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ARBORICULTURAL ABSTRACTS

LAYOUT AND COMPOSITION OF HOUSE-EMBRACING TREES IