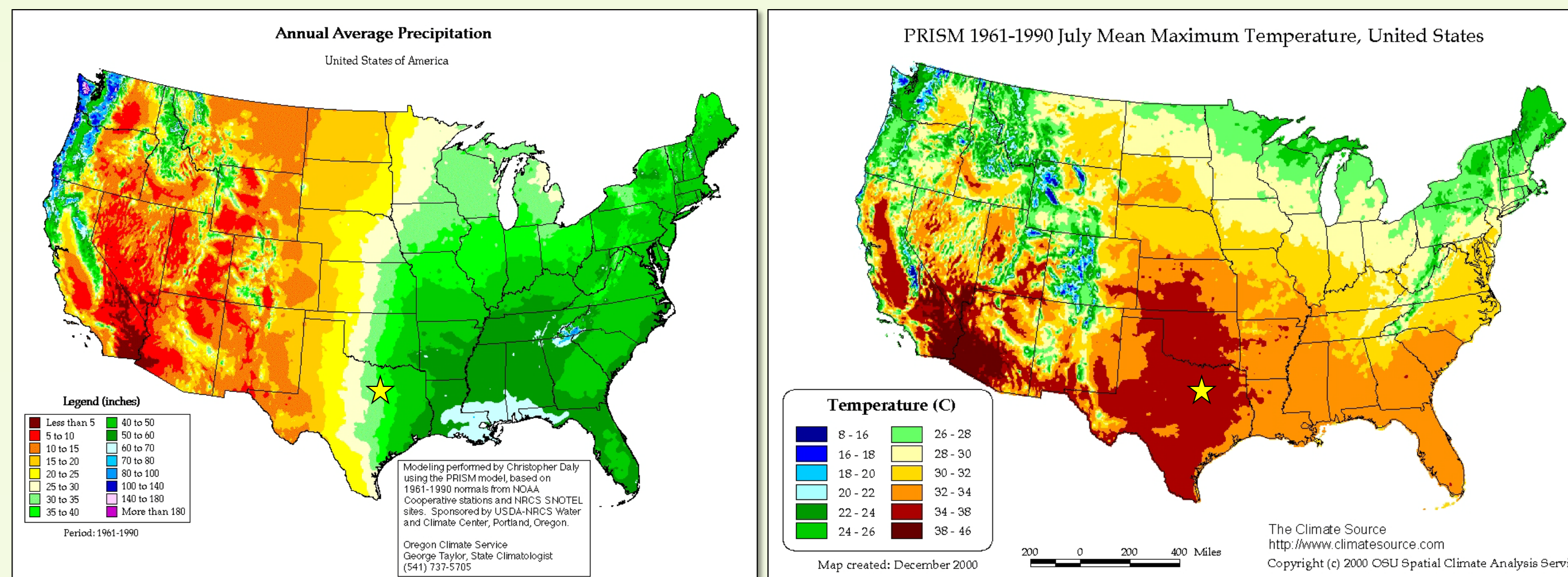


Background



Although parts of Texas may receive the same annual precipitation as cities like Chicago and Seattle (where green roofs are popular), the high summer temperatures in Texas make typical green roof designs a challenge to maintain.



This roof was designed to mimic a local prairie characterized by thin calcareous soils over limestone bedrock. Plants adapted to this habitat were selected for the roof and at the time of study had been in place on the roof for two years.

