradusta* Wheeler 1952 | 1.1 | 0.0 | 2.4 | 0.0 | 0.0 | 0.0 | 3.3 | 0.0 |
| | | *Scaptomyza paravittata* Wheeler 1952 | 0.3 | 0.0 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 |
| | | *Scaptomyza terminalis* (Loew 1863) | 4.7 | 0.0 | 3.6 | 0.0 | 6.3 | 4.2 | 5.0 | 8.3 |
| | | *Scaptomyza vittata* (Coquillett 1895) | 0.3 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Phoridae | *Aenigmatias* sp1 | 0.8 | 25.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | *Anevrina* sp1 | 10.0 | 33.3 | 19.0 | 16.7 | 8.3 | 16.7 | 0.0 | 0.0 |
| | | *Apocephalus aquilonius* Brown 2002 | 0.6 | 8.3 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | *Apocephalus grandipalpis* Borgmeier 1925 | 0.3 | 8.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | *Beckerina* sp1 | 15.6 | 16.7 | 14.3 | 16.7 | 10.4 | 20.8 | 23.3 | 11.9 |
| | | *Beckerina* sp2 | 0.8 | 16.7 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | *Chonocephalus bentacaisei* (Santos Abreu 1921) | 30.6 | 41.7 | 42.9 | 31.3 | 6.3 | 12.5 | 50.0 | 21.4 |
| | | *Conicera aldrichi* Brues 1904 | 1.7 | 8.3 | 3.6 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | *Conicera similis* (Haliday 1833) | 33.3 | 8.3 | 46.4 | 20.8 | 29.2 | 66.7 | 36.7 | 21.4 |
| | | *Conicera tibialis* Schmitz 1925 | 16.4 | 0.0 | 14.3 | 8.3 | 16.7 | 37.5 | 21.7 | 15.5 |
| | | *Diplonevra setigera* (Malloch 1914) | 5.8 | 16.7 | 15.5 | 4.2 | 2.1 | 8.3 | 1.7 | 0.0 |
| | | *Dohrniphora cornuta* (Bigot 1857) | 23.1 | 8.3 | 23.8 | 10.4 | 14.6 | 29.2 | 43.3 | 20.2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Gymnophora* sp1 | 0.6 | 16.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia agarici* (Lintner 1895) | 91.7 | 100.0 | 91.7 | 100.0 | 85.4 | 100.0 | 88.3 | 89.3 |
| *Megaselia albicaudata* Wood 1910 | 32.2 | 58.3 | 20.2 | 68.8 | 4.2 | 45.8 | 18.3 | 41.7 |
| *Megaselia arizonensis* Malloch 1912 | 16.9 | 50.0 | 21.4 | 25.0 | 14.6 | 29.2 | 6.7 | 8.3 |
| *Megaselia armstrongorum* Hartop et al. 2015 | 46.9 | 75.0 | 36.9 | 45.8 | 45.8 | 58.3 | 43.3 | 53.6 |
| *Megaselia atrox* Borgmeier 1968 | 18.1 | 33.3 | 28.6 | 20.8 | 10.4 | 29.2 | 10.0 | 10.7 |
| *Megaselia baileyae* Hartop et al. 2016 | 1.1 | 33.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia barberi* (Malloch 1912) | 26.7 | 33.3 | 34.5 | 35.4 | 10.4 | 8.3 | 18.3 | 33.3 |
| *Megaselia basispinata* Lundbeck 1920 | 21.4 | 8.3 | 17.9 | 10.4 | 8.3 | 33.3 | 35.0 | 27.4 |
| *Megaselia berndseni* (Schmitz 1919) | 31.9 | 41.7 | 40.5 | 52.1 | 14.6 | 58.3 | 13.3 | 26.2 |
| *Megaselia bradyi* Hartop et al. 2015 | 0.3 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia brejchaorum Hartop et al. 2015* | 2.8 | 8.3 | 6.0 | 4.2 | 0.0 | 0.0 | 1.7 | 1.2 |
| *Megaselia carthayensis* Hartop et al. 2015 | 20.8 | 41.7 | 20.2 | 29.2 | 10.4 | 45.8 | 10.0 | 20.2 |
| *Megaselia cavifemur* Borgmeier 1964 | 0.8 | 16.7 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia ciancii* Hartop et al. 2015 | 2.8 | 0.0 | 9.5 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 |
| *Megaselia creasoni* Hartop et al. 2015 | 28.3 | 33.3 | 23.8 | 16.7 | 25.0 | 37.5 | 41.7 | 28.6 |
| *Megaselia defibaughorum* Hartop et al. 2015 | 2.2 | 8.3 | 2.4 | 0.0 | 0.0 | 4.2 | 3.3 | 2.4 |
| *Megaselia donahuei* Hartop et al. 2015 | 17.8 | 8.3 | 23.8 | 6.3 | 8.3 | 37.5 | 35.0 | 7.1 |
| *Megaselia francoae* Hartop et al. 2015 | 24.7 | 50.0 | 25.0 | 33.3 | 31.3 | 29.2 | 21.7 | 13.1 |
| *Megaselia friedrichae* Hartop et al. 2016 | 1.4 | 16.7 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia fujiokai* Hartop et al. 2015 | 24.4 | 41.7 | 22.6 | 31.3 | 10.4 | 8.3 | 23.3 | 33.3 |
| *Megaselia glabrifrons* (Wood 1909) | 0.8 | 16.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 |
| *Megaselia globipyga* Borgmeier 1966 | 1.4 | 0.0 | 0.0 | 6.3 | 0.0 | 0.0 | 1.7 | 1.2 |
| *Megaselia gonzalezorum* Hartop et al. 2016 | 1.1 | 0.0 | 0.0 | 2.1 | 0.0 | 4.2 | 3.3 | 0.0 |
| *Megaselia halterata* (Wood 1910) | 56.4 | 66.7 | 65.5 | 39.6 | 35.4 | 83.3 | 56.7 | 59.5 |
| *Megaselia hansonix* Disney et al. 2009 | 26.1 | 41.7 | 32.1 | 16.7 | 16.7 | 25.0 | 38.3 | 20.2 |
| *Megaselia hardingorum* Hartop et al. 2015 | 5.0 | 16.7 | 13.1 | 4.2 | 0.0 | 8.3 | 1.7 | 0.0 |
| *Megaselia heini* Hartop et al. 2015 | 20.0 | 75.0 | 32.1 | 6.3 | 4.2 | 25.0 | 21.7 | 14.3 |
| *Megaselia hentschkeae* Hartop et al. 2015 | 6.7 | 8.3 | 1.2 | 4.2 | 6.3 | 8.3 | 11.7 | 9.5 |
| *Megaselia hirticaudata* Wood 1910 | 6.1 | 33.3 | 6.0 | 8.3 | 6.3 | 12.5 | 3.3 | 1.2 |
| *Megaselia hoffmanorum* Hartop et al. 2015 | 0.6 | 8.3 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia hoggorum* Hartop et al. 2015 | 6.9 | 25.0 | 22.6 | 6.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia hoguei* Hartop et al. 2015 | 4.2 | 41.7 | 6.0 | 10.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia ilca* Borgmeier 1964 | 5.0 | 0.0 | 1.2 | 0.0 | 2.1 | 20.8 | 13.3 | 3.6 |
| *Megaselia isaacmajorum* Hartop et al. 2015 | 2.2 | 41.7 | 1.2 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia joanneae* Hartop et al. 2016 | 1.1 | 8.3 | 2.4 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 |
| *Megaselia kelleri* Hartop et al. 2015 | 16.9 | 8.3 | 8.3 | 25.0 | 4.2 | 29.2 | 16.7 | 26.2 |
| *Megaselia largifrontalis* Schmitz 1939 | 36.9 | 83.3 | 59.5 | 47.9 | 22.9 | 45.8 | 26.7 | 14.3 |
| *Megaselia lombardorum* Hartop et al. 2015 | 78.9 | 91.7 | 84.5 | 77.1 | 64.6 | 87.5 | 83.3 | 75.0 |
| *Megaselia losangelensis* Hartop et al. 2016 | 1.4 | 0.0 | 1.2 | 0.0 | 2.1 | 8.3 | 0.0 | 1.2 |
| *Megaselia marquezi* Hartop et al. 2015 | 44.4 | 25.0 | 36.9 | 39.6 | 18.8 | 54.2 | 66.7 | 53.6 |
| *Megaselia mikejohnsoni* Hartop et al. 2015 | 23.6 | 50.0 | 22.6 | 25.0 | 14.6 | 29.2 | 18.3 | 27.4 |
| *Megaselia modesta* (Brues 1919) | 3.3 | 16.7 | 3.6 | 4.2 | 4.2 | 4.2 | 0.0 | 2.4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Megaselia nigra* Meigen 1830 | 60.6 | 75.0 | 69.0 | 54.2 | 41.7 | 79.2 | 60.0 | 59.5 |
| *Megaselia oxboroughae* Hartop et al. 2015 | 29.7 | 25.0 | 29.8 | 41.7 | 18.8 | 66.7 | 26.7 | 21.4 |
| *Megaselia phyllissunae* Hartop et al. 2016 | 0.8 | 8.3 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia pisanoi* Hartop et al. 2015 | 6.7 | 50.0 | 9.5 | 20.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia pleuralis* Wood 1909 | 30.0 | 50.0 | 33.3 | 25.0 | 8.3 | 29.2 | 30.0 | 39.3 |
| *Megaselia pongsaiae* Hartop et al. 2016 | 0.8 | 0.0 | 1.2 | 0.0 | 0.0 | 4.2 | 0.0 | 1.2 |
| *Megaselia renwickorum* Hartop et al. 2015 | 5.3 | 25.0 | 4.8 | 8.3 | 0.0 | 12.5 | 1.7 | 4.8 |
| *Megaselia risoria* Hartop et al. 2016 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 |
| *Megaselia rodriguezorum* Hartop et al. 2015 | 6.1 | 8.3 | 4.8 | 0.0 | 6.3 | 8.3 | 6.7 | 9.5 |
| *Megaselia ruficornis* (Meigen 1830) | 6.1 | 25.0 | 6.0 | 2.1 | 4.2 | 0.0 | 11.7 | 4.8 |
| *Megaselia rufipes* (Meigen 1804) | 18.3 | 50.0 | 14.3 | 10.4 | 14.6 | 20.8 | 35.0 | 11.9 |
| *Megaselia sacatelensis* Hartop et al. 2015 | 23.1 | 8.3 | 6.0 | 29.2 | 8.3 | 25.0 | 38.3 | 35.7 |
| *Megaselia scalaris* Loew 1866 | 10.3 | 0.0 | 8.3 | 0.0 | 6.3 | 16.7 | 28.3 | 7.1 |
| *Megaselia scutellaris* (Wood 1909) | 1.9 | 8.3 | 2.4 | 8.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia seaverorum* Hartop et al. 2015 | 0.6 | 16.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia shatesae* Hartop et al. 2016 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 |
| *Megaselia sidneyae* Hartop et al. 2015 | 34.2 | 50.0 | 47.6 | 43.8 | 16.7 | 37.5 | 25.0 | 28.6 |
| *Megaselia sordida* Zetterstedt 1838 | 4.7 | 0.0 | 7.1 | 8.3 | 4.2 | 8.3 | 1.7 | 2.4 |
| *Megaselia steptoeae* Hartop et al. 2015 | 42.8 | 8.3 | 38.1 | 31.3 | 33.3 | 62.5 | 61.7 | 45.2 |
| *Megaselia stoakesi* Hartop et al. 2016 | 0.3 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia studentorum* Hartop et al. 2016 | 0.3 | 0.0 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 |
| *Megaselia sulphurizona* Borgmeier 1966 | 85.0 | 100.0 | 85.7 | 91.7 | 81.3 | 91.7 | 80.0 | 82.1 |
| *Megaselia tecticauda* Borgmeier 1964 | 14.2 | 83.3 | 16.7 | 6.3 | 0.0 | 54.2 | 3.3 | 10.7 |
| *Megaselia voluntariorum* Hartop et al. 2016 | 0.3 | 8.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Megaselia wiegmanae* Hartop et al. 2015 | 62.8 | 33.3 | 56.0 | 56.3 | 39.6 | 87.5 | 78.3 | 72.6 |
| *Megaselia wongae* Hartop et al. 2016 | 6.1 | 16.7 | 9.5 | 6.3 | 4.2 | 25.0 | 0.0 | 1.2 |
| *Metopina* sp1 | 15.8 | 25.0 | 10.7 | 16.7 | 4.2 | 16.7 | 15.0 | 26.2 |
| *Metopina* sp2 | 0.8 | 25.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Microselia* sp1 | 2.2 | 58.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 |
| *Myriophora alexandiae* Hash et al. 2015 | 0.3 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Phalacrotophora halictorum* (Melander & Brues 1903) | 18.1 | 33.3 | 45.2 | 37.5 | 4.2 | 8.3 | 0.0 | 1.2 |
| *Phora coangustata* Schmitz 1927 | 0.6 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 |
| *Phora cristipes* Schmitz and Wirth 1954 | 0.3 | 8.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Phora* sp1 | 1.4 | 0.0 | 1.2 | 8.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Pseudacteon amuletum* Plowes et al. 2009 | 1.1 | 25.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Pseudacteon californiensis* Disney 1982 | 1.1 | 25.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 |
| *Pseudacteon crawfordi* Coquillett 1907 | 0.6 | 16.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Pseudacteon* sp1 | 0.6 | 16.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Puliciphora occidentalis* (Melander & Brues 1903) | 28.9 | 8.3 | 11.9 | 43.8 | 22.9 | 70.8 | 26.7 | 33.3 |
| *Spiniphora bergenstammi* (Mik 1864) | 10.0 | 16.7 | 2.4 | 8.3 | 4.2 | 0.0 | 21.7 | 15.5 |
| *Triphleba* sp1 | 0.8 | 16.7 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 |
| *Trophodeinus arizonensis* (Borgmeier 1963) | 2.8 | 66.7 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| *Trophodeinus furcatus* (Borgmeier 1963) | 11.7 | 50.0 | 3.6 | 56.3 | 2.1 | 4.2 | 1.7 | 3.6 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | *Veruanus boreotis* (Borgmeier 1963) | 0.8 | 25.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Scatopsidae | *Abrhexosa grossa* Cook 1965 | 3.3 | 8.3 | 4.8 | 12.5 | 2.1 | 0.0 | 0.0 | 0.0 |
| | *Aztecatopse* sp1 | 2.5 | 8.3 | 3.6 | 4.2 | 0.0 | 0.0 | 0.0 | 3.6 |
| | *Coboldia fuscipes* (Meigen 1830) | 7.2 | 8.3 | 9.5 | 0.0 | 8.3 | 8.3 | 15.0 | 2.4 |
| | *Psectrosciara* sp1 | 3.6 | 0.0 | 1.2 | 8.3 | 2.1 | 0.0 | 3.3 | 6.0 |
| | *Quateiella quatei* (Cook 1956) | 31.1 | 16.6 | 46.4 | 27.1 | 29.2 | 33.3 | 23.3 | 26.2 |
| | *Scatopse notata* (Linnaeus 1758) | 0.6 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 |
| | *Swammerdamella marginata* Cook 1956 | 38.1 | 58.3 | 33.3 | 25.0 | 27.1 | 75.0 | 38.3 | 42.9 |
| Syrphidae | *Allograpta exotica* (Wiedemann 1830) | 6.1 | 8.3 | 3.6 | 2.1 | 8.3 | 8.3 | 5.0 | 9.5 |
| | *Allograpta obliqua* (Say 1823) | 20.3 | 0.0 | 17.9 | 18.8 | 18.8 | 12.5 | 25.0 | 26.2 |
| | *Chrysotoxum* sp1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 |
| | *Copestylum fraudulentum* (Williston 1891) | 0.6 | 8.3 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | *Copestylum marginatum* (Say 1829) | 1.7 | 0.0 | 3.6 | 2.1 | 0.0 | 0.0 | 1.7 | 1.2 |
| | *Copestylum satur* (Osten Sacken 1877) | 1.4 | 0.0 | 3.6 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| | *Dioprosopa clavata* (Fabricius 1794) | 40.0 | 66.7 | 42.9 | 41.7 | 22.9 | 41.7 | 41.7 | 40.5 |
| | *Eumerus funeralis* Meigen 1822 | 3.9 | 0.0 | 3.6 | 4.2 | 0.0 | 0.0 | 8.3 | 4.8 |
| | *Eumerus narcissi* Smith 1928 | 0.6 | 0.0 | 1.2 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 |
| | *Eupeodes fumipennis* (Thomson 1869) | 2.8 | 8.3 | 0.0 | 2.1 | 4.2 | 4.2 | 3.3 | 3.6 |
| | *Eupeodes luniger* (Meigen 1822) | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 |
| | *Eupeodes pomus* (Curran 1921) | 0.8 | 8.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.7 | 1.2 |
| | *Eupeodes* sp1 | 3.1 | 0.0 | 4.8 | 4.2 | 2.1 | 0.0 | 3.3 | 2.4 |
| | *Eupeodes volucris* Osten Sacken 1877 | 8.6 | 16.7 | 11.9 | 10.4 | 8.3 | 16.7 | 1.7 | 6.0 |
| | *Fazia micrura* (Osten Sacken 1877) | 4.7 | 0.0 | 3.6 | 8.3 | 2.1 | 4.2 | 8.3 | 3.6 |
| | *Heringia* sp1 | 1.1 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 1.7 | 2.4 |
| | *Nausigaster unimaculata* Townsend 1897 | 1.7 | 0.0 | 7.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | *Ocyptamus lemur* (Osten Sacken 1877) | 1.1 | 0.0 | 2.4 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 |
| | *Orthonevra flukei* (Sedman 1964) | 1.4 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 3.3 | 2.4 |
| | *Paragus haemorrhous* Meigen 1822 | 34.2 | 16.7 | 36.9 | 43.8 | 29.2 | 33.3 | 23.3 | 39.3 |
| | *Platycheirus obscurus* (Say 1824) | 4.4 | 8.3 | 6.0 | 2.1 | 0.0 | 4.2 | 8.3 | 3.6 |
| | *Pseudodoros clavatus* (Fabricius 1794) | 0.8 | 0.0 | 1.2 | 0.0 | 2.1 | 0.0 | 0.0 | 1.2 |
| | *Spaerophoira sulphuripes* (Thomson 1869) | 1.9 | 0.0 | 1.2 | 2.1 | 2.1 | 4.2 | 1.7 | 2.4 |
| | *Sphaerophoria contigua* Macquart 1847 | 0.3 | 0.0 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 |
| | *Syritta pipiens* (Linnaeus 1758) | 4.2 | 0.0 | 2.4 | 0.0 | 0.0 | 0.0 | 16.7 | 3.6 |
| | *Syrphus opinator* Osten Sacken 1877 | 1.1 | 0.0 | 1.2 | 4.2 | 0.0 | 0.0 | 1.7 | 0.0 |
| | *Toxomerus marginatus* (Say 1823) | 17.5 | 41.7 | 11.9 | 14.6 | 8.3 | 45.8 | 8.3 | 25.0 |
| | *Toxomerus occidentalis* Curran 1922 | 2.5 | 0.0 | 1.2 | 10.4 | 0.0 | 0.0 | 0.0 | 3.6 |
| | *Trichopsomyia* sp1 | 0.3 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Tipulidae | *Erioptera distincta* Alexander 1912 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 |
| | *Erioptera pilipes* (Fabricius 1787) | 1.4 | 0.0 | 0.0 | 2.1 | 0.0 | 4.2 | 3.3 | 1.2 |
| | *Limonia brevivena* (Osten Sacken 1969) | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 1.2 |
| | *Limonia guatemalensis* (Alexander 1916) | 3.1 | 0.0 | 2.4 | 6.3 | 2.1 | 8.3 | 3.3 | 1.2 |
| | *Limonia humidicola* (Osten Sacken 1859) | 0.6 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| | *Nephrotoma suturalis wulpiana* (Bergroth 1888) | 14.4 | 16.7 | 25.0 | 12.5 | 4.2 | 45.8 | 3.3 | 9.5 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | *Tipula atrisumma* Doane 1912 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 |
| | | *Tipula capistrano* Alexander 1946 | 0.8 | 0.0 | 1.2 | 2.1 | 0.0 | 4.2 | 0.0 | 0.0 |
| | | *Tipula oleracea* Linnaeus 1758 | 1.9 | 0.0 | 1.2 | 4.2 | 0.0 | 0.0 | 1.7 | 3.6 |
| | | *Tipula planicornis* Doane 1912 | 2.5 | 0.0 | 3.6 | 2.1 | 0.0 | 8.3 | 3.3 | 1.2 |
| | | *Tipula praecisa* Loew 1872 | 0.8 | 0.0 | 2.4 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 |
| Hymenoptera | Andrenidae | *Andrena* sp1 | 1.9 | 8.3 | 1.2 | 6.3 | 4.2 | 0.0 | 0.0 | 0.0 |
| | | *Perdita* sp1 | 0.8 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 1.2 |
| | Apidae | *Anthophora californica* Cresson 1869 | 3.3 | 8.3 | 10.7 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | *Anthophora* sp1 | 0.3 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | *Anthophora urbana* Cresson 1878 | 1.1 | 0.0 | 1.2 | 4.2 | 0.0 | 0.0 | 0.0 | 1.2 |
| | | *Apis mellifera* Linnaeus 1758 | 54.2 | 33.3 | 60.7 | 54.2 | 39.6 | 79.2 | 55.0 | 51.2 |
| | | *Ceratina* sp1 | 16.4 | 16.7 | 21.4 | 18.8 | 12.5 | 12.5 | 13.3 | 15.5 |
| | | *Diadasia* sp1 | 0.3 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | *Eucera* sp1 | 0.3 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | *Mellisodes* sp1 | 4.4 | 16.7 | 7.1 | 6.3 | 0.0 | 4.2 | 0.0 | 4.8 |
| | | *Xylocopa tabaniformis* Smith 1854 | 0.3 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Colletidae | *Colletes* sp1 | 0.6 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 |
| | | *Hylaeus* sp1 | 8.1 | 16.7 | 11.9 | 6.3 | 10.4 | 16.7 | 1.7 | 4.8 |
| | Halictidae | *Agapostemon* sp1 | 2.2 | 0.0 | 2.4 | 2.1 | 0.0 | 4.2 | 0.0 | 4.8 |
| | | *Conanthalictus* sp1 | 0.6 | 8.3 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | *Halictus ligatus* Say 1837 | 1.1 | 0.0 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 3.6 |
| | | *Halictus tripartitus* Cockerell 1895 | 19.2 | 25.0 | 29.8 | 27.1 | 12.5 | 33.3 | 6.7 | 11.9 |
| | | *Lasioglossum* sp1 | 53.9 | 66.7 | 61.9 | 47.9 | 39.6 | 62.5 | 43.3 | 60.7 |
| | | *Lasioglossum* sp2 | 2.5 | 0.0 | 4.8 | 0.0 | 2.1 | 16.7 | 0.0 | 0.0 |
| | | *Sphecodes* sp1 | 29.4 | 25.0 | 36.9 | 25.0 | 25.0 | 41.7 | 11.7 | 36.9 |
| | Megachilidae | *Ashmeadiella* sp1 | 0.3 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | *Heriades sp1* | 3.1 | 0.0 | 6.0 | 8.3 | 2.1 | 0.0 | 0.0 | 1.2 |
| | | *Hoplitus* sp1 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 |
| | | *Megachile* sp1 | 8.1 | 0.0 | 7.1 | 4.2 | 10.4 | 8.3 | 11.7 | 8.3 |
| | | *Osmia* sp1 | 1.1 | 0.0 | 1.2 | 2.1 | 0.0 | 0.0 | 0.0 | 2.4 |
| Lepidoptera | Geometridae | *Dichorda illustraria* (Hulst 1886) | 4.2 | 0.0 | 3.6 | 4.2 | 2.1 | 0.0 | 11.7 | 2.4 |
| | | *Pero behrensaria* (Packard 1871) | 2.5 | 0.0 | 2.4 | 2.1 | 0.0 | 16.7 | 0.0 | 2.4 |
| | Hesperiidea | *Erynnis funeralis* (Scudder & Burgess 1870) | 3.3 | 8.3 | 2.4 | 0.0 | 0.0 | 4.2 | 8.3 | 3.6 |
| | | *Hylephila phyleus* (Drury 1773) | 1.7 | 0.0 | 1.2 | 6.3 | 0.0 | 4.2 | 0.0 | 1.2 |
| | | *Lerodea eufala* (Edwards 1869) | 2.5 | 0.0 | 6.0 | 0.0 | 2.1 | 4.2 | 0.0 | 2.4 |
| | | *Poanes melane* (Edwards 1869) | 1.1 | 0.0 | 0.0 | 6.3 | 0.0 | 4.2 | 0.0 | 0.0 |
| | | *Pyrgus albescens* Plötz 1884 | 0.6 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 |
| | Lycaenidae | *Brephidium exile* (Boisduval 1852) | 5.0 | 0.0 | 8.3 | 4.2 | 10.4 | 0.0 | 3.3 | 2.4 |
| | | *Leptotes marina* (Reakirt 1868) | 0.6 | 0.0 | 1.2 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 |
| | | *Strymon melinus* (Hübner 1818) | 1.1 | 0.0 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 |
| | Noctuidae | *Autographa californica* (Speyer 1875) | 9.2 | 0.0 | 6.0 | 6.3 | 10.4 | 20.8 | 16.7 | 6.0 |
| | | *Megalographa biloba* (Stephens 1830) | 3.1 | 0.0 | 3.6 | 4.2 | 4.2 | 0.0 | 1.7 | 3.6 |
| | | *Noctua pronuba* (Linnaeus 1758) | 1.1 | 0.0 | 1.2 | 2.1 | 0.0 | 0.0 | 0.0 | 2.4 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | *Trichoplusia ni* (Hübner [1803]) | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 |
| Nymphalidae | *Agraulis vanillae* (Linnaeus 1758) | 6.1 | 8.3 | 3.6 | 2.1 | 2.1 | 12.5 | 10.0 | 8.3 |
| | *Danaus plexippus* (Linnaeus 1758) | 1.9 | 0.0 | 0.0 | 10.4 | 2.1 | 0.0 | 0.0 | 1.2 |
| Papilionidae | *Papilio cresphontes* Cramer 1777 | 1.4 | 0.0 | 1.2 | 2.1 | 0.0 | 4.2 | 0.0 | 2.4 |
| | *Papilio zelicaon* Lucas 1852 | 2.2 | 0.0 | 1.2 | 4.2 | 0.0 | 0.0 | 0.0 | 6.0 |
| Pieridae | *Colias eurytheme* Boisduval 1852 | 3.6 | 0.0 | 1.2 | 4.2 | 6.3 | 8.3 | 3.3 | 3.6 |
| | *Phoebis sennae* (Linnaeus 1758) | 0.3 | 0.0 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| | *Pieris rapae* (Linnaeus 1758) | 1.4 | 0.0 | 0.0 | 4.2 | 2.1 | 0.0 | 3.3 | 0.0 |
| | *Pontia protodice* (Boisduval & Leconte [1830]) | 0.6 | 0.0 | 1.2 | 0.0 | 2.1 | 0.0 | 0.0 | 0.0 |
| Sphingidae | *Hyles lineata* (Fabricius 1775) | 3.3 | 0.0 | 1.2 | 8.3 | 4.2 | 12.5 | 0.0 | 2.4 |
| | *Manduca sexta* (Linnaeus 1763) | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.4 |

