

Diversity of Urban Spontaneous Vegetation on Roadsides in Chaing Mai, Thailand

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ABSTRACT

Green spaces with trees are crucial in urban environments because they increase biodiversity, improve air quality, and lower temperature in dense urban areas. However, urban development often results in fragmented patches and narrow pavements that are unsuitable for tree growth. Consequently, there is a pressing need for alternative vegetation in urban landscapes to sustain biodiversity in areas where tree planting is impractical. Urban spontaneous vegetation (USV) refers to plants that establish naturally without cultivation. It holds promise for urban landscaping due to its low maintenance and potential to provide ecosystem services. The objectives of this study are to determine the plant species richness and abundance of USV in eight locations within Chiang Mai city and adjacent districts. At each location, a 1×1 m sample quadrat was placed every 20 meters on both sides of the main roads. All non-tree vascular plant species were recorded and identified. The survey covered 2,927 quadrats along 26 sidewalk routes, spanning a total length of 58 km. USV predominantly thrived in pavement gaps, curbside cracks and cracked pavement along urban roads. A total of 63 USV plant species from 24 families were identified. The Poaceae family had the highest diversity with 15 species, followed by the Asteraceae family with 8 species. Among the 63 species recorded, 32 species (53%) were identified as non-native. The built urban environment serves as a reservoir for non-native plant species. Three species—*Euphorbia thymifolia* L., *Phyllanthus amarus* Schumach. & Thonn., and *Oldenlandia corymbosa* L.—were found in all surveyed locations, indicating their adaptability to diverse and challenging urban conditions. This study represents the first survey of USV composition along roadsides in Chiang Mai, Thailand, highlighting the diversity and potential role of USV in urban landscapes. Nevertheless, further research is necessary to fully grasp the implications of these spontaneous vegetation species in urban areas.

Keyword: Species richness/ Urban spontaneous plants/ Urban plant survey/ Urban landscape