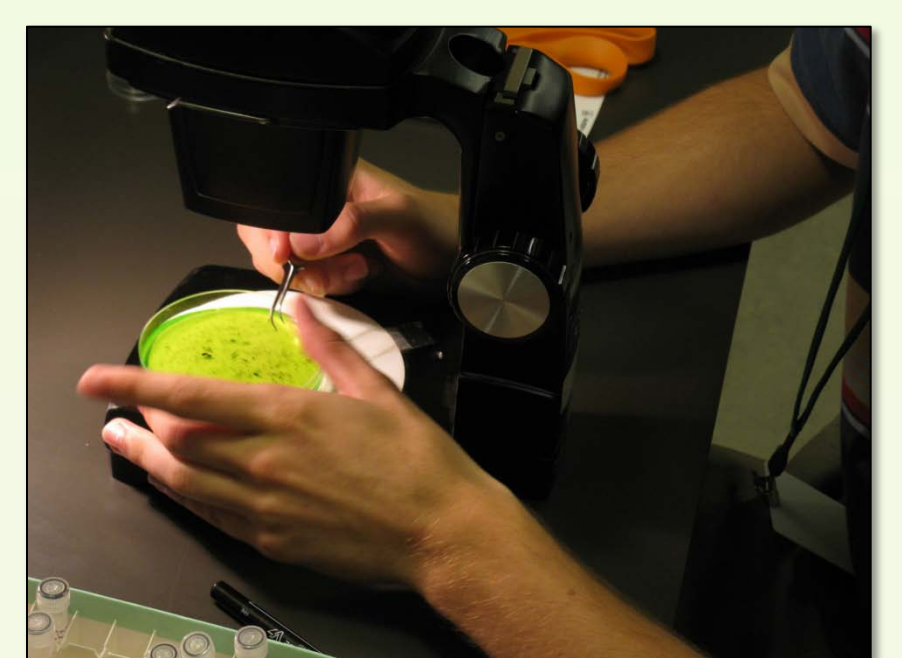
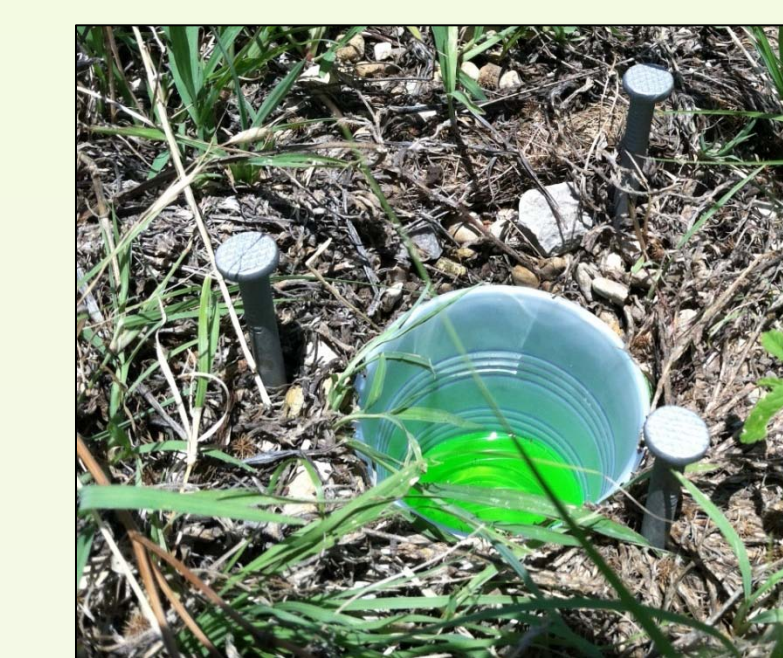
