

ARBORICULTURAL ABSTRACTS

NONDESTRUCTIVE DETECTION OF DECAY IN LIVING TREES

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We used a four-point resistivity method to detect wood decay in living trees. A low-frequency alternating current was applied to the stem and the induced voltage measured between two points along the stem. The effective resistivity of the stem was estimated based on stem cross-sectional area. A comparison within a group of trees showed that trees with butt rot had an effective resistivity that was at least a factor of two lower than that of healthy trees. In tests on several groups of Norway spruce (*Picea abies* (L.) Karst.) comprising more than 300 trees in total, the method detected butt rot with high accuracy. We validated the method both by measurements and by finite element modeling and simulations. (*Tree Physiol.* 2004. 24:853–858)

A GEOSPATIAL APPROACH TO MEASURING NEW DEVELOPMENT TRACTS FOR CHARACTERISTICS OF SPRAWL

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Many localities are struggling to deal with the undesirable consequences of sprawl. "Smart growth" has been championed as a solution to many of these problems. However, disagreements or misunderstandings often surface regarding the exact characteristics of sprawl or whether or not a particular housing tract embodies those characteristics. This paper develops a set of 12 geospatial measures for objectively analyzing development tracts for characteristics of sprawl: (1) land use density, (2) leapfrog development, (3) segregated land use development, (4) development that is inconsistent with regional planning, (5) highway strip development, (6) new road network efficiency, (7) alternate transportation mode accessibility, (8) accessibility to important community nodes, (9) loss of important land resources (such as wetlands, prime farmland and endangered habitat), (10) encroachment upon sensitive, preserved open space, (11) excessive per unit impervious surface

coverage, and (12) growth trajectory. These measures are operationalized for three recent subdivisions in Hunterdon County, New Jersey. The measures help to reduce sprawl rhetoric by focusing on quantifiable problematic characteristics of a particular tract of development. (*Landsc. J.* 2004. 23(1):52–67)

PREFERENCES FOR AND ATTITUDES TOWARDS STREET FLOWERS AND TREES IN SAPPORO, JAPAN

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The benefits of street vegetation, in particular the importance of trees, for urban dwellers have been given wide attention. There is, however, a lack of research on flowers as an element of street vegetation. This paper explores preferences for various street-planting models, particularly those with different compositions of flowers, with or without trees. Eighty-one residents of Sapporo evaluated 59 photo-montage simulations and answered a questionnaire concerning their attitudes about street flowers. Results revealed trees to be the factor with the greatest influence on preference. Among possible elements for the space beneath trees from a choice including soil, grass, hedge, and flowers, flowers were the most favored. In particular, low and ordered compositions of brightly colored flowers were the most preferred. Tall flowers were not found to be either attractive or appropriate for streetscapes in this case study. A factor analysis of the variables related to attitudes towards street flowers revealed the following five factors: "psychological benefits and aesthetic value," "natural–environmental," "practical concerns," "effort to maintain," and "non-aesthetic." The highest-rated items were all related to the aesthetic and psychological benefits of street flowers. Flowers were the most preferred element beneath street trees and were seen as not only contributing to the aesthetic quality of a street but as also having a positive influence on psychological well-being. (*Landsc. Urban Plann.* 2004. 69:403–416)