Table S4.

Full model output from repeated measures linear model of insect species richness for the full year. Included in the table are the fixed effect terms from the model, the F-statistic with degrees of freedom, the p-value from partial F-tests, the model parameter, and the model estimates for each model parameter. Significant effects are bolded.

| **Fixed Effects** | **F** | **p-value** | **Model Parameters** | **coefficients (±SE)** |
|---|---|---|---|---|
| **(Intercept)** | **$220.25_{(1,313)}$** | **<0.0001** | (Intercept) | 6.41±1.26 |
| **PCA1** | **$26.84_{(1,313)}$** | **<0.0001** | PCA1 | 1.37±0.21 |
| PCA2 | $0.02_{(1,313)}$ | 0.8985 | PCA2 | 1.13±0.24 |
| **Month** | **$12.7_{(1,313)}$** | **0.0004** | Month | -0.26±0.03 |
| Compost | $0.08_{(1,17)}$ | 0.7823 | Compost Present | -0.45±0.49 |
| Mulch | $1.86_{(1,17)}$ | 0.1900 | Mulch Present | 1.17±0.69 |
| **Drought Tolerant** | **$7.23_{(1,17)}$** | **0.0155** | Drought Tolerant Present | 1.22±1.22 |
| Native | $0.11_{(1,17)}$ | 0.7420 | Native Present | -0.45±1.22 |
| Lawn | $0.18_{(1,17)}$ | 0.6805 | Lawn Present | -0.22±0.57 |
| Water | $0.92_{(1,17)}$ | 0.3519 | Water Frequent | -0.69±0.67 |
| Urban Type | $1.47_{(6,17)}$ | 0.2464 | Urban Type 3 | -1.34±1.23 |
| | | | Urban Type 4 | -1.02±1.32 |
| | | | Urban Type 5 | -3.35±1.39 |
| | | | Urban Type 6 | 0.45±1.5 |
| | | | Urban Type 8 | -1.67±1.28 |
| | | | Urban Type 9 | -1.32±1.25 |
| Urban Type:PCA1 | $1.65_{(6,313)}$ | 0.1339 | Urban Type 3:PCA1 | -0.52±0.21 |
| | | | Urban Type 4:PCA1 | -0.44±0.22 |
| | | | Urban Type 5:PCA1 | -0.73±0.22 |
| | | | Urban Type 6:PCA1 | -0.39±0.23 |
| | | | Urban Type 8:PCA1 | -0.43±0.21 |
| | | | Urban Type 9:PCA1 | -0.48±0.21 |
| Urban Type:PCA2 | $2.15_{(6,313)}$ | 0.0579 | Urban Type 3:PCA2 | -0.43±0.24 |
| | | | Urban Type 4:PCA2 | -0.5±0.26 |
| | | | Urban Type 5:PCA2 | -0.71±0.25 |
| | | | Urban Type 6:PCA2 | -0.4±0.28 |
| | | | Urban Type 8:PCA2 | -0.68±0.25 |
| | | | Urban Type 9:PCA2 | -0.57±0.24 |
| **Month:PCA1** | **$28.44_{(1,313)}$** | **<0.0001** | Month:PCA1 | -0.09±0.01 |
| **Month:PCA2** | **$31.01_{(1,313)}$** | **<0.0001** | Month:PCA2 | -0.08±0.01 |

Table S5.

Full model output from repeated measures linear model of insect abundance for the full year. Significant effects are bolded.

| **Fixed Effects** | **F** | **p-value** | **Model Parameters** | **coefficients (±SE)** |
|---|---|---|---|---|
| **(Intercept)** | **$399.42_{(1,313)}$** | **<0.0001** | (Intercept) | 1.8±0.36 |
| **PCA1** | **$10.56_{(1,313)}$** | **0.0013** | PCA1 | 0.27±0.06 |
| PCA2 | $0.32_{(1,313)}$ | 0.5707 | PCA2 | 0.26±0.07 |
| Month | $0.24_{(1,313)}$ | 0.6225 | Month | -0.06±0.01 |
| Compost | $1.06_{(1,17)}$ | 0.3175 | Compost Present | -0.22±0.14 |
| Mulch | $1.92_{(1,17)}$ | 0.1841 | Mulch Present | 0.37±0.19 |
| **Drought Tolerant** | **$4.64_{(1,17)}$** | **0.0458** | Drought Tolerant Present | 0.2±0.35 |
| Native | $0.05_{(1,17)}$ | 0.8271 | Native Present | -0.08±0.35 |
| Lawn | $0.54_{(1,17)}$ | 0.4725 | Lawn Present | -0.1±0.16 |
| Water | $1.35_{(1,17)}$ | 0.2607 | Water Frequent | -0.24±0.19 |
| Urban Type | $1.11_{(6,17)}$ | 0.3991 | Urban Type 3 | -0.1±0.35 |
| | | | Urban Type 4 | -0.09±0.38 |
| | | | Urban Type 5 | -0.62±0.39 |
| | | | Urban Type 6 | 0.52±0.42 |
| | | | Urban Type 8 | -0.24±0.36 |
| | | | Urban Type 9 | 0.02±0.36 |
| Urban Type:PCA1 | $0.48_{(6,313)}$ | 0.8246 | Urban Type 3:PCA1 | -0.03±0.06 |
| | | | Urban Type 4:PCA1 | -0.01±0.06 |
| | | | Urban Type 5:PCA1 | -0.09±0.06 |
| | | | Urban Type 6:PCA1 | -0.04±0.07 |
| | | | Urban Type 8:PCA1 | -0.04±0.06 |
| | | | Urban Type 9:PCA1 | -0.06±0.06 |
| Urban Type:PCA2 | $1.98_{(6,313)}$ | 0.0679 | Urban Type 3:PCA2 | -0.08±0.07 |
| | | | Urban Type 4:PCA2 | -0.11±0.07 |
| | | | Urban Type 5:PCA2 | -0.19±0.07 |
| | | | Urban Type 6:PCA2 | -0.08±0.08 |
| | | | Urban Type 8:PCA2 | -0.15±0.07 |
| | | | Urban Type 9:PCA2 | -0.12±0.07 |
| **Month:PCA1** | **$39.03_{(1,313)}$** | **<0.0001** | Month:PCA1 | -0.03±0 |
| **Month:PCA2** | **$27.41_{(1,313)}$** | **<0.0001** | Month:PCA2 | -0.02±0 |

Table S6.

