



PARENT SESSION

Tuesday, August 8, 8:00-11:30 am**COS 25 - Urban ecology I****Chickasaw, Mezzanine Level, Cook Convention Center**

Presiders: S Faeth

The ecology of mowing and mulching: communities and ecosystem processes in urban habitats.Byrne, Loren^{*1}, Bruns, Mary Ann¹, Kim, K.C.¹, ¹ Penn State University, University Park, PA

ABSTRACT- The ecology of common urban habitats has rarely been studied. However, information about them is needed to guide conservation of urban biodiversity and ecosystem services. We will present results from a field experiment that examined the biodiversity and carbon and nitrogen dynamics of lawns, unmowed vegetation and bark and gravel mulch habitats. We hypothesized that variables would differ among the habitats due to differences in management inputs (mowing or mulching). Results support this hypothesis. Earthworms were up to four times more abundant under bark mulch than other habitats. Arthropod abundances in each habitat differed by season and taxa. The quantity, quality and cycling rates of organic matter also differed among the habitats. For example, lawns had high aboveground net primary productivity but retained little standing crop due to mowing and rapid decomposition of clippings. In contrast, unmowed habitats retained large amounts of C as litter. On average, the production of mineral nitrogen (mineralization) was high in lawns, negative in bark mulch and intermediate in unmowed and gravel habitats. In field measurements, nitrous oxide was produced in high amounts from gravel but not the other habitats. Together, these results show that urban habitats have significantly different, and unique, ecological characteristics that create fine-scale spatial heterogeneity in urban landscapes. Future work is needed to elucidate the mechanisms behind our observed patterns. In addition, we encourage the use of lawn and garden habitats as focal points for environmental education programs in urbanized environments about backyard ecology.

Key words: urban habitats, urban ecology, habitat structure