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Abstract. Although composed mostly of sand, observations of new urban residential communities in Florida suggested relatively wide ranges in clay content and importation of offsite soils. Often these communities are constructed around surface water where heavy summer rains and intense landscape maintenance present concerns for surface water contamination. Due to land sculpturing, soil compaction and importation; onsite soil physical properties may differ from soil maps developed decades before. How much change and what changes occurred has seldom been quantified. This study examined soil characteristic data from diverse, newly constructed urban soils and examined relationships with soil infiltration rates. Samples were collected from 40 lots in nine newly established urban residential communities within Central Florida to quantify textural composition, bulk density (D_b), moisture retention, and pore size distribution. Most lots (90%) contained sandy soil dominated by micropores (58% total mean pore space). Variability of D_b was low with most communities exhibiting high soil compaction (>1.7 g cm^{-3}), which may indicate potential plant root penetration concerns. Mean soil infiltration rates among communities were high (11 to 64 cm hr^{-1}), with large variations (2.0 to 111.1 cm hr^{-1}). Correlations between soil moisture retention volumes, D_b, and infiltration rate did not occur. However, soil texture was a significant predictor of infiltration rate. Relationships between infiltration rates and soil characteristics were poor (r^2 = 0.43) and suggest direct measurement of infiltration rate may be necessary. High infiltration rates, despite compaction, indicate reduced potential for surface water contamination if a sufficient natural fetch separates landscapes from water bodies.
Key Words. Bulk Density; Compaction; Florida; Residential; Sandy Soil; Soil Moisture; Storm Water; Urban Soil.

Abstract. Evapotranspirational cooling from urban trees is an effective way of reducing the urban heat island. However, the appropriate planting design to maximize the cooling benefit of street trees has not been widely examined. The current study investigated the growth and physiology of a commonly planted urban tree, *Pyrus calleryana*, in Manchester, UK. Trees were planted in April 2010 using three standard planting techniques: in a small open pit, and in small or large closed pits with non-compacted load-bearing soils and sealed with permeable paving slabs. The growth rate, leaf area index, and stomatal conductance were monitored over the next three growing seasons, together with chlorophyll analysis and fluorescence and leaf water potential, allowing researchers to determine tree health, water status, and evapotranspirational cooling. Trees in the open pits grew twice as fast as those in small covered pits and 1.5 times as fast as trees in large covered pits. Having significantly higher canopy density, canopy spread, and stomatal conductivity, the trees in the open pits provided up to 1 kW of cooling, compared to around 350 and 650 W by the small and large covered pits, respectively. Phenological observations, chlorophyll fluorescence, total chlorophyll, and foliar nutrient content confirmed that the trees in open pits were healthier. However, the leaf water potential of trees in the covered pits was less negative, showing that they were not suffering from water stress. Instead, limited aeration probably affected their root respiration and nutrient uptake, impairing their growth and physiological performance.
Key Words. Evapotranspiration; Manchester; Planting Design; Planting Pit; *Pyrus calleryana*; Root Aeration; Soil; United Kingdom; Urban Heat Island.

Abstract. Urban forests are a critical element in sustainable urban areas because of the many environmental, economic, and social benefits that city trees provide. In order to increase canopy cover in urban areas, residential homeowners, who collectively own the majority of the land in most cities, need to engage in planting and retaining trees on their properties. This collaborative research project surveyed homeowners in Seattle, Washington, U.S., to examine their behaviors and attitudes toward the trees on their property. Attitudes toward trees were mapped to examine geographic distribution, as Seattle has a legacy of neighborhood-based planning. Results show that homeowners planted trees during non-optimal times of the year, preferred trees that are small at maturity over trees that are large at maturity, and showed increased interest in fruit trees. Homeowners intend to plant fewer trees in the future than they have in the past. This research is a model for social science efforts that can be used to develop targeted public outreach programs at the neighborhood scale to increase the planting and retention of trees on residential property.
Key Words. Benefits; Canopy Cover; Fruit Trees; Homeowner; Human Dimensions; Neighborhood Planning; Private Property; Residential Trees; Seattle; Social Science; Tree Planting; Washington.