Full model output from repeated measures linear model of insect species richness for the low insect diversity season (September – February). Significant effects are bolded.

| **Fixed Effects** | **F** | **p-value** | **Model Parameters** | **coefficients (±SE)** |
|---|---|---|---|---|
| **(Intercept)** | **$150.37_{(1,133)}$** | **<0.0001** | (Intercept) | 3.9±1.37 |
| PCA1 | $3.05_{(1,133)}$ | 0.083 | PCA1 | 0.72±0.3 |
| PCA2 | $0.64_{(1,133)}$ | 0.4238 | PCA2 | 0.76±0.3 |
| Month | $0.5_{(1,133)}$ | 0.4818 | Month | -0.02±0.07 |
| Compost | $0.09_{(1,17)}$ | 0.7678 | Compost Present | -0.33±0.47 |
| Mulch | $0.8_{(1,17)}$ | 0.3839 | Mulch Present | 0.55±0.66 |
| **Drought Tolerant** | **$5.18_{(1,17)}$** | **0.0361** | Drought Tolerant Present | 1.31±1.17 |
| Native | $0.17_{(1,17)}$ | 0.6896 | Native Present | -0.52±1.17 |
| Lawn | $0.03_{(1,17)}$ | 0.8672 | Lawn Present | -0.11±0.54 |
| Water | $0.06_{(1,17)}$ | 0.8044 | Water Frequent | -0.19±0.64 |
| Urban Type | $0.82_{(6,17)}$ | 0.5696 | Urban Type 3 | -1.53±1.21 |
| | | | Urban Type 4 | -1.52±1.3 |
| | | | Urban Type 5 | -2.65±1.36 |
| | | | Urban Type 6 | -0.17±1.47 |
| | | | Urban Type 8 | -1.6±1.26 |
| | | | Urban Type 9 | -1.45±1.24 |
| Urban Type:PCA1 | $1.15_{(6,133)}$ | 0.3393 | Urban Type 3:PCA1 | -0.65±0.22 |
| | | | Urban Type 4:PCA1 | -0.6±0.23 |
| | | | Urban Type 5:PCA1 | -0.74±0.23 |
| | | | Urban Type 6:PCA1 | -0.54±0.24 |
| | | | Urban Type 8:PCA1 | -0.56±0.22 |
| | | | Urban Type 9:PCA1 | -0.56±0.22 |
| **Urban Type:PCA2** | **$2.18_{(6,133)}$** | **0.0486** | Urban Type 3:PCA2 | -0.66±0.27 |
| | | | Urban Type 4:PCA2 | -0.8±0.28 |
| | | | Urban Type 5:PCA2 | -0.69±0.28 |
| | | | Urban Type 6:PCA2 | -0.58±0.3 |
| | | | Urban Type 8:PCA2 | -0.93±0.28 |
| | | | Urban Type 9:PCA2 | -0.68±0.27 |
| Month:PCA1 | $0.41_{(1,133)}$ | 0.5233 | Month:PCA1 | -0.01±0.02 |
| Month:PCA2 | $0.59_{(1,133)}$ | 0.4421 | Month:PCA2 | -0.02±0.02 |

Table S7.

Full model output from repeated measures linear model of insect abundance for the low insect diversity season (September – February). Significant effects are bolded.

| **Fixed Effects** | **F** | **p-value** | **Model Parameters** | **coefficients (±SE)** |
|---|---|---|---|---|
| **(Intercept)** | **$317.42_{(1,133)}$** | **<0.0001** | (Intercept) | 1.11±0.42 |
| PCA1 | $1.31_{(1,133)}$ | 0.2553 | PCA1 | 0.07±0.1 |
| PCA2 | $0.8_{(1,133)}$ | 0.3714 | PCA2 | 0.12±0.1 |
| **Month** | **$5.53_{(1,133)}$** | **0.0201** | Month | 0.01±0.02 |
| Compost | $1.01_{(1,17)}$ | 0.3299 | Compost Present | -0.19±0.14 |
| Mulch | $0.9_{(1,17)}$ | 0.3569 | Mulch Present | 0.25±0.19 |
| **Drought Tolerant** | **$4.45_{(1,17)}$** | **0.0501** | Drought Tolerant Present | 0.23±0.34 |
| Native | $0.06_{(1,17)}$ | 0.8168 | Native Present | -0.09±0.34 |
| Lawn | $0.55_{(1,17)}$ | 0.4701 | Lawn Present | -0.1±0.16 |
| Water | $0.76_{(1,17)}$ | 0.3962 | Water Frequent | -0.17±0.19 |
| Urban Type | $1.16_{(6,17)}$ | 0.3704 | Urban Type 3 | -0.19±0.36 |
| | | | Urban Type 4 | -0.14±0.39 |
| | | | Urban Type 5 | -0.56±0.4 |
| | | | Urban Type 6 | 0.45±0.44 |
| | | | Urban Type 8 | -0.24±0.38 |
| | | | Urban Type 9 | 0.05±0.37 |
| Urban Type:PCA1 | $0.47_{(6,133)}$ | 0.8262 | Urban Type 3:PCA1 | -0.08±0.08 |
| | | | Urban Type 4:PCA1 | -0.04±0.08 |
| | | | Urban Type 5:PCA1 | -0.1±0.08 |
| | | | Urban Type 6:PCA1 | -0.06±0.09 |
| | | | Urban Type 8:PCA1 | -0.06±0.08 |
| | | | Urban Type 9:PCA1 | -0.06±0.08 |
| Urban Type:PCA2 | $0.86_{(6,133)}$ | 0.5298 | Urban Type 3:PCA2 | -0.13±0.09 |
| | | | Urban Type 4:PCA2 | -0.16±0.1 |
| | | | Urban Type 5:PCA2 | -0.18±0.1 |
| | | | Urban Type 6:PCA2 | -0.1±0.11 |
| | | | Urban Type 8:PCA2 | -0.19±0.1 |
| | | | Urban Type 9:PCA2 | -0.13±0.1 |
| Month:PCA1 | $0.23_{(1,133)}$ | 0.6348 | Month:PCA1 | 0.01±0.01 |
| Month:PCA2 | $0.05_{(1,133)}$ | 0.8303 | Month:PCA2 | 0.01±0.01 |

Table S8.

Full model output from repeated measures linear model of insect species richness for the high insect diversity season (March - May). Significant effects are bolded.

| **Fixed Effects** | **F** | **p-value** | **Model Parameters** | **coefficients (±SE)** |
|---|---|---|---|---|
| **(Intercept)** | **$273.29_{(1,43)}$** | **<0.0001** | (Intercept) | -2.12±11.66 |
| PCA1 | $1.01_{(1,43)}$ | 0.3205 | PCA1 | -0.43±2.35 |
| PCA2 | $2.07_{(1,43)}$ | 0.1576 | PCA2 | -9.2±8.92 |
| Month | $0.16_{(1,43)}$ | 0.6908 | Month | 1.37±1.16 |
| Compost | $0.41_{(1,17)}$ | 0.5297 | Compost Present | -0.82±0.64 |
| Mulch | $1.4_{(1,17)}$ | 0.2537 | Mulch Present | 1.98±0.88 |
| **Drought Tolerant** | **$9.09_{(1,17)}$** | **0.0078** | Drought Tolerant Present | -0.09±1.51 |
| Native | $0.24_{(1,17)}$ | 0.6303 | Native Present | 0.66±1.5 |
| Lawn | $1.23_{(1,17)}$ | 0.2833 | Lawn Present | -0.46±0.71 |
| Water | $3.05_{(1,17)}$ | 0.0987 | Water Frequent | -1.95±0.86 |
| Urban Type | $1.07_{(6,17)}$ | 0.4169 | Urban Type 3 | 1.08±10.07 |
| | | | Urban Type 4 | -0.4±10.41 |
| | | | Urban Type 5 | 0.54±10.27 |
| | | | Urban Type 6 | 2.94±11.35 |
| | | | Urban Type 8 | 3.27±10.24 |
| | | | Urban Type 9 | 3.32±10.21 |
| Urban Type:PCA1 | $0.19_{(6,43)}$ | 0.9786 | Urban Type 3:PCA1 | -0.18±1.32 |
| | | | Urban Type 4:PCA1 | -0.21±1.4 |
| | | | Urban Type 5:PCA1 | -0.13±1.36 |
| | | | Urban Type 6:PCA1 | 0.21±1.4 |
| | | | Urban Type 8:PCA1 | 0.43±1.36 |
| | | | Urban Type 9:PCA1 | 0.14±1.35 |
| Urban Type:PCA2 | $0.51_{(6,43)}$ | 0.7942 | Urban Type 3:PCA2 | 1.53±7.46 |
| | | | Urban Type 4:PCA2 | -0.51±7.81 |
| | | | Urban Type 5:PCA2 | 3.47±7.62 |
| | | | Urban Type 6:PCA2 | 1.42±8.26 |
| | | | Urban Type 8:PCA2 | 4.64±7.64 |
| | | | Urban Type 9:PCA2 | 4.14±7.64 |
| Month:PCA1 | $3.72_{(1,43)}$ | 0.0603 | Month:PCA1 | 0.26±0.41 |
| Month:PCA2 | $4.1_{(1,43)}$ | 0.0592 | Month:PCA2 | 1.85±0.92 |

Table S9.

Full model output from repeated measures linear model of insect abundance for the high insect diversity season (March - May). Significant effects are bolded.

| **Fixed Effects** | **F** | **p-value** | **Model Parameters** | **coefficients (±SE)** |
|---|---|---|---|---|
| **(Intercept)** | **$263.58_{(1,43)}$** | **<0.0001** | (Intercept) | 9.83±14.35 |
| PCA1 | $2.81_{(1,43)}$ | 0.1012 | PCA1 | 0.4±2.9 |
| **PCA2** | **$5.44_{(1,43)}$** | **0.0244** | PCA2 | 0.01±11.07 |
| Month | $1.25_{(1,43)}$ | 0.2693 | Month | 0.88±1.5 |
| Compost | $2.84_{(1,17)}$ | 0.1103 | Compost Present | -1.34±0.86 |
| Mulch | $0.49_{(1,17)}$ | 0.4955 | Mulch Present | 1.75±1.19 |
| **Drought Tolerant** | **$6.91_{(1,17)}$** | **0.0176** | Drought Tolerant Present | 2.38±2.04 |
| Native | $0.54_{(1,17)}$ | 0.4713 | Native Present | -1.74±2.03 |
| Lawn | $0.58_{(1,17)}$ | 0.4559 | Lawn Present | -0.46±0.96 |
| Water | $2.26_{(1,17)}$ | 0.1512 | Water Frequent | -2.07±1.16 |
| Urban Type | $0.86_{(6,17)}$ | 0.5418 | Urban Type 3 | -5.43±12.17 |
| | | | Urban Type 4 | -6.9±12.61 |
| | | | Urban Type 5 | -8.47±12.43 |
| | | | Urban Type 6 | -4.22±13.66 |
| | | | Urban Type 8 | -5.07±12.39 |
| | | | Urban Type 9 | -5.15±12.36 |
| Urban Type:PCA1 | $0.19_{(6,43)}$ | 0.9778 | Urban Type 3:PCA1 | -0.39±1.52 |
| | | | Urban Type 4:PCA1 | -0.57±1.62 |
| | | | Urban Type 5:PCA1 | -0.95±1.57 |
| | | | Urban Type 6:PCA1 | -0.24±1.61 |
| | | | Urban Type 8:PCA1 | 0.19±1.57 |
| | | | Urban Type 9:PCA1 | -0.69±1.57 |
| Urban Type:PCA2 | $0.98_{(6,43)}$ | 0.4528 | Urban Type 3:PCA2 | -3.82±9.13 |
| | | | Urban Type 4:PCA2 | -5.04±9.55 |
| | | | Urban Type 5:PCA2 | -4.69±9.32 |
| | | | Urban Type 6:PCA2 | -5.19±10.04 |
| | | | Urban Type 8:PCA2 | -2.05±9.35 |
| | | | Urban Type 9:PCA2 | -3.41±9.37 |
| Month:PCA1 | $1.1_{(1,43)}$ | 0.3005 | Month:PCA1 | 0.23±0.53 |
| Month:PCA2 | $1.38_{(1,43)}$ | 0.2461 | Month:PCA2 | 1.38±1.18 |

Table S10.

Full model output from repeated measures linear model of insect species richness for the intermediate insect diversity season (June - August). Significant effects are bolded.

| **Fixed Effects** | **F** | **p-value** | **Model Parameters** | **coefficients (±SE)** |
|---|---|---|---|---|
| **(Intercept)** | **194.82$_{(1,43)}$** | **<0.0001** | (Intercept) | 19.2±5.24 |
| PCA1 | 1.91$_{(1,43)}$ | 0.1736 | PCA1 | 2.59±2.26 |
| **PCA2** | **5.7$_{(1,43)}$** | **0.0214** | PCA2 | -5.7±2.55 |
| **Month** | **6.26$_{(1,43)}$** | **0.0163** | Month | -2.35±0.86 |
| Compost | 0.14$_{(1,17)}$ | 0.7091 | Compost Present | -0.32±0.61 |
| Mulch | 3.36$_{(1,17)}$ | 0.0843 | Mulch Present | 1.38±0.88 |
| **Drought Tolerant** | **7.27$_{(1,17)}$** | **0.0153** | Drought Tolerant Present | 2.36±1.52 |
| Native | 0.69$_{(1,17)}$ | 0.4174 | Native Present | -1.29±1.52 |
| Lawn | 0.02$_{(1,17)}$ | 0.898 | Lawn Present | 0.31±0.7 |
| Water | 0.98$_{(1,17)}$ | 0.3359 | Water Frequent | -0.81±0.82 |
| **Urban Type** | **3.15$_{(6,17)}$** | **0.029** | Urban Type 3 | -0.07±2.95 |
| | | | Urban Type 4 | 0.89±3.22 |
| | | | Urban Type 5 | -5.76±3.05 |
| | | | Urban Type 6 | -1.14±3.11 |
| | | | Urban Type 8 | -3.74±3.62 |
| | | | Urban Type 9 | 3.61±3.66 |
| Urban Type:PCA1 | 0.57$_{(6,43)}$ | 0.7501 | Urban Type 3:PCA1 | -0.54±0.89 |
| | | | Urban Type 4:PCA1 | -0.5±0.92 |
| | | | Urban Type 5:PCA1 | -0.79±0.92 |
| | | | Urban Type 6:PCA1 | 0.29±1.04 |
| | | | Urban Type 8:PCA1 | -0.13±0.92 |
| | | | Urban Type 9:PCA1 | -0.46±0.91 |
| Urban Type:PCA2 | 1.16$_{(6,43)}$ | 0.3433 | Urban Type 3:PCA2 | -1.27±1.93 |
| | | | Urban Type 4:PCA2 | -1.56±1.94 |
| | | | Urban Type 5:PCA2 | 0.72±2.01 |
| | | | Urban Type 6:PCA2 | 0.56±2.15 |
| | | | Urban Type 8:PCA2 | 0.02±2.14 |
| | | | Urban Type 9:PCA2 | -3.06±2.09 |
| **Month:PCA1** | **6.79$_{(1,43)}$** | **0.0125** | Month:PCA1 | -0.23±0.31 |
| **Month:PCA2** | **7.27$_{(1,43)}$** | **0.01** | Month:PCA2 | 1.01±0.37 |

Table S11.

