Arboriculture & Urban Forestry 2008. 34(2):133–134.

ARBORICULTURAL ABSTRACTS

USE OF BRANCH CROSS-SECTIONAL AREA FOR PREDICTING PRUNING DOSE IN YOUNG FIELD-GROWN *QUERCUS VIRGINIANA* 'CATHEDRAL' IN FLORIDA, U.S.

Jason Grabosky, Edward Gilman, and Chris Harchick

Allometric relationships for trunk, first order branches and associated foliage were developed to develop a repeatable pruning dose for wind interception studies on *Quercus virginiana* Mill 'Cathedral'. Three trees were dissected to develop relationships. It was determined that leaf mass was linearly related to the basal area of the primary branch, consistent with pipe model expectations. A pruning dose for leaf mass removal was defined by tracking basal branch areas and removing entire first order branches. Leaf mass was closely related to leaf surface area, however leaf mass varied with compass orientation while leaf area remained unchanged. The use of wood cross-section area conservation rules for branching in Lindenmayer (L-system) computer modeling is shown to be inconsistent with the data set, as is often observed in the field. The area conservation assumption is made to force taper into computer models, and departures are accepted by assuming heartwood formation forces imbalance into the model. The data set was developed from 3 year old or younger wood. The species is known to retain viable vessel elements in sapwood for at least 3 years in the areas surrounding the testing site. Since it is doubtful that there was heartwood or non-functional sapwood in the test trees, use of the area balance assumption for modeling by asserting heartwood influence is questionable. (Urban Forestry & Urban Greening 2007. 6:159–167)

QUANTIFYING AND RANKING THE FLAMMABILITY OF ORNAMENTAL SHRUBS IN THE SOUTHERN UNITED STATES

Alan J. Long, Anna Behm, Wayne C. Zipperer, Annie Hermansen, Alexander Maranghides, and William Mell

Wildfire preparedness programs focus on education and provide assistance with community design, home construction, and landscape design. Wildland-Urban Interface (WUI) residents, nursery employees, and landscape architects often request lists containing species that would be appropriate for placement in firewise landscaping. Existing lists were created from personal experience or based on lists originating in the western United States. These lists, when applied to southern landscape designs, have inconsistencies (2006 Fire Ecology and Management Congress Proceedings [DVD]. Quantifying and ranking the flammability of ornamental shrubs in the Southern United States San Diego, CA: The Association for Fire Ecology/Washington State University Extension)

THE EFFECT OF URBAN LEAF AREA ON SUMMERTIME URBAN SURFACE KINETIC TEMPERATURES: A TERRE HAUTE CASE STUDY

Perry J. Hardin and Ryan R. Jensen

The urban heat island effect (UHIE) has been documented in many temperate region cities. One cause of the UHIE is the replacement of green spaces with impervious materials as urbanization commences and the city builds up and fills in. During the summer, elevated urban temperatures result in increased electricity usage, higher pollution levels, and greater resident discomfort. Through evapotranspiration and the interception of solar radiation, increasing urban tree canopy cover can help mitigate the UHIE. While this is universally accepted, the exact statistical relationship between urban leaf area (as measured by leaf area index, LAI) and urban temperatures has not been extensively studied. In a case study conducted in urban/suburban Terre Haute, Indiana, USA, simple linear regression was employed to quantify the relationship between *in situ* ceptometer LAI measurements and surface kinetic temperatures (SKTs) measured using thermal satellite imagery acquired at 1100 local time. For the 143 sample sites located in the study area, LAI accounted for 62% of the variation in surface temperature. For every unit increase in LAI, surface temperature decreased by 1.2°C. (Urban Forestry & Urban Greening 2007. 6:63–72)

ASSESSING URBAN FOREST EFFECTS AND VALUES, WASHINGTON, D.C.'S URBAN FOREST

David J. Nowak, Robert E. Hoehn III, Daniel E. Crane, Jack C. Stevens, and Jeffrey T. Walton

An analysis of trees in Washington, D.C. reveals that this city has about 1,928,000 trees with canopies that cover 28.6 percent of the area. The most common tree species are American beech, red maple, and boxelder. The urban forest currently store about 526,000 tons of carbon valued at $9.7 million. In addition, these trees remove about 16,200 tons of carbon per year ($299,000 per year) and about 540 tons of air pollution per year ($2.5 million per year). The structural, or compensatory, value is estimated at $3.6 billion. Information on the structure and functions of the urban forest can be used to improve and augment support for urban forest management programs and to integrate urban forests within plans to improve environmental quality in the Washington, D.C. area. (Resour. Bull. NRS-1. Newtown Square, PA: USDA, Forest Service, Northern Research Station. 2006, 24 pp.)

DATA AND METHODS COMPARING SOCIAL STRUCTURE AND VEGETATION STRUCTURE OF URBAN NEIGHBORHOODS IN BALTIMORE, MARYLAND

J. Morgan Grove, Mary L. Cadenasso, William R. Burch Jr., Steward T. Pickett, Kirsten Schwarz, Jarlath O'Neil-Dunne, Matthew Wilson, Austin Troy, and Christopher Boone

Recent advances in remote sensing and the adoption of geographic information systems (GIS) have greatly increased the availability of high-resolution spatial and attribute data for examining the relationship between social and vegetation structure in urban areas. There are several motivations for understanding this relationship. First, the United States has experienced a significant increase in the extent of urbanized land. Second, urban foresters increasingly recognize their need for data about urban forestry types, owners and property regimes, and associated social goods, benefits, and services. Third, previous research has focused primarily on the distribution of vegetation cover or diversity. However, little is known about (1) whether vegetation structure varies among urban neighborhoods and (2) whether the motivations, pathways, and capacities for vegetation management vary among households and communities. In this article, we describe novel data and methods from Baltimore, MD, and the Baltimore Ecosystem Study (BES) to address these two questions. (Society and Natural Resources 2006. 19:117–136)

RECREATIONAL TREE-CLIMBING PROGRAMS IN A RURAL JAPANESE COMMUNITY FOREST: SOCIAL IMPACTS AND 'FUN FACTORS'

John Gathright, Yozo Yamada, and Miyako Morita

We examined whether recreational tree climbing (TC) activities would have positive social impacts and rejuvenate an outdoor activity center and surrounding community forest in central Japan. Our case study comprised 3800 adults and children participating in TC activities at the Jyokoji Outdoor Activity Center (JOAC) in Seto, Japan. We focused on 1393 adult participants whom we considered to be the decision makers regarding family recreation, and we explored both the social impacts of TC and various factors that contributed to and distracted from the overall experience. Qualitative and quantitative data indicated that elements such as age, gender, tree preferences, tree appreciation, tree education, and technical instruction influenced the enjoyment of recreational TC and the positive effects on tree climbers. Overall, the climbing program had positive social impacts for the community forest and contributed to local conservation initiatives. Our case study suggests that other areas can benefit from incorporating TC programs into community forest planning to complement aesthetic, ecological, and restoration benefits and provide a new venue for recreation and conservation awareness. (Urban Forestry & Urban Greening 2007. 6:169–179)