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Abstract. Understanding the response of urban forests to extreme climatic events, such as drought, will be essential to predicting impacts of climate change on the urban tree canopy and related ecosystem services. This study evaluated variation in tree growth and drought resistance (growth during drought) and resilience (growth in period following drought) across four land-use categories (built, transportation, park, and semi-natural forest) and four species (*Acer saccharum*, *Gymnocladus dioicus*, *Liriodendron tulipifera*, and *Pinus strobus*) at The Morton Arboretum in suburban Lisle, Illinois, U.S. Tree growth and resistance to drought both varied as an interaction between land-use and species ($F_{15, 100} = 5.25$, $p < 0.001$; $F_{15, 100} = 2.42$, $p = 0.005$). Resilience of tree growth to extreme drought was generally high and did not vary across species and land-uses. In this study, individual tree species responses to drought varied across land-uses, illustrating the difficulty of predicting the reaction of urban forests to projected increases in the frequency of extreme climatic events. Tree growth response to drought varied even across the relatively narrow range of growing conditions studied here. Investigation of a broader range of sites, encompassing the full urban forest continuum, would likely demonstrate even greater variation in tree response to extreme climatic events.
Key Words. Climate Change; Drought; Growth; *Gymnocladus dioicus*; Land-use; *Liriodendron tulipifera*; *Pinus strobus*; Resilience; Urban Forest.

Abstract. Two studies of tree diversity, visual health, and mortality in the Phoenix, Arizona, U.S. metropolitan basin were conducted as part of the Central Arizona Long-Term Ecological Research project. For one study, tree diversity, mortality, and visual health were determined in 2010 at 204 sites, encompassing both the Phoenix metropolitan basin and in the surrounding Sonoran Desert. In another study, records of tree visual health and mortality were taken during the winter months (2003–2007) at 65 non-residential sites across an urban to rural gradient. Average tree mortality rates were 4.2% per annum. Crown condition was rated as very good or good for the majority of trees. Poor pruning practices and abiotic injuries, such as trunk sunscald, were observed on 70% and 23%, respectively, of trees in non-residential areas. Disease and pest problems were detected in 41% of urban trees, including wood decay, *Verticillium* wilt, sooty canker, and ash decline. Based on these data, researchers suggest that urban forest health in Phoenix is being negatively impacted by extensive wounding of trees, particularly in non-residential settings, possibly caused by excessive crown manipulation through pruning.
Key Words. Arizona; Phoenix; Tree Diversity; Tree Mortality; Urban Forest; Urban Heating.

Abstract. Urban forest monitoring data are essential to assess the impacts of tree planting campaigns and management programs. Local practitioners have monitoring projects that have not been well documented in the urban forestry literature. To learn more about practitioner-driven monitoring efforts, the authors surveyed 32 local urban forestry organizations across the United States about the goals, challenges, methods, and uses of their monitoring programs, using an e-mailed questionnaire. Non-profit organizations, municipal agencies, state agencies, and utilities participated. One-half of the organizations had six or fewer urban forestry staff. Common goals for monitoring included evaluating the success of tree planting and management, taking a proactive approach towards tree care, and engaging communities. The most commonly recorded data were species, condition rating, mortality status, and diameter at breast height. Challenges included limited staff and funding, difficulties with data management and technology, and field crew training. Programs used monitoring results to inform tree planting and maintenance practices, provide feedback to individuals responsible for tree care, and manage tree risk. Participants emphasized the importance of planning ahead: carefully considering what data to collect, setting clear goals, developing an appropriate database, and planning for funding and staff time. To improve the quality and consistency of monitoring data across cities, researchers can develop standardized protocols and be responsive to practitioner needs and organizational capacities.
Key Words. Citizen Science; Forest Inventory and Analysis; i-Tree; Monitoring; Survey; Tree Mortality; Tree Planting.