Full model output from repeated measures linear model of insect abundance for the intermediate insect diversity season (June - August). Significant effects are bolded.

| **Fixed Effects** | **F** | **p-value** | **Model Parameters** | **coefficients (±SE)** |
|---|---|---|---|---|
| **(Intercept)** | **$321.55_{(1,43)}$** | **<0.0001** | (Intercept) | 2.21±1.25 |
| PCA1 | $1.82_{(1,43)}$ | 0.1838 | PCA1 | 0.5±0.53 |
| **PCA2** | **$9.45_{(1,43)}$** | **0.0037** | PCA2 | -0.4±0.6 |
| **Month** | **$3.93_{(1,43)}$** | **0.0538** | Month | -0.12±0.2 |
| Compost | $0.002_{(1,17)}$ | 0.9599 | Compost Present | -0.19±0.17 |
| **Mulch** | **$5.97_{(1,17)}$** | **0.0257** | Mulch Present | 0.54±0.24 |
| **Drought Tolerant** | **$4.27_{(1,17)}$** | **0.0544** | Drought Tolerant Present | 0.22±0.42 |
| Native | $0.02_{(1,17)}$ | 0.904 | Native Present | 0.04±0.42 |
| Lawn | $0.01_{(1,17)}$ | 0.9388 | Lawn Present | 0.08±0.19 |
| Water | $0.48_{(1,17)}$ | 0.4969 | Water Frequent | -0.14±0.23 |
| Urban Type | $2.48_{(6,17)}$ | 0.0659 | Urban Type 3 | 0.41±0.72 |
| | | | Urban Type 4 | 0.03±0.79 |
| | | | Urban Type 5 | -0.97±0.75 |
| | | | Urban Type 6 | 0.12±0.77 |
| | | | Urban Type 8 | -0.68±0.88 |
| | | | Urban Type 9 | 0.38±0.89 |
| Urban Type:PCA1 | $0.13_{(6,43)}$ | 0.9916 | Urban Type 3:PCA1 | 0.04±0.2 |
| | | | Urban Type 4:PCA1 | 0.04±0.21 |
| | | | Urban Type 5:PCA1 | 0.03±0.21 |
| | | | Urban Type 6:PCA1 | -0.01±0.24 |
| | | | Urban Type 8:PCA1 | -0.03±0.21 |
| | | | Urban Type 9:PCA1 | -0.03±0.21 |
| Urban Type:PCA2 | $0.89_{(6,43)}$ | 0.5116 | Urban Type 3:PCA2 | -0.31±0.45 |
| | | | Urban Type 4:PCA2 | -0.15±0.45 |
| | | | Urban Type 5:PCA2 | -0.05±0.47 |
| | | | Urban Type 6:PCA2 | 0.21±0.5 |
| | | | Urban Type 8:PCA2 | 0.18±0.5 |
| | | | Urban Type 9:PCA2 | -0.26±0.49 |
| Month:PCA1 | $1.82_{(1,43)}$ | 0.1843 | Month:PCA1 | -0.06±0.07 |
| Month:PCA2 | $0.28_{(1,43)}$ | 0.5966 | Month:PCA2 | 0.05±0.09 |

Table S12.

The list of indicator taxa of each season from collections made throughout the year. Included in the table are the season, the indicator taxa, the A indice (mean abundance of the species within a season in this case divided by the sum of the mean abundance in all seasons) and B indice (the frequency with which a species occurs within a season) used to calculate the indicator value (IndVal; Dufrêne and Legendre 1997, de Cáceres and Legendre 2009), and a p-value (P).

| **Season** | **Indicator Species** | **A** | **B** | **IndVal** | **P** |
|---|---|---|---|---|---|
| Sept - Feb | *Drosophila gentica* | 0.73 | 0.16 | 0.34 | 0.0285 |
| Sept - Feb | *Megaselia arizonensis* | 0.56 | 0.23 | 0.36 | 0.0132 |
| Sept - Feb | *Megaselia hirticaudata* | 0.72 | 0.10 | 0.27 | 0.0140 |
| Sept - Feb | *Megaselia wongae* | 0.76 | 0.09 | 0.27 | 0.0148 |
| March - May | *Allograpta obliqua* | 0.65 | 0.42 | 0.52 | 0.0001 |
| March - May | *Anevrina* sp1 | 0.75 | 0.23 | 0.42 | 0.0001 |
| March - May | *Coboldia fuscipes* | 0.61 | 0.13 | 0.29 | 0.0169 |
| March - May | *Conicera similis* | 0.67 | 0.56 | 0.61 | 0.0001 |
| March - May | *Conicera tibialis* | 0.83 | 0.37 | 0.55 | 0.0001 |
| March - May | *Drosophila busckii* | 0.76 | 0.34 | 0.51 | 0.0001 |
| March - May | *Drosophila immigrans* | 0.69 | 0.44 | 0.55 | 0.0001 |
| March - May | *Drosophila occidentalis* | 0.55 | 0.32 | 0.42 | 0.0012 |
| March - May | *Drosophila simulans* | 0.48 | 0.32 | 0.39 | 0.0151 |
| March - May | *Eupeodes volucris* | 0.67 | 0.18 | 0.35 | 0.0006 |
| March - May | *Gitona americana* | 0.73 | 0.14 | 0.32 | 0.0490 |
| March - May | *Megaselia agarici* | 0.50 | 0.99 | 0.71 | 0.0001 |
| March - May | *Megaselia albicaudata* | 0.46 | 0.42 | 0.44 | 0.0234 |
| March - May | *Megaselia armstrongorum* | 0.84 | 0.89 | 0.87 | 0.0001 |
| March - May | *Megaselia atrox* | 0.62 | 0.27 | 0.41 | 0.0020 |
| March - May | *Megaselia basispinata* | 0.67 | 0.39 | 0.51 | 0.0001 |
| March - May | *Megaselia creasoni* | 0.76 | 0.51 | 0.63 | 0.0001 |
| March - May | *Megaselia fujiokai* | 0.70 | 0.47 | 0.57 | 0.0001 |
| March - May | *Megaselia halterata* | 0.67 | 0.84 | 0.75 | 0.0001 |
| March - May | *Megaselia largifrontalis* | 0.73 | 0.53 | 0.62 | 0.0001 |
| March - May | *Megaselia lombardorum* | 0.61 | 0.92 | 0.75 | 0.0001 |
| March - May | *Megaselia mikejohnsoni* | 0.78 | 0.47 | 0.60 | 0.0001 |
| March - May | *Megaselia nigra* | 0.66 | 0.88 | 0.76 | 0.0001 |
| March - May | *Megaselia pleuralis* | 0.71 | 0.57 | 0.64 | 0.0001 |
| March - May | *Megaselia rodriguezorum* | 0.77 | 0.14 | 0.33 | 0.0003 |

| | | | | | |
|---|---|---|---|---|---|
| March - May | *Megaselia rufipes* | 0.79 | 0.40 | 0.56 | 0.0001 |
| March - May | *Megaselia sulphurizona* | 0.49 | 0.93 | 0.68 | 0.0002 |
| March - May | *Quateiella quatei* | 0.46 | 0.41 | 0.44 | 0.0315 |
| March - May | *Repleta* sp1 | 0.57 | 0.27 | 0.39 | 0.0070 |
| March - May | *Swammerdamella marginata* | 0.70 | 0.63 | 0.67 | 0.0001 |
| March - May | *Trophodeinus furcatus* | 0.63 | 0.17 | 0.32 | 0.0253 |
| June - Aug | *Agraulis vanilla* | 0.77 | 0.16 | 0.35 | 0.0003 |
| June - Aug | *Apis mellifera* | 0.60 | 0.64 | 0.62 | 0.0020 |
| June - Aug | *Autographa californica* | 0.66 | 0.22 | 0.38 | 0.0002 |
| June - Aug | *Beckerina* sp1 | 0.93 | 0.49 | 0.67 | 0.0001 |
| June - Aug | *Brephidium exile* | 0.84 | 0.16 | 0.36 | 0.0001 |
| June - Aug | *Dioprosopa clavata* | 0.66 | 0.63 | 0.65 | 0.0001 |
| June - Aug | *Halictus tripartitus* | 0.73 | 0.42 | 0.55 | 0.0001 |
| June - Aug | *Lasioglossum* sp1 | 0.62 | 0.77 | 0.69 | 0.0001 |
| June - Aug | *Megaselia berndseni* | 0.60 | 0.50 | 0.55 | 0.0001 |
| June - Aug | *Megaselia francoae* | 0.41 | 0.44 | 0.43 | 0.0046 |
| June - Aug | *Megaselia hansonix* | 0.44 | 0.38 | 0.41 | 0.0244 |
| June - Aug | *Megaselia kelleri* | 0.58 | 0.30 | 0.42 | 0.0003 |
| June - Aug | *Megaselia oxboroughae* | 0.69 | 0.50 | 0.59 | 0.0001 |
| June - Aug | *Megaselia pisanoi* | 0.84 | 0.13 | 0.33 | 0.0024 |
| June - Aug | *Megaselia sidneyae* | 0.56 | 0.59 | 0.57 | 0.0001 |
| June - Aug | *Megaselia steptoeae* | 0.59 | 0.49 | 0.54 | 0.0074 |
| June - Aug | *Megaselia wiegmanae* | 0.48 | 0.72 | 0.59 | 0.0011 |
| June - Aug | *Megachile* sp1 | 0.61 | 0.18 | 0.33 | 0.0006 |
| June - Aug | *Metopina* sp1 | 0.47 | 0.24 | 0.34 | 0.0378 |
| June - Aug | *Nephrotoma wulpiana* | 0.53 | 0.27 | 0.38 | 0.0015 |
| June - Aug | *Paragus haemorrhous* | 0.75 | 0.60 | 0.67 | 0.0001 |
| June - Aug | *Phalacrotophora halictorum* | 0.65 | 0.36 | 0.48 | 0.0001 |

Table S13.

Results from pairwise PERMANOVAs comparing insect species composition among urban types during September – February collections (A), March – May collections (B), and June – August collectons (C). Include in each table is a column representing the pair of compared urban types, a t-value from the pairwise test, a permutations-based p-value, and the number of unique permutations produce from 9999 possible runs. Urban types with significantly different insect species compositions are in bold.

A)

| Urban Type Pairs | t | p-value | Unique Perms |
|---|---|---|---|
| 9,8 | 1.09 | 0.1995 | 9877 |
| 9,6 | 0.86 | 0.8933 | 9883 |
| 9,5 | 1.03 | 0.3501 | 9873 |
| 9,4 | 1.06 | 0.2589 | 9884 |
| **9,3** | **1.31** | **0.0065** | **9865** |
| 9,1 | 1.10 | 0.1991 | 9882 |
| 8,6 | 1.10 | 0.2012 | 9875 |
| 8,5 | 1.09 | 0.1993 | 9873 |
| 8,4 | 1.12 | 0.1415 | 9854 |
| **8,3** | **1.22** | **0.032** | **9879** |
| 8,1 | 1.16 | 0.1431 | 9890 |
| 6,5 | 1.16 | 0.1345 | 9896 |
| 6,4 | 1.16 | 0.1369 | 9905 |
| **6,3** | **1.20** | **0.0546** | **9874** |
| 6,1 | 1.14 | 0.3453 | 9949 |
| 5,4 | 0.88 | 0.8702 | 9881 |
| 5,3 | 1.11 | 0.1409 | 9868 |
| 5,1 | 1.18 | 0.1223 | 9900 |
| 4,3 | 1.16 | 0.0729 | 9857 |
| 4,1 | 1.12 | 0.2051 | 9904 |
| 3,1 | 1.09 | 0.2035 | 9869 |

B)

| Urban Type Pairs | t | p-value | Unique Perms |
|---|---|---|---|
| 9,8 | 0.94 | 0.6659 | 9894 |
| 9,6 | 0.92 | 0.699 | 9900 |
| 9,5 | 0.94 | 0.6472 | 9900 |
| 9,4 | 1.12 | 0.1819 | 9910 |
| 9,3 | 1.09 | 0.2276 | 9903 |
| 9,1 | 1.01 | 0.4476 | 9907 |
| 8,6 | 1.04 | 0.3798 | 9907 |
| 8,5 | 0.98 | 0.5082 | 9899 |
| **8,4** | **1.46** | **0.0147** | **9912** |
| 8,3 | 1.22 | 0.0621 | 9872 |
| 8,1 | 1.20 | 0.1771 | 9917 |
| 6,5 | 1.01 | 0.4413 | 9920 |
| 6,4 | 1.34 | 0.0833 | 9913 |
| 6,3 | 1.04 | 0.3581 | 9911 |
| 6,1 | 1.37 | 0.2618 | 4115 |
| 5,4 | 1.11 | 0.2365 | 9900 |
| 5,3 | 1.11 | 0.2057 | 9896 |
| 5,1 | 1.12 | 0.312 | 9932 |
| **4,3** | **1.27** | **0.0404** | **9898** |
| 4,1 | 1.11 | 0.2895 | 9938 |
| 3,1 | 1.04 | 0.3591 | 9899 |

C)

| Urban Type Pairs | t | p-value | Unique Perms |
|---|---|---|---|
| 9,8 | 0.82 | 0.9414 | 9886 |
| 9,6 | 1.27 | 0.0961 | 9911 |
| 9,5 | 1.08 | 0.2809 | 9910 |
| 9,4 | 1.05 | 0.3478 | 9893 |
| **9,3** | **1.30** | **0.0301** | **9898** |
| 9,1 | 1.12 | 0.2278 | 9900 |
| 8,6 | 1.37 | 0.0803 | 9934 |
| 8,5 | 1.10 | 0.279 | 9923 |
| 8,4 | 1.17 | 0.1502 | 9895 |
| 8,3 | 1.26 | 0.0599 | 9916 |
| 8,1 | 1.24 | 0.167 | 9932 |
| 6,5 | 1.53 | 0.0797 | 9938 |
| **6,4** | **1.51** | **0.0503** | **9927** |
| **6,3** | **1.30** | **0.0511** | **9897** |
| 6,1 | 1.68 | 0.1089 | 4117 |
| 5,4 | 1.29 | 0.1019 | 9920 |
| 5,3 | 1.56 | 0.0141 | 9908 |
| 5,1 | 1.23 | 0.2462 | 9926 |
| 4,3 | 1.11 | 0.1869 | 9878 |
| 4,1 | 1.27 | 0.1484 | 9939 |
| 3,1 | 1.04 | 0.353 | 9882 |

Table S14.

The list of indicator taxa of significantly different urban types (A), and sites with and without drought tolerant plants (B), native plants (C), and compost (D) from collection made from September – February. Included in each table are the indicator taxa, the A and B indices used to calculate the indicator value (IndVal), and a p-value (P).

