Urban spaces have been considered wildlife deserts, but recent studies have suggested that urban areas can serve as wildlife habitat if suitable spaces are designed and included in cities. Urban gardens may be particularly valuable for pollinators, which are often capable of flying long distances among food patches and can have relatively small space requirements. We investigated whether urban native plant gardens and parks can help support populations of native butterflies. Specifically we used clay models of large and small caterpillar to assess caterpillar survival rates in 20 sites in Jefferson County, Kentucky. Our sites included park meadows and public and private gardens that varied in age, area, and the amount of impervious surface surrounding them, which is a measure of ‘urbanness.’ We identified predator taxa (arthropods, birds, mammals) by marks they left in the clay caterpillars. After one week, on average 78.1% of large caterpillars and 63.1% of small caterpillars had been attacked. Large caterpillars were significantly more likely to be ‘predated’ primarily because they experienced higher predation by arthropods. Interestingly, garden area, garden age, and impervious surface around sites did not affect caterpillar survival, and the predation rates we observed were similar to those from studies in natural areas. These results suggest that even small, relatively new urban gardens have the potential to serve as effective pollinator habitat. As plantable residential lands often comprise a large proportion of urbanized spaces (30% in Jefferson County), encouragement of native plant gardens coule have a large positive impact on pollinator populations.