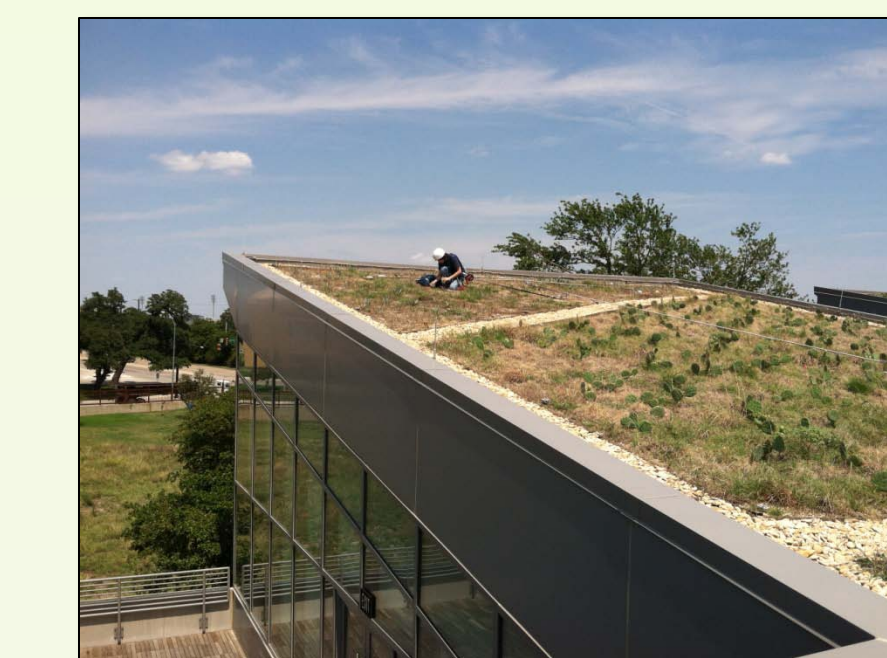
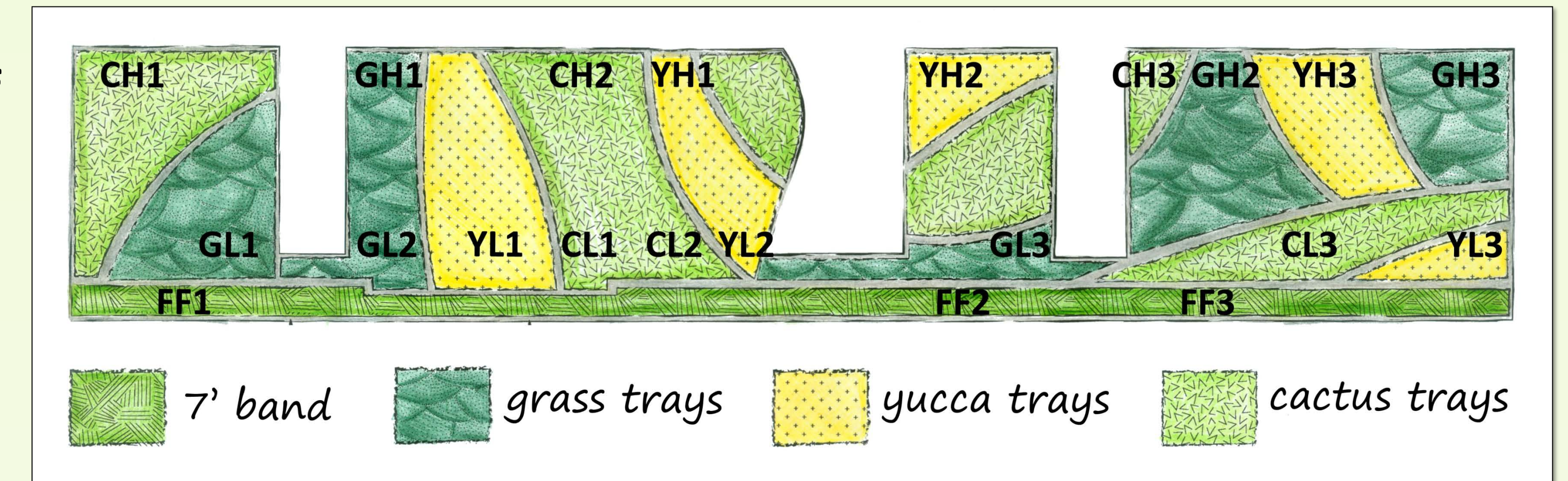