A)

| Urban Type | Indicator Species | A | B | IndVal | P |
|---|---|---|---|---|---|
| 3 | *Repleta* sp1 | 0.52 | 0.38 | 0.45 | 0.0200 |
| 6 | *Megaselia agarici* | 0.32 | 1.00 | 0.57 | 0.0166 |
| 6 | *Megaselia berndseni* | 0.40 | 0.42 | 0.41 | 0.0500 |
| 6 | *Megaselia wiegmanae* | 0.45 | 0.83 | 0.61 | 0.0028 |
| 6 | *Megaselia wongae* | 0.55 | 0.42 | 0.48 | 0.0081 |
| 6 | *Nephrotoma suturalis* | 0.59 | 0.33 | 0.44 | 0.0111 |
| 6 | *Swammerdamella marginata* | 0.63 | 0.58 | 0.61 | 0.0029 |
| 8 | *Chonocephalus bentacaisei* | 0.59 | 0.50 | 0.54 | 0.0210 |
| 8 | *Megaselia donahuei* | 0.46 | 0.43 | 0.45 | 0.0251 |
| 8 | *Megaselia marquezi* | 0.57 | 0.57 | 0.57 | 0.0039 |
| 8 | *Megaselia scalaris* | 0.57 | 0.33 | 0.43 | 0.0272 |
| 9 | *Megaselia sacatelensis* | 0.53 | 0.43 | 0.48 | 0.0253 |

B)

| Drought Tolerant | Indicator Species | A | B | IndVal | P |
|---|---|---|---|---|---|
| Yes | *Allograpta exotica* | 1.00 | 0.05 | 0.22 | 0.0337 |
| Yes | *Allograpta obliqua* | 0.81 | 0.17 | 0.37 | 0.0034 |
| Yes | *Apis mellifera* | 0.66 | 0.57 | 0.61 | 0.0066 |
| Yes | *Ceratina* sp1 | 0.82 | 0.17 | 0.37 | 0.0084 |
| Yes | *Dioprosopa clavata* | 0.74 | 0.50 | 0.61 | 0.0008 |
| Yes | *Gitona bivisualis* | 0.91 | 0.17 | 0.39 | 0.0005 |
| Yes | *Lasioglossum* sp1 | 0.61 | 0.58 | 0.60 | 0.0267 |
| Yes | *Megaselia albicaudata* | 0.78 | 0.38 | 0.55 | 0.001 |
| Yes | *Megaselia barberi* | 0.97 | 0.30 | 0.54 | 0.0012 |
| Yes | *Megaselia basispinata* | 0.84 | 0.18 | 0.39 | 0.0064 |
| Yes | *Megaselia fujiokai* | 0.88 | 0.23 | 0.45 | 0.0026 |
| Yes | *Megaselia halterata* | 0.59 | 0.53 | 0.56 | 0.0329 |
| Yes | *Megaselia heini* | 0.80 | 0.35 | 0.53 | 0.0017 |
| Yes | *Megaselia hentschkeae* | 0.82 | 0.12 | 0.31 | 0.0133 |
| Yes | *Megaselia hoggorum* | 0.98 | 0.13 | 0.36 | 0.0006 |
| Yes | *Megaselia largifrontalis* | 0.66 | 0.50 | 0.57 | 0.0372 |
| Yes | *Megaselia lombardorum* | 0.69 | 0.87 | 0.77 | 0.0001 |
| Yes | *Megaselia mikejohnsoni* | 0.83 | 0.30 | 0.50 | 0.0152 |
| Yes | *Megaselia pisanoi* | 1.00 | 0.08 | 0.29 | 0.0024 |
| Yes | *Megaselia rufipes* | 0.85 | 0.15 | 0.36 | 0.0176 |
| Yes | *Megaselia sidneyae* | 0.91 | 0.42 | 0.62 | 0.0001 |
| Yes | *Megaselia steptoeae* | 0.68 | 0.55 | 0.61 | 0.0358 |
| Yes | *Megaselia sulphurizona* | 0.65 | 0.93 | 0.78 | 0.0001 |
| Yes | *Metopina* sp1 | 0.81 | 0.20 | 0.40 | 0.0278 |
| Yes | *Quateiella quatei* | 0.73 | 0.38 | 0.53 | 0.0024 |
| Yes | *Sphecodes* sp1 | 0.64 | 0.43 | 0.53 | 0.0088 |
| Yes | *Toxomerus marginatus* | 0.74 | 0.32 | 0.48 | 0.0018 |

C)

| Native | Indicator Species | A | B | IndVal | P |
|---|---|---|---|---|---|
| Yes | *Allograpta exotica* | 1.00 | 0.06 | 0.24 | 0.02 |
| Yes | *Allograpta obliqua* | 0.83 | 0.19 | 0.39 | 0.0009 |
| Yes | *Apis mellifera* | 0.65 | 0.56 | 0.60 | 0.02 |
| Yes | *Beckerina* sp1 | 0.76 | 0.10 | 0.28 | 0.04 |
| Yes | *Ceratina* sp1 | 0.83 | 0.21 | 0.42 | 0.001 |
| Yes | *Dioprosopa clavata* | 0.62 | 0.48 | 0.55 | 0.04 |
| Yes | *Gitona americana* | 0.87 | 0.15 | 0.36 | 0.006 |
| Yes | *Lasioglossum* sp1 | 0.62 | 0.57 | 0.60 | 0.03 |
| Yes | *Megaselia albicaudata* | 0.65 | 0.33 | 0.47 | 0.05 |
| Yes | *Megaselia barberi* | 0.86 | 0.33 | 0.53 | 0.001 |
| Yes | *Megaselia basispinata* | 0.84 | 0.19 | 0.40 | 0.007 |
| Yes | *Megaselia fujiokai* | 0.76 | 0.23 | 0.42 | 0.02 |
| Yes | *Megaselia hentschkeae* | 0.84 | 0.13 | 0.33 | 0.007 |
| Yes | *Megaselia lombardorum* | 0.59 | 0.85 | 0.71 | 0.002 |
| Yes | *Megaselia mikejohnsoni* | 0.84 | 0.30 | 0.50 | 0.02 |
| Yes | *Megaselia pisanoi* | 0.94 | 0.08 | 0.28 | 0.01 |
| Yes | *Megaselia rufipes* | 0.85 | 0.15 | 0.36 | 0.03 |
| Yes | *Megaselia sidneyae* | 0.67 | 0.38 | 0.50 | 0.01 |
| Yes | *Megaselia sulphurizona* | 0.56 | 0.92 | 0.71 | 0.01 |
| Yes | *Metopina* sp1 | 0.82 | 0.20 | 0.41 | 0.03 |
| Yes | *Sphecodes* sp1 | 0.65 | 0.43 | 0.53 | 0.01 |
| Yes | *Toxomerus marginatus* | 0.68 | 0.29 | 0.45 | 0.01 |

D)

| Compost | Indicator Species | A | B | IndVal | P |
|---|---|---|---|---|---|
| No | *Megaselia agarici* | 0.69 | 0.91 | 0.79 | 0.01 |
| No | *Megaselia carthayensis* | 0.83 | 0.30 | 0.50 | 0.03 |
| No | *Megaselia largifrontalis* | 0.71 | 0.46 | 0.57 | 0.05 |
| No | *Megaselia nigra* | 0.74 | 0.56 | 0.64 | 0.02 |
| No | *Megaselia sacatelensis* | 0.84 | 0.24 | 0.45 | 0.03 |
| No | *Megaselia tecticauda* | 0.97 | 0.14 | 0.37 | 0.01 |
| No | *Puliciphora occidentalis* | 0.90 | 0.33 | 0.54 | 0.004 |
| Yes | *Chonocephalus bentacaisei* | 0.78 | 0.42 | 0.57 | 0.0003 |
| Yes | *Drosophila busckii* | 0.74 | 0.13 | 0.31 | 0.03 |
| Yes | *Drosophila immigrans* | 0.75 | 0.17 | 0.35 | 0.04 |
| Yes | *Drosophila simulans* | 0.77 | 0.13 | 0.32 | 0.05 |
| Yes | *Megaselia hansonix* | 0.64 | 0.37 | 0.49 | 0.02 |
| Yes | *Paragus haemorrhous* | 0.69 | 0.32 | 0.47 | 0.01 |

Table S15.

The list of indicator taxa of each urban types (A), and sites with and without drought tolerant plants (B), or with and without compost (C) from collection made from March – May. Included in each table are the indicator taxa, the A and B indices used to calculate the indicator value (IndVal), and a p-value (P).

A)

| Urban Type | Indicator Species | A | B | IndVal | P |
|---|---|---|---|---|---|
| 3 | *Gitona americana* | 0.85 | 0.38 | 0.57 | 0.0315 |
| 4 | *Trophodeinus furcatus* | 0.89 | 0.83 | 0.86 | 0.0003 |
| 8 | *Megaselia rufipes* | 0.52 | 0.73 | 0.62 | 0.0273 |

B)

| Drought Tolerant | Indicator Species | A | B | IndVal | P |
|---|---|---|---|---|---|
| Yes | *Allograpta exotica* | 0.76 | 0.23 | 0.42 | 0.0301 |
| Yes | *Apis mellifera* | 0.64 | 0.80 | 0.72 | 0.0168 |
| Yes | *Dioprosopa clavata* | 0.88 | 0.37 | 0.57 | 0.0005 |
| Yes | *Eupeodes volucris* | 0.79 | 0.30 | 0.49 | 0.0135 |
| Yes | *Gitona americana* | 0.96 | 0.30 | 0.54 | 0.0020 |
| Yes | *Halictus tripartitus* | 0.71 | 0.27 | 0.44 | 0.0343 |
| Yes | *Hylaeus* sp1 | 0.87 | 0.20 | 0.42 | 0.0086 |
| Yes | *Lasioglossum* sp1 | 0.71 | 0.63 | 0.67 | 0.0130 |
| Yes | *Megaselia arizonensis* | 0.75 | 0.37 | 0.52 | 0.0107 |
| Yes | *Megaselia barberi* | 0.87 | 0.63 | 0.74 | 0.0021 |
| Yes | *Megaselia basispinata* | 0.75 | 0.53 | 0.63 | 0.0100 |
| Yes | *Megaselia berndseni* | 0.63 | 0.60 | 0.62 | 0.0218 |
| Yes | *Megaselia donahuei* | 0.74 | 0.33 | 0.50 | 0.0286 |
| Yes | *Megaselia francoae* | 0.74 | 0.40 | 0.55 | 0.0288 |
| Yes | *Megaselia fujiokai* | 0.69 | 0.63 | 0.66 | 0.0197 |
| Yes | *Megaselia hardingorum* | 0.92 | 0.13 | 0.35 | 0.0336 |
| Yes | *Megaselia heini* | 0.88 | 0.43 | 0.62 | 0.0005 |
| Yes | *Megaselia hoggorum* | 0.97 | 0.20 | 0.44 | 0.0067 |
| Yes | *Megaselia kelleri* | 0.77 | 0.23 | 0.42 | 0.0276 |
| Yes | *Megaselia mikejohnsoni* | 0.91 | 0.63 | 0.76 | 0.0028 |
| Yes | *Megaselia rufipes* | 0.74 | 0.53 | 0.63 | 0.0212 |
| Yes | *Megaselia sidneyae* | 0.82 | 0.40 | 0.57 | 0.0319 |
| Yes | *Megaselia sulphurizona* | 0.65 | 0.97 | 0.79 | 0.0277 |

C)

| Compost | Indicator Species | A | B | IndVal | P |
|---|---|---|---|---|---|
| No | *Megaselia agarici* | 0.76 | 1.00 | 0.87 | 0.0001 |
| No | *Megaselia albicaudata* | 0.75 | 0.48 | 0.60 | 0.0482 |
| No | *Megaselia armstrongorum* | 0.78 | 0.92 | 0.85 | 0.0005 |
| No | *Megaselia atrox* | 0.86 | 0.35 | 0.55 | 0.0208 |
| No | *Megaselia lombardorum* | 0.67 | 0.93 | 0.79 | 0.0043 |
| No | *Megaselia nigra* | 0.68 | 0.92 | 0.79 | 0.0144 |
| No | *Megaselia oxboroughae* | 0.93 | 0.30 | 0.53 | 0.0226 |
| No | *Megaselia sacatelensis* | 0.79 | 0.33 | 0.51 | 0.0444 |
| No | *Puliciphora occidentalis* | 0.73 | 0.43 | 0.56 | 0.0249 |
| Yes | *Dioprosopa.clavata* | 0.75 | 0.30 | 0.48 | 0.0426 |
| Yes | *Megaselia marquezi* | 0.73 | 0.83 | 0.78 | 0.0260 |
| Yes | *Megaselia ruficornis* | 0.83 | 0.17 | 0.37 | 0.0369 |
| Yes | *Megaselia steptoeae* | 0.80 | 0.37 | 0.54 | 0.0100 |
| Yes | *Paragus.haemorrhous* | 0.70 | 0.43 | 0.55 | 0.0445 |
| Yes | *Spiniphora bergenstammi* | 0.84 | 0.23 | 0.44 | 0.0222 |

Table S16.

The list of indicator taxa of each urban type (A) and sites with and without drought tolerant plants (B), or native plants (C) from collection made from June – August. Included in each table are the indicator taxa, the A and B indices used to calculate the indicator value (IndVal), and a p-value (P).

A)

| Urban Type | Indicator Species | A | B | IndVal | P |
|---|---|---|---|---|---|
| 3 | *Phalacrotophora halictorum* | 0.42 | 0.86 | 0.60 | 0.0192 |
| 4 | *Megaselia albicaudata* | 0.47 | 0.83 | 0.63 | 0.0135 |
| 4 | *Trophodeinus furcatus* | 0.58 | 0.67 | 0.62 | 0.0104 |
| 6 | *Conicera similis* | 0.43 | 0.83 | 0.60 | 0.024 |
| 6 | *Megaselia berndseni* | 0.44 | 1.00 | 0.66 | 0.0266 |
| 6 | *Megaselia carthayensis* | 0.52 | 0.83 | 0.66 | 0.0146 |
| 6 | *Megaselia oxboroughae* | 0.76 | 1.00 | 0.87 | 0.0001 |
| 6 | *Megaselia wiegmanae* | 0.52 | 1.00 | 0.72 | 0.0002 |
| 6 | *Puliciphora occidentalis* | 0.55 | 0.83 | 0.68 | 0.0073 |
| 6 | *Toxomerus marginatus* | 0.72 | 0.67 | 0.69 | 0.0032 |

B)

| Drought Tolerant | Indicator Species | A | B | IndVal | P |
|---|---|---|---|---|---|
| Yes | *Allograpta exotica* | 0.86 | 0.17 | 0.38 | 0.0330 |
| Yes | *Beckerina* sp1 | 0.65 | 0.63 | 0.64 | 0.0337 |
| Yes | *Chonocephalus bentacaisei* | 0.67 | 0.53 | 0.60 | 0.0375 |
| Yes | *Coboldia fuscipes* | 1.00 | 0.10 | 0.32 | 0.0333 |
| Yes | *Dioprosopa clavata* | 0.77 | 0.87 | 0.82 | 0.0001 |
| Yes | *Drosophila simulans* | 0.84 | 0.27 | 0.47 | 0.0040 |
| Yes | *Gitona americana* | 0.93 | 0.27 | 0.50 | 0.0013 |
| Yes | *Lasioglossum* sp1 | 0.69 | 0.90 | 0.79 | 0.0034 |
| Yes | *Megaselia armstrongorum* | 0.86 | 0.53 | 0.68 | 0.0009 |
| Yes | *Megaselia donahuei* | 0.79 | 0.27 | 0.46 | 0.0278 |
| Yes | *Megaselia fujiokai* | 0.78 | 0.37 | 0.53 | 0.0057 |
| Yes | *Megaselia hoggorum* | 0.99 | 0.20 | 0.45 | 0.0042 |
| Yes | *Megaselia pisanoi* | 0.99 | 0.27 | 0.51 | 0.0027 |
| Yes | *Megaselia sidneyae* | 0.74 | 0.73 | 0.74 | 0.0049 |
| Yes | *Megaselia sulphurizona* | 0.67 | 0.93 | 0.79 | 0.0080 |
| Yes | *Megaselia wongae* | 0.95 | 0.13 | 0.36 | 0.0098 |
| Yes | *Metopina* sp1 | 0.87 | 0.50 | 0.66 | 0.0002 |
| Yes | *Paragus haemorrhous* | 0.68 | 0.70 | 0.69 | 0.0469 |
| Yes | *Quateiella quatei* | 0.84 | 0.50 | 0.65 | 0.0033 |
| Yes | *Repleta* sp1 | 0.74 | 0.33 | 0.50 | 0.0183 |
| Yes | *Swammerdamella marginata* | 0.72 | 0.67 | 0.69 | 0.0041 |

C)

| Native | Indicator Species | A | B | IndVal | P |
|---|---|---|---|---|---|
| Yes | *Allograpta obliqua* | 0.88 | 0.19 | 0.40 | 0.0201 |
| Yes | *Anevrina* sp1 | 0.93 | 0.11 | 0.32 | 0.0419 |
| Yes | *Beckerina* sp1 | 0.66 | 0.63 | 0.64 | 0.0363 |
| Yes | *Chonocephalus bentacaisei* | 0.69 | 0.52 | 0.60 | 0.0453 |
| Yes | *Dioprosopa clavata* | 0.79 | 0.89 | 0.84 | 0.0001 |
| Yes | *Drosophila simulans* | 0.86 | 0.30 | 0.50 | 0.0011 |
| Yes | *Gitona americana* | 0.86 | 0.22 | 0.44 | 0.0232 |
| Yes | *Lasioglossum* sp1 | 0.66 | 0.89 | 0.77 | 0.013 |
| Yes | *Megaselia armstrongorum* | 0.87 | 0.56 | 0.69 | 0.0003 |
| Yes | *Megaselia creasoni* | 0.74 | 0.22 | 0.41 | 0.0179 |
| Yes | *Megaselia fujiokai* | 0.78 | 0.37 | 0.54 | 0.0061 |
| Yes | *Megaselia hansonix* | 0.66 | 0.52 | 0.59 | 0.0423 |
| Yes | *Megaselia pisanoi* | 0.97 | 0.19 | 0.43 | 0.0486 |
| Yes | *Megaselia wongae* | 0.95 | 0.15 | 0.38 | 0.0061 |
| Yes | *Megachile* sp1 | 0.69 | 0.30 | 0.45 | 0.0498 |
| Yes | *Metopina* sp1 | 0.86 | 0.52 | 0.67 | 0.0003 |
| Yes | *Paragus haemorrhous* | 0.70 | 0.70 | 0.70 | 0.0296 |

Table S17.

