

## PROLIFERATION OF LIFE IN LIFELESS CREVICES

Urban soils are increasingly covered by physical infrastructure like houses, schools, hospitals, and roads due to human population growth in urban areas. As cities grow, about 17 hectares of soil are covered every minute. With 70% of the world's population estimated to live in the cities by 2050, vegetation and microorganisms which play a crucial role in supporting life on earth will be threatened. The threat could be heightened with increasing temperatures since average global temperatures are estimated to increase by 1.5 °C by 2050. Despite the threats, there are resilient plants that can survive and thrive in tight spaces like cracks and crevices with little soil. This research focuses on identifying plant species that live in cracks and crevices along roadsides in urban areas and understanding the anthropogenic soils they live in. To understand these crevice microenvironments, the physical, chemical, and biological properties of the crevice soils will be investigated and compared to natural roadside soils. The role of these crevice plants and soils in carbon sequestration and roadside heavy metals pollution remediation will also be investigated. Some common plant species we have identified to thrive in crevice soils include *Lactuca serriola* (Prickly lettuce), *Lepidium virginicum* (Virginia pepperweed), *Erigeron Canadensis* (Canadian horseweed), *Plantago lanceolata* (Ribwort plantain) and *Sorghum halepense* (Johnsongrass). Interestingly, preliminary results generally show that crevice soils have a higher temperature, microbial biomass, enzyme activity, soil organic carbon, and total nitrogen than natural roadside soils. The crevice microenvironment could help support and prevent certain species of plants and microorganisms from extinction. Exploring their role in promoting ecological resilience, supporting urban biodiversity, and informing environmental management and sustainable urban design is vital. Studying crevice microenvironment could inspire innovative strategies for tackling climate resilience, soil degradation, and biodiversity loss, providing valuable insights for urban planners, ecologists, and policymakers.