Four main **sources of arthropod introduction** to the roof:
 (1) prairie topsoil that was incorporated into the roof media,
 (2) ground-level sources while roof units were prepared pre-installation,
 (3) nursery soil from transplants, and
 (4) post-installation immigration.

Methods

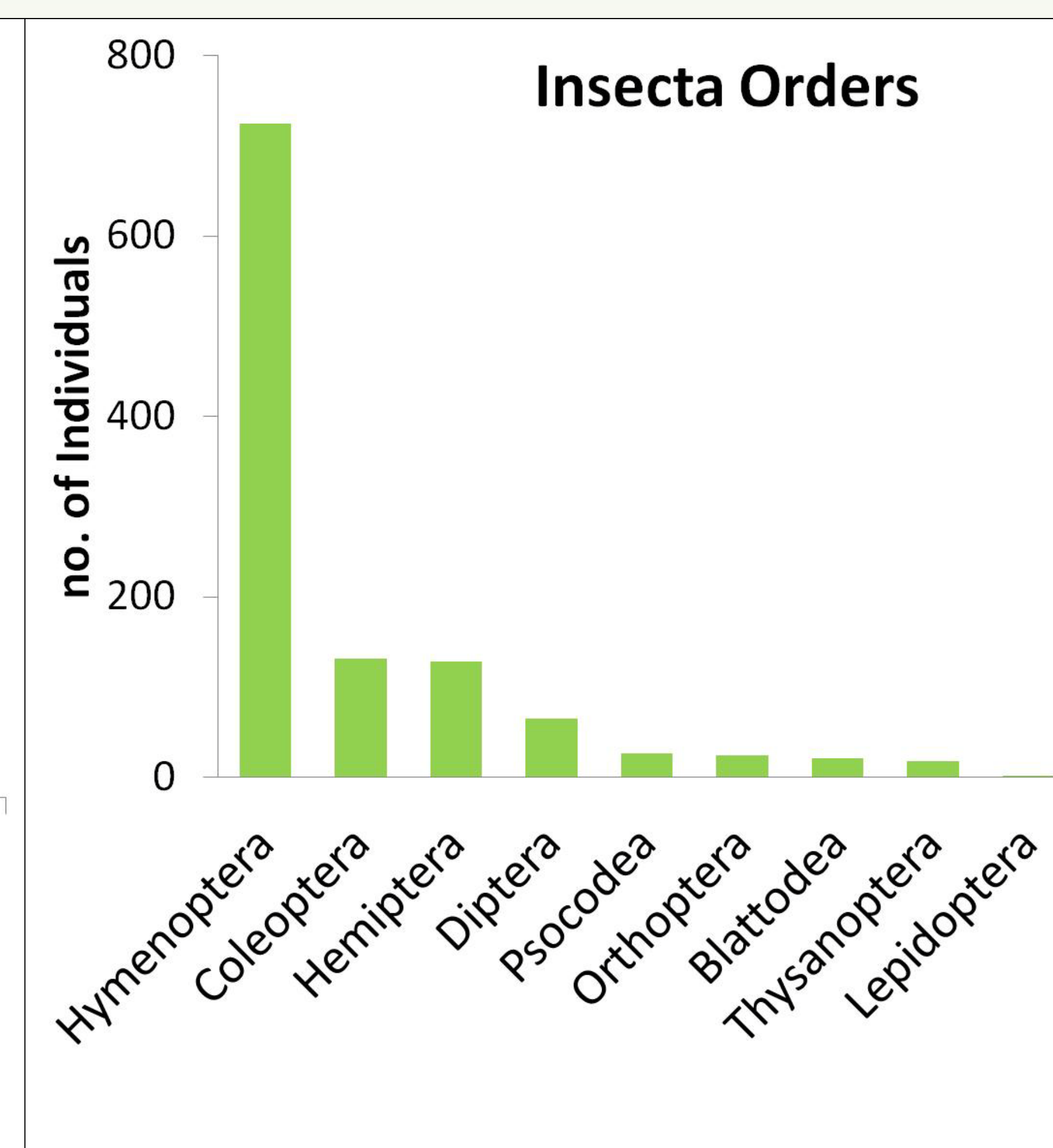
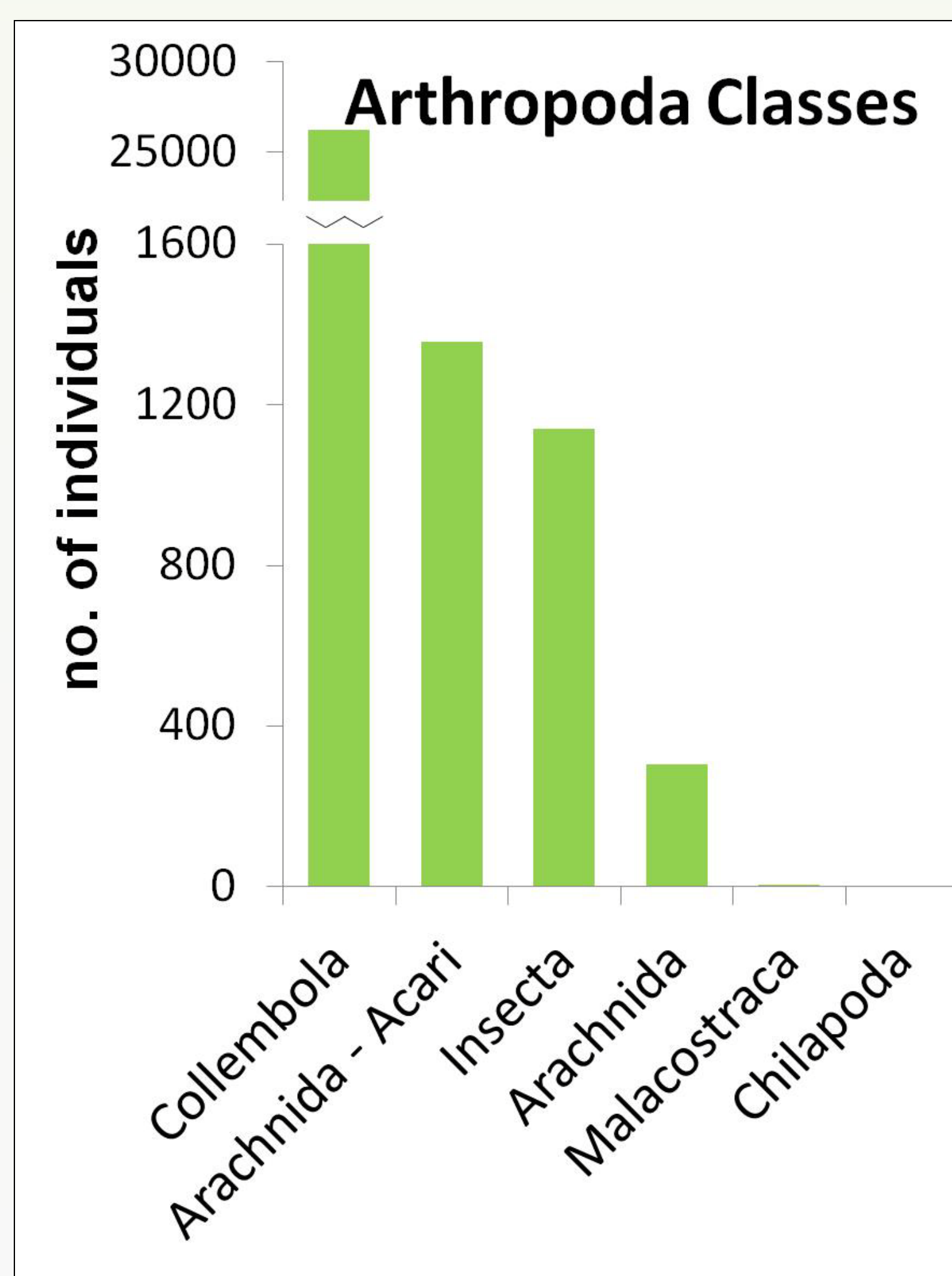
We conducted a roof arthropod inventory to determine the relative success of such a manufactured landscape in terms of its overall health and viability as an ecosystem.

- 21 pitfall traps, minimum of 3 m apart
 - 4 vegetation zones (cactus, grass, yucca, and the front band)
 - 3 slope positions (high, low, and toe slope)
 - 22 weeks of sampling (Jul-Nov 2012)
- Additional sweep netting and soil samples taken
- Sort and identify contents to lowest possible taxon (at minimum, to Order)
- Data analysis: counts, summary statistics, zone and slope comparisons



Results

Common roof arthropods:



Preliminary Findings

It is too early to determine any effect of vegetation zone or slope position, but the clear **abundance of Collembolans and Acarids (mites)** is indicative of early succession soils. The development of healthy populations of carnivorous **spiders** and omnivorous **beetles** should keep pests species in check and remove decaying plant matter. **Ants** on the roof should improve soil aeration and provide a source of food themselves. And larger arthropods (**Orthopterans, Dipterans, Lepidopterans**) are attracting **bird** species whose droppings add nutrients back to the system. Thus far the roof boasts **high arthropod richness (> 100 morphotypes)** but **low diversity** as the majority of individuals are Collembolans, Acarids, or fireants.