Average distances (±SE) of dispersal from the centroid for each urban type during June through August collections. Included are the urban type and the number of collections within each urban type. Mean distances do not differ among urban types that share a superscript letter.

| Urban Type | Collections | Distance |
|---|---|---|
| 1 | 3 | 24.2±2.0[a] |
| 3 | 21 | 42.1±1.4[c] |
| 4 | 12 | 36.6±1.6[b] |
| 5 | 12 | 43.2±1.8[c] |
| 6 | 6 | 25.9±1.9[a] |
| 8 | 15 | 40.9±2.3[b,c] |
| 9 | 21 | 43.3±2.0[b,c] |

**SI Figure Legends**

Figure S1. Average daily precipitation (mm; black bars), maximum air temperature (C, dark grey line), and minimum air temperature (C, light grey line) per month for the urban center of Los Angeles County collected from the University of Southern California from 1981 – 2010. Data were obtained via the Western Regional Climate Center in association with the National Weather Service.

Figure S2. Locations of the 30 collection sites from across Los Angeles County. Sites are color coded by urban type.

Figure S3. Species accumulation curves for A) Bees, B) Lepidoptera, C) Drosophilidae, D) Phoridae, E) Scatopsidae, F) Syrphidae, and G) Tipulidae based on the 360 collections. The darker line in each graph represents the total number of species collected after each collection. The thinner lines represent the upper and lower 95%CI ($S_{est}$) for the number of species predicted for each group. In total, we collected 25 species of bees, 24 species of Lepidoptera, 22 species of Drosophilidae, 99 species of Phoridae, 7 species of Scatopsidae, 29 species of Syrphidae, and 11 species of Tipulidae.

Figure S4. Insect species richness/trap day over daily maximum air temperature values measured at all sites during August.

Figure S5**.** Insect species richness/trap day over daily maximum percent relative humidity (A) and daily minimum percent relative humidity (B) values measured at all sites during June.

Figure S6. NMDS ordinations of species composition during September through February (stress =0.15). Axes were chosen for each plot to best visualize differences among urban types (A), and presence or absence of drought-tolerant plants (B), native plants (C), or compost (D). Each point represents an individual collections. A legend is provided in the top right of each plot. Ellipses indicate the standard error measurements around the centroid of each fixed effect group in an ordination. Vectors indicate significant correlations between species composition and a measured environmental variable. The length of each vector is proportional to the strength of the correlation.

Figure S7. NMDS ordinations of species composition during June through August (stress =0.13). Axes were chosen for each plot to best visualize differences among urban types (A), the presence of drought-tolerant plants (B), and the presence of native plants (C). Each point represents an individual collections. A legend is provided in the top right of each plot. Ellipses indicate the standard error measurements around the centroid of each fixed effect group in an ordination.

Figure S8. NMDS ordinations of species composition during March through May (stress =0.13). Axes were chosen for each plot to best visualize differences among urban types (A), the presence of drought-tolerant plants (B), and the presence of compost (C). Each point represents an individual collections. A legend is provided in the top right of each plot. Ellipses indicate the standard error measurements around the centroid of each fixed effect group in an ordination.

**SI Figures**

Figure S1.

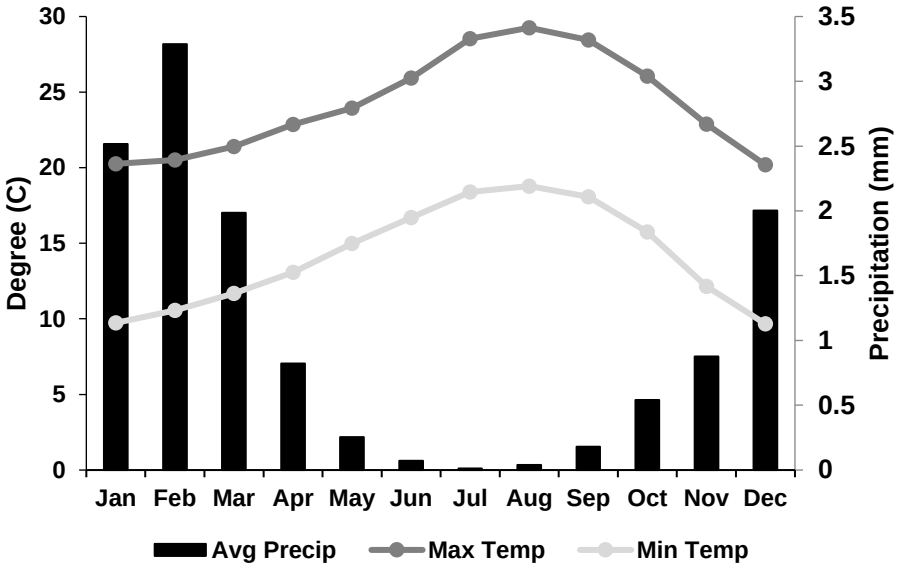


Figure S2.

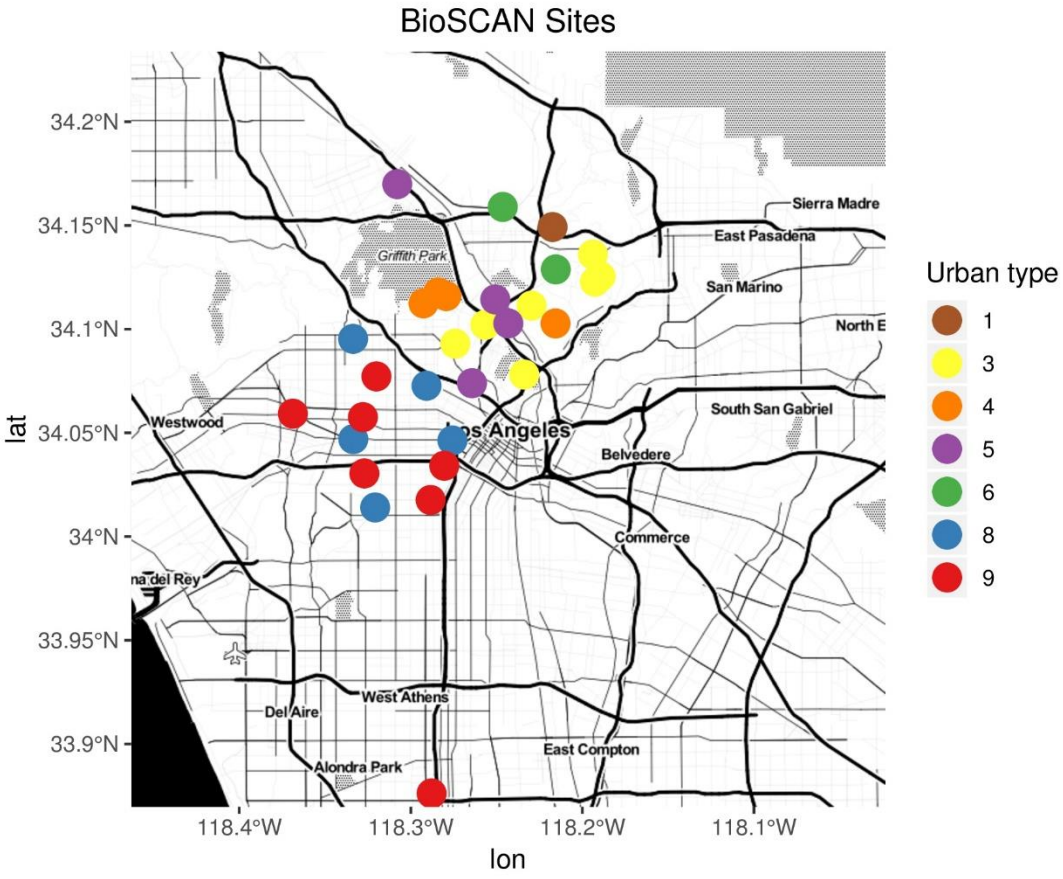
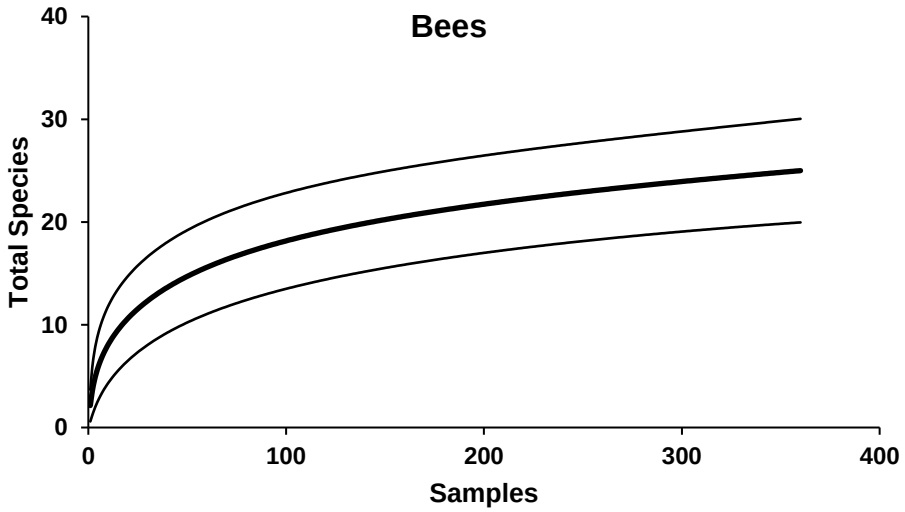
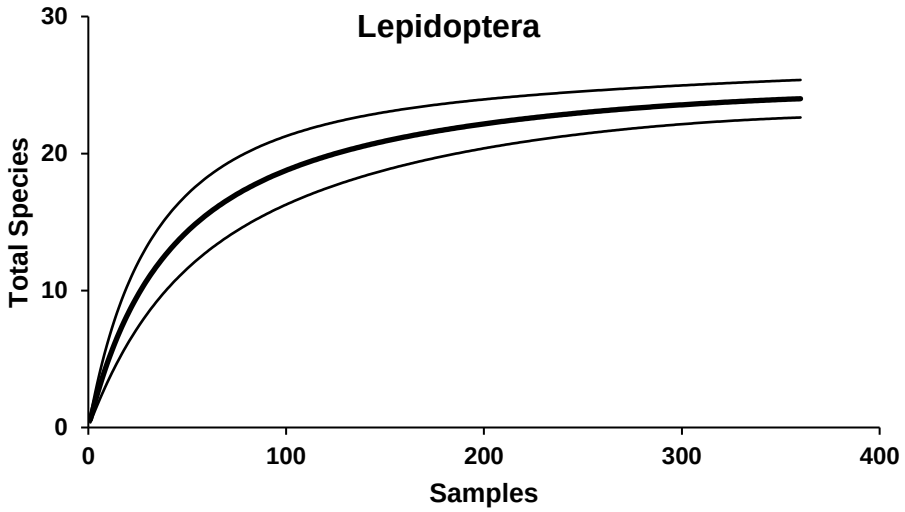

BioSCAN Sites
34.2°N
34.15°N
34.1°N
34.05°N
34°N
33.95°N
33.9°N
lat
118.4°W
118.3°W
118.2°W
118.1°W
lon
Griffith Park
Sierra Madre
East Pasadena
San Marino
North E
South San Gabriel
Belvedere
Commerce
Westwood
Del Aire
West Athens
East Compton
Alondra Park
Urban type
1
3
4
5
6
8
9

Figure S3.

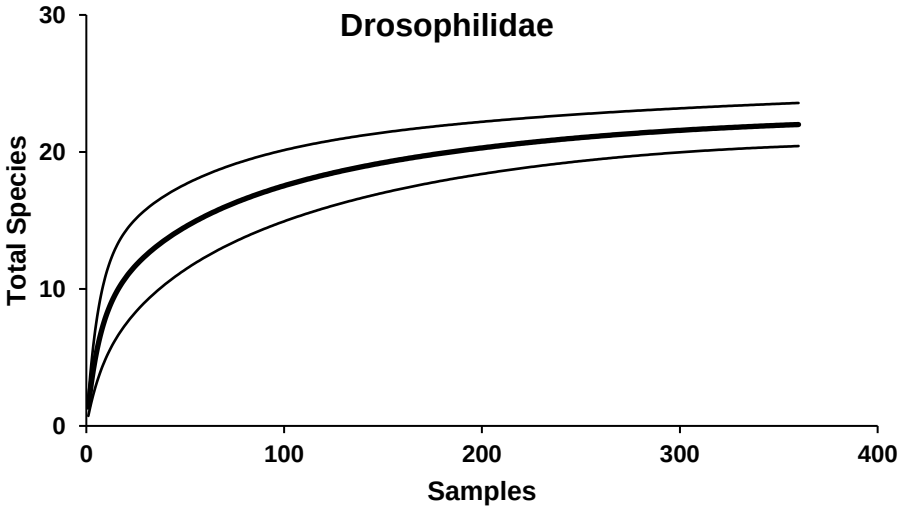
A)


Bees
Total Species
Samples
0
10
20
30
40
0
100
200
300
400

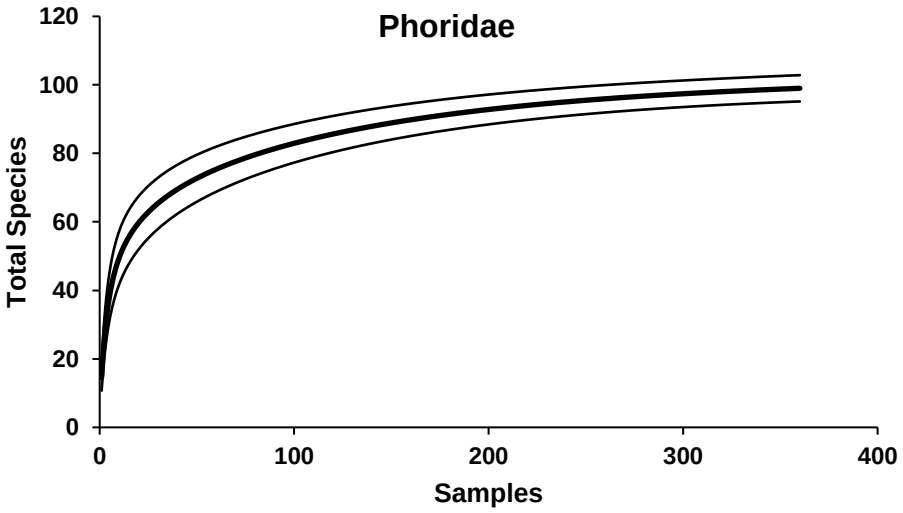
B)


Lepidoptera
Total Species
Samples
0
10
20
30
0
100
200
300
400

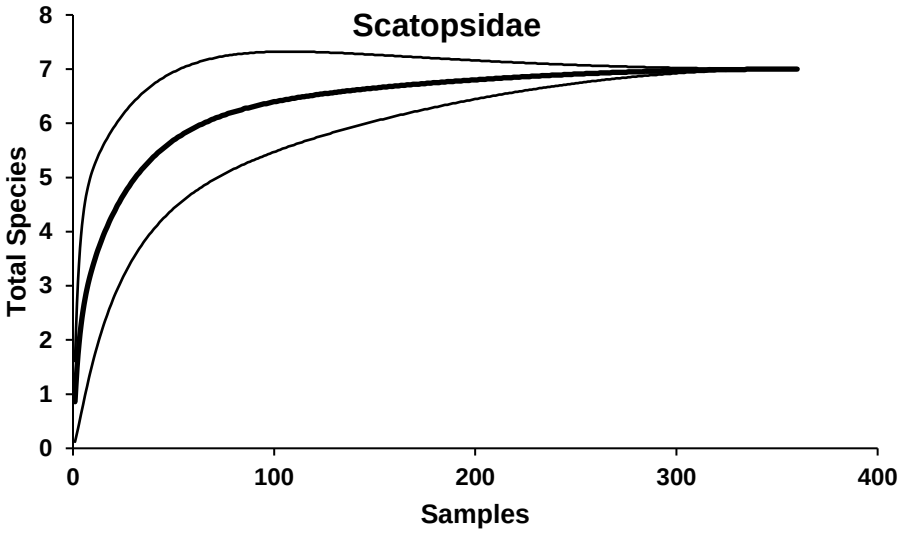
C)


Drosophilidae
Total Species
30
20
10
0
0
100
200
300
400
Samples

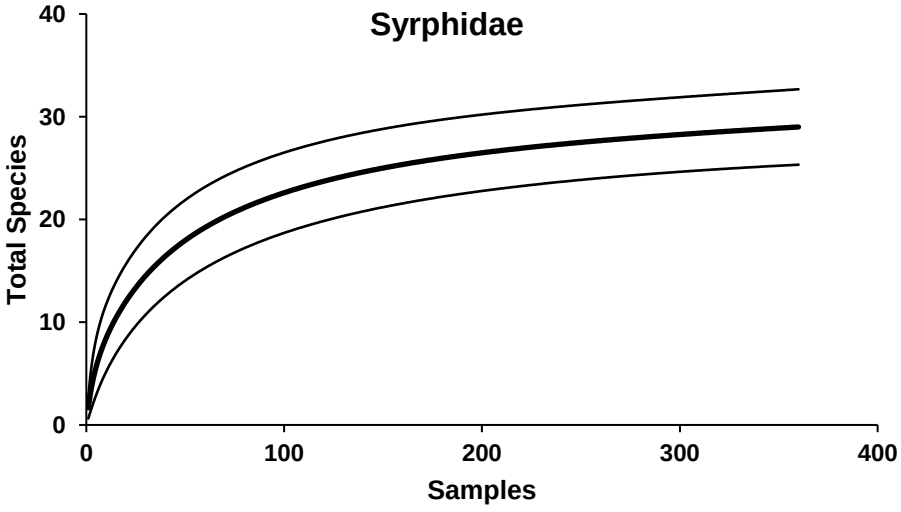
D)


Phoridae
Total Species
120
100
80
60
40
20
0
0
100
200
300
400
Samples

E)


Scatopsidae
Total Species
Samples
0
1
2
3
4
5
6
7
8
0
100
200
300
400

F)


Syrphidae
Total Species
Samples
0
10
20
30
40
0
100
200
300
400

G)

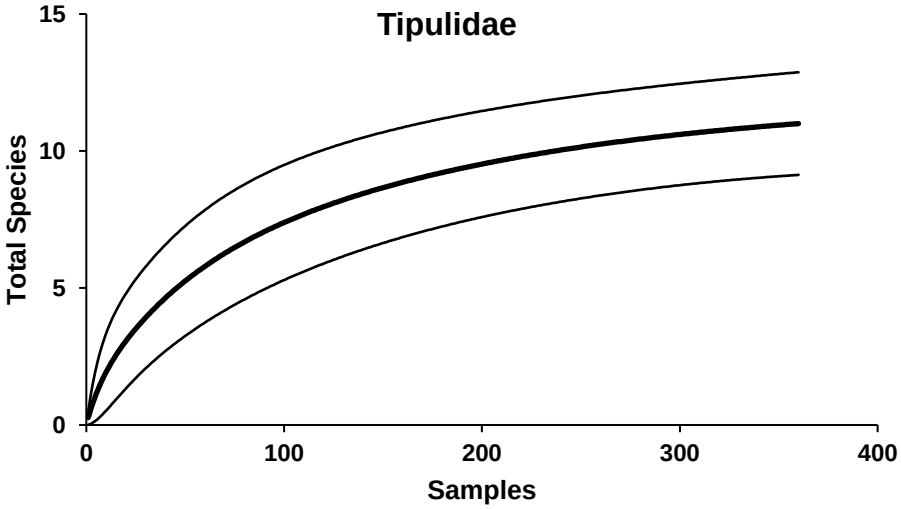


Figure S4.

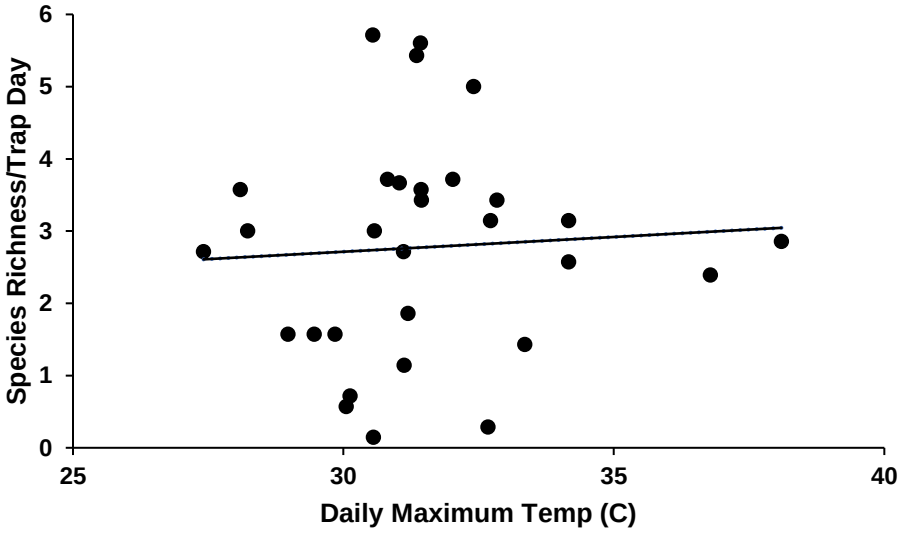
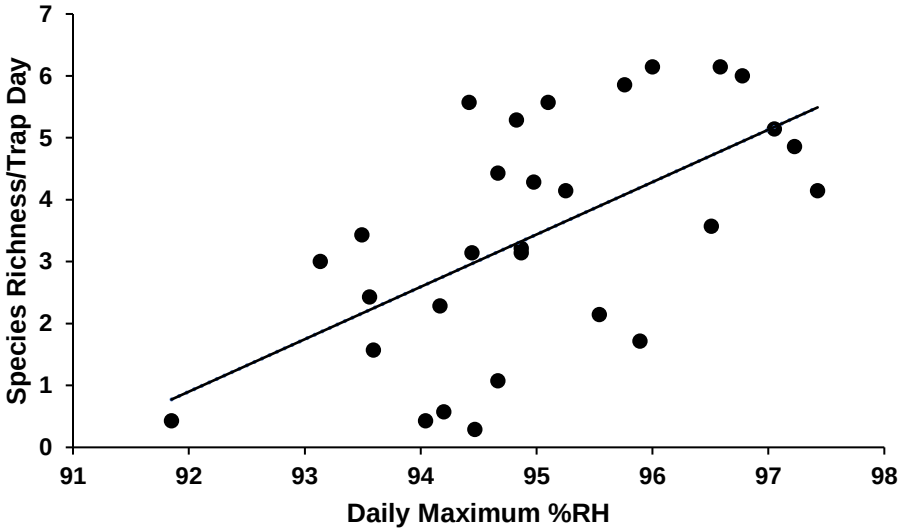

Species Richness/Trap Day
0
1
2
3
4
5
6
25
30
35
40
Daily Maximum Temp (C)

Figure S5.

A)


Species Richness/Trap Day
Daily Maximum %RH
0
1
2
3
4
5
6
7
91
92
93
94
95
96
97
98

B)

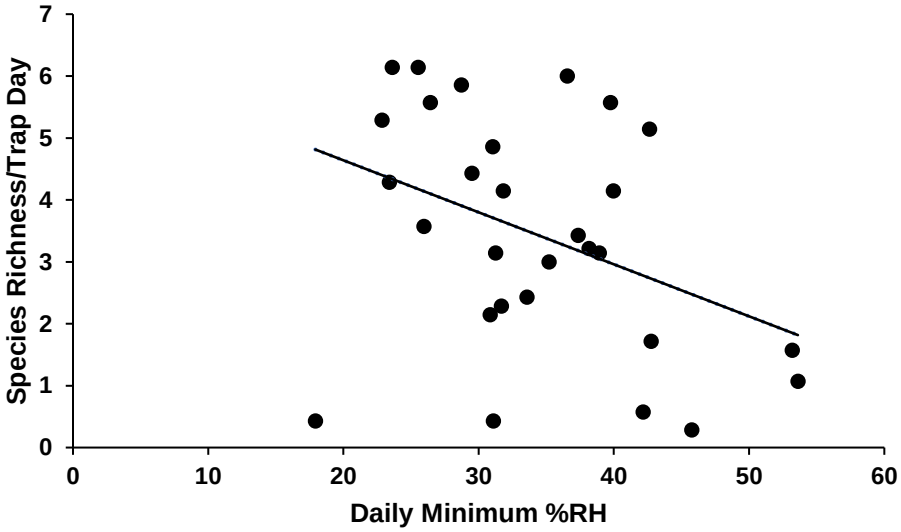
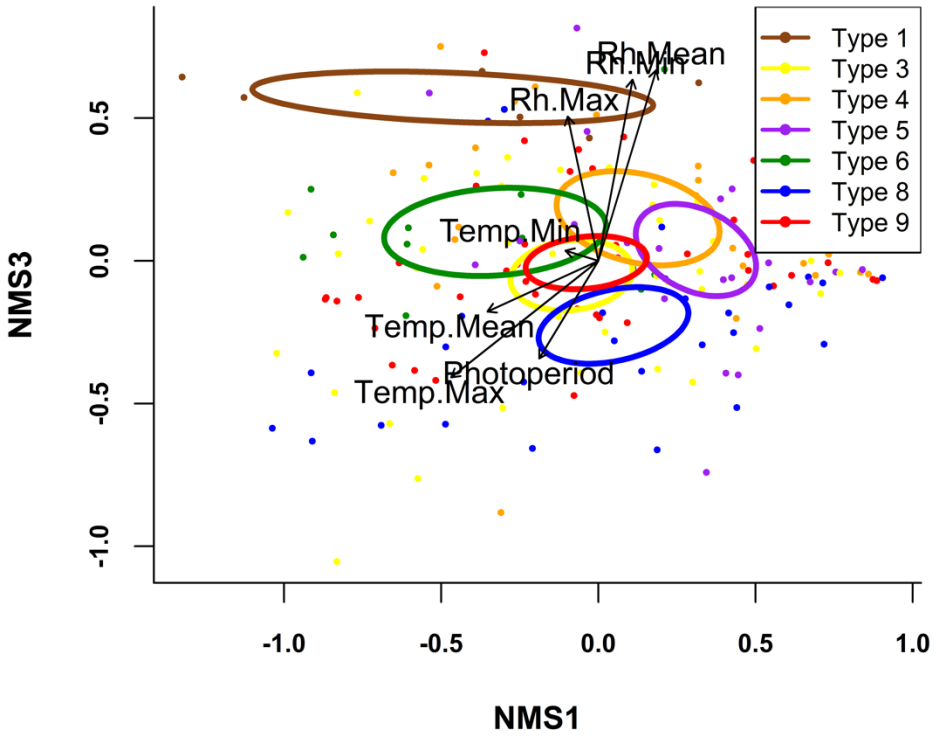
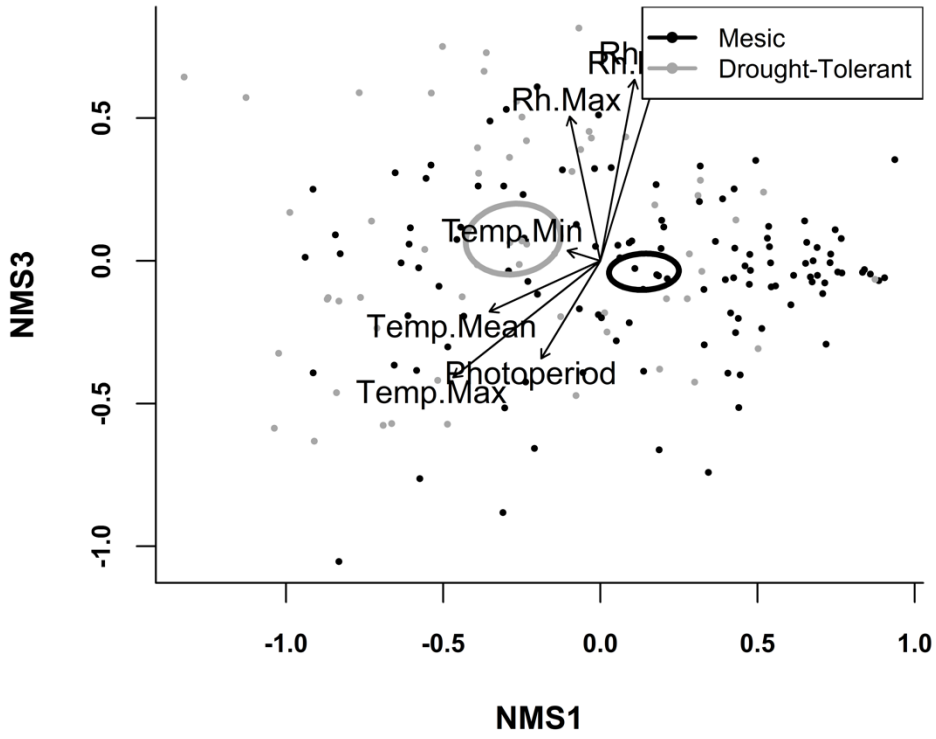

Species Richness/Trap Day
Daily Minimum %RH
0
1
2
3
4
5
6
7
0
10
20
30
40
50
60

Figure S6.

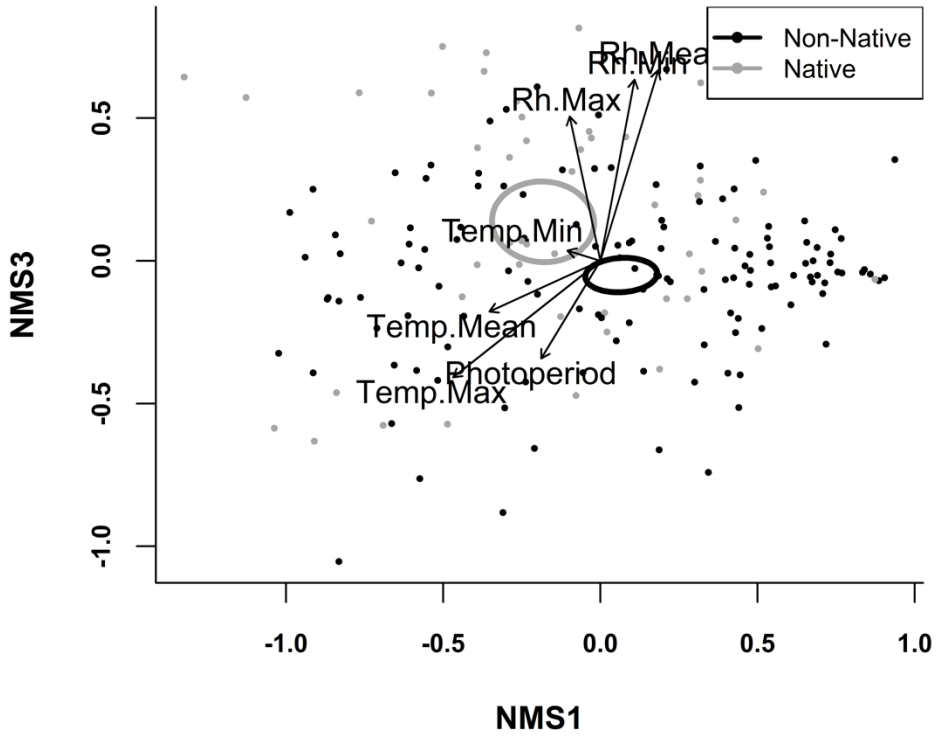
A)


Type 1
Type 3
Type 4
Type 5
Type 6
Type 8
Type 9
Rh.Mean
Rh.Min
Rh.Max
Temp.Min
Temp.Mean
Photoperiod
Temp.Max
NMS3
NMS1
-1.0
-0.5
0.0
0.5
1.0

B)


Mesic
Drought-Tolerant
Rh.Max
Temp.Min
Temp.Mean
Photoperiod
Temp.Max
NMS3
NMS1
-1.0
-0.5
0.0
0.5
1.0

C)


Non-Native
Native
Rh.Max
Temp.Min
Temp.Mean
Photoperiod
Temp.Max
NMS3
NMS1
-1.0
-0.5
0.0
0.5
1.0

D)

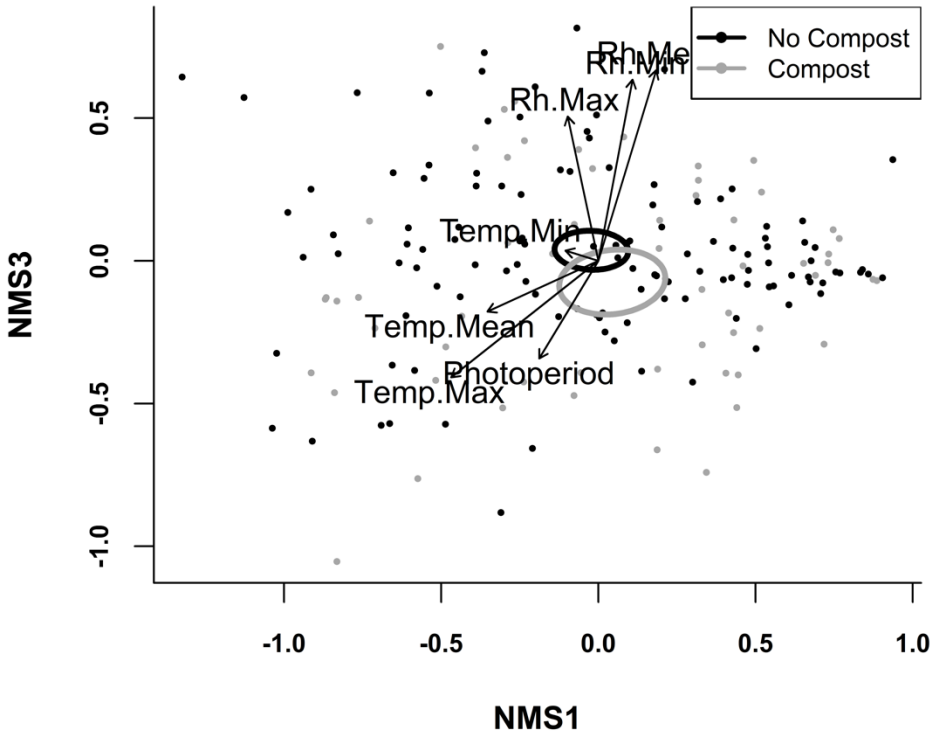
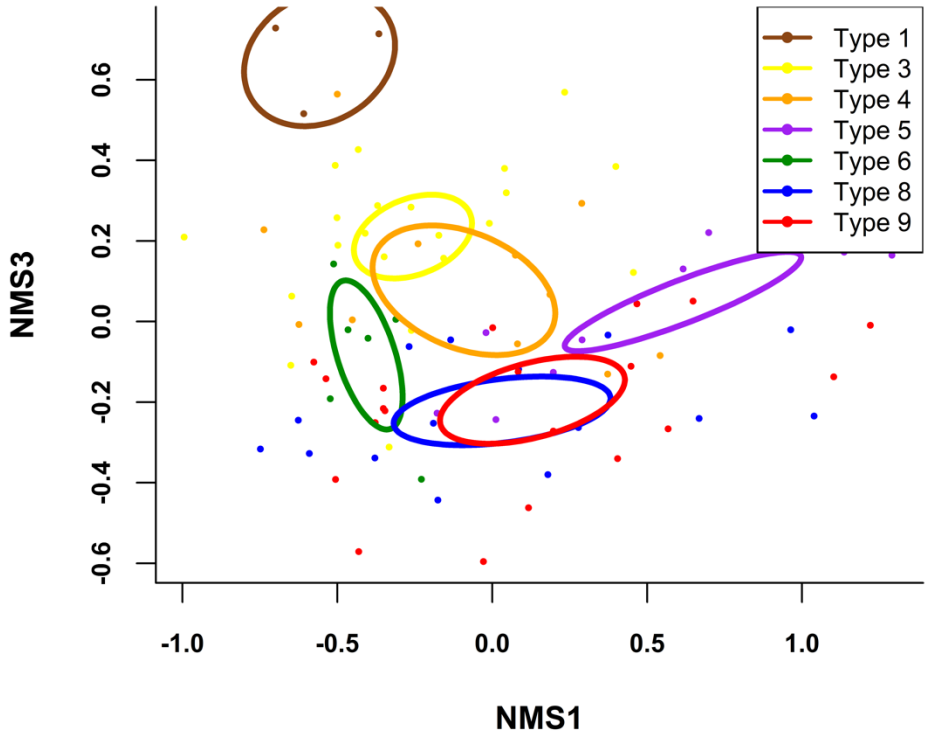
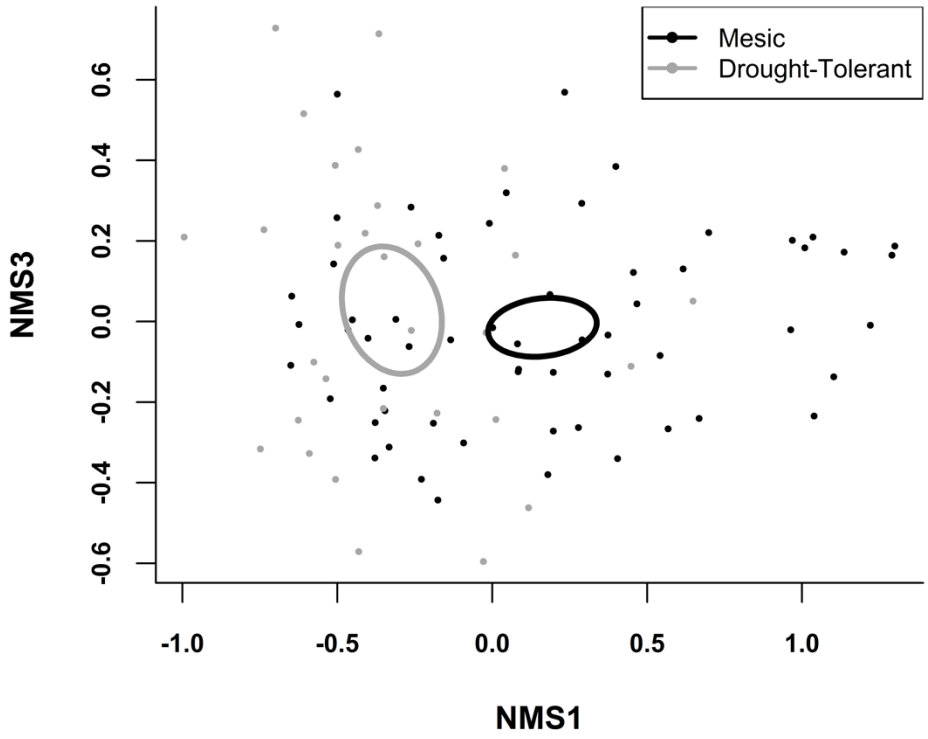

No Compost
Compost
Rh.Max
Temp.Min
Temp.Mean
Photoperiod
Temp.Max
NMS1
NMS3
-1.0
-0.5
0.0
0.5
1.0

Figure S7.

A)


Type 1
Type 3
Type 4
Type 5
Type 6
Type 8
Type 9
NMS3
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-1.0
-0.5
0.0
0.5
1.0
NMS1

**B)**


Mesic
Drought-Tolerant
NMS3
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-1.0
-0.5
0.0
0.5
1.0
NMS1

**C)**

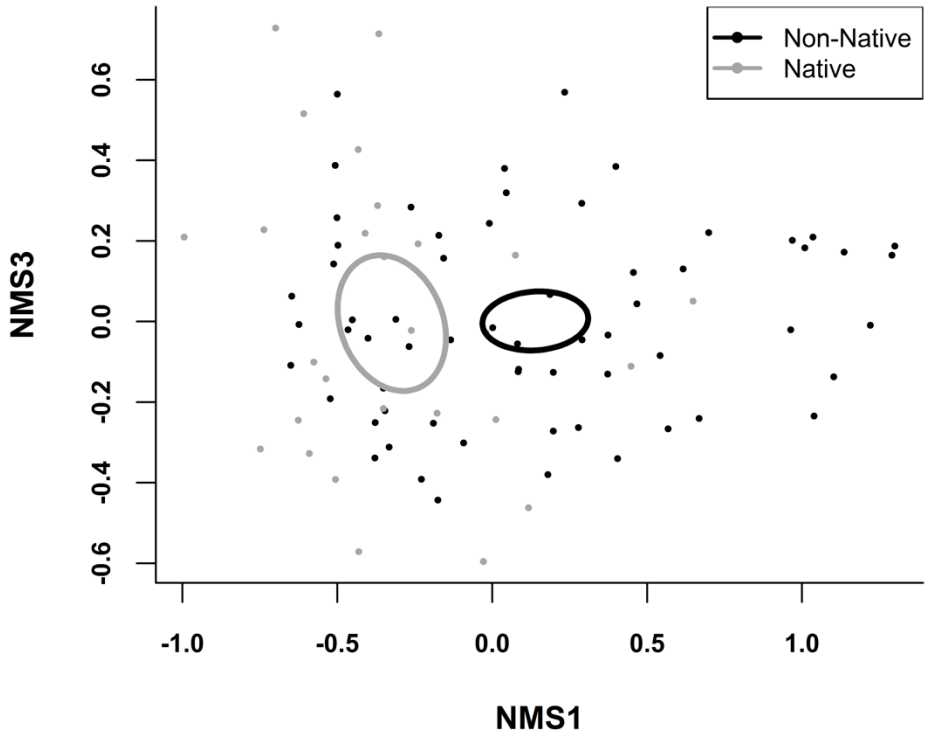
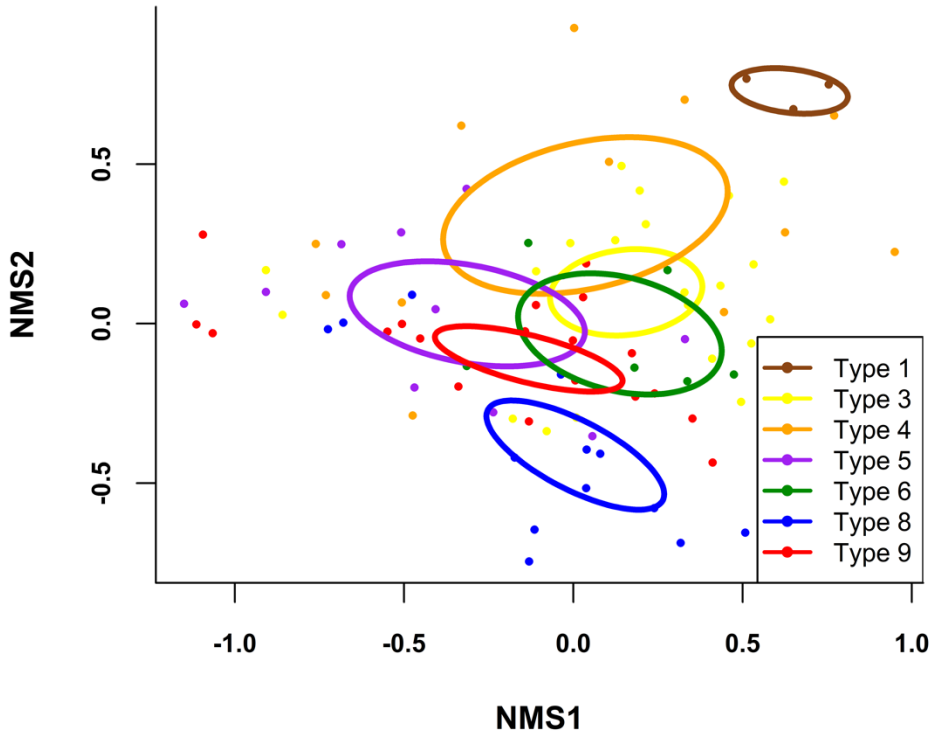
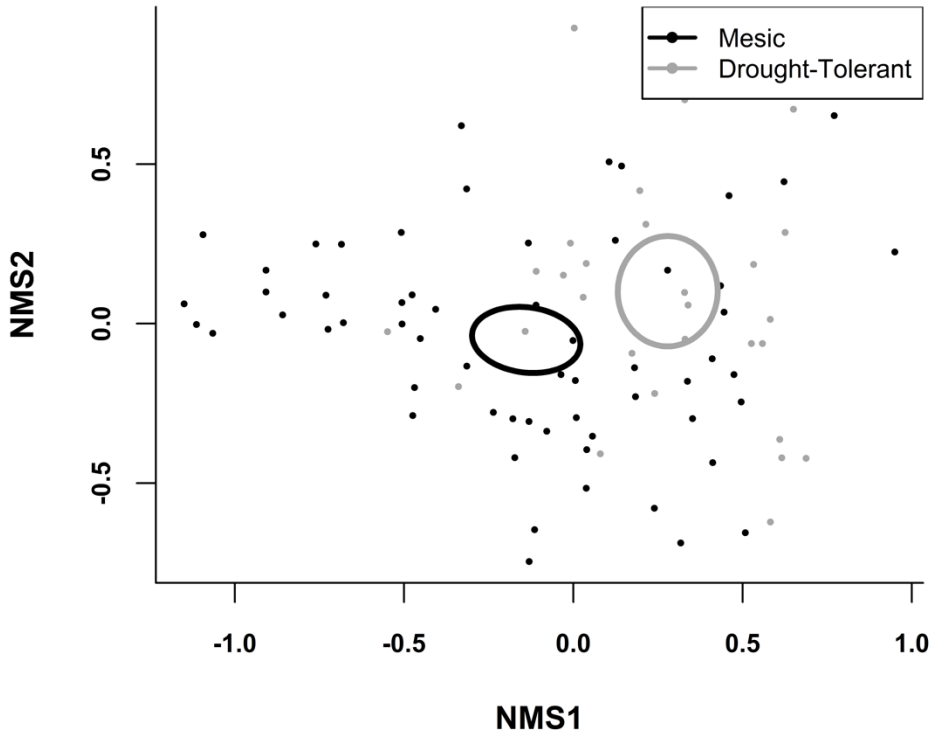

Non-Native
Native
NMS3
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-1.0
-0.5
0.0
0.5
1.0
NMS1

Figure S8.

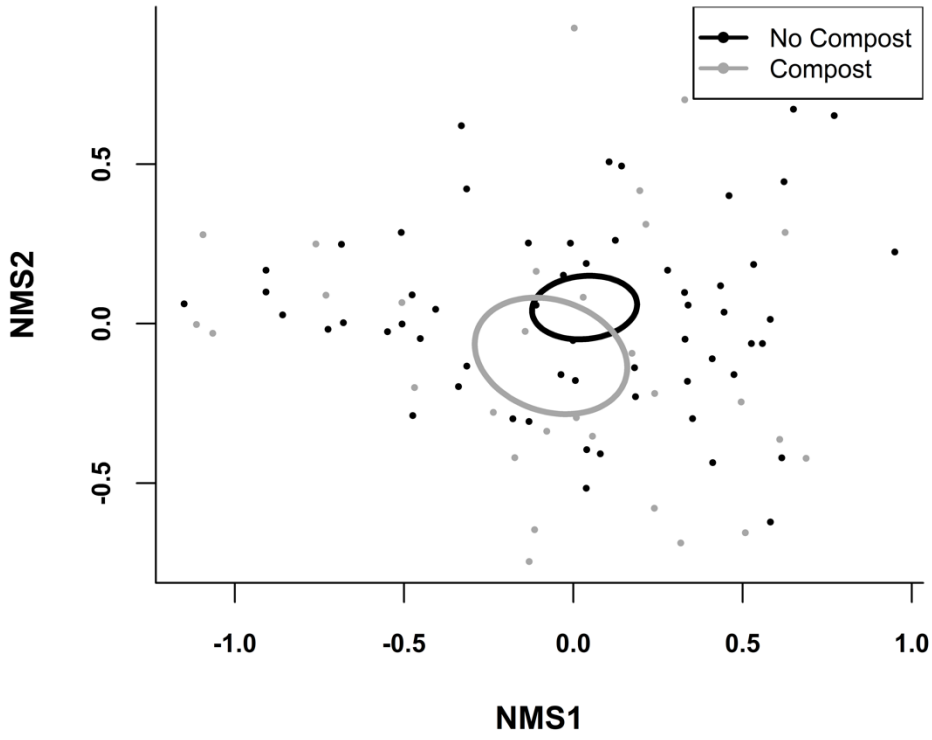
A)


NMS2
0.5
0.0
-0.5
-1.0
-0.5
0.0
0.5
1.0
NMS1
Type 1
Type 3
Type 4
Type 5
Type 6
Type 8
Type 9

B)


Mesic
Drought-Tolerant
NMS2
0.5
0.0
-0.5
-1.0
-0.5
0.0
0.5
1.0
NMS1

C)


No Compost
Compost
NMS2
0.5
0.0
-0.5
-1.0
-0.5
0.0
0.5
1.0
NMS1

**Literature Citations**

de Cáceres, M. D., and P. Legendre. 2009. Associations between species and groups of sites: indices and statistical inference. Ecology 90:3566-3574.

Dufrêne, M., and P. Legendre. 1997. Species assemblages and indicator species: the need for a flexible asymmetrical approach. Ecological Monographs 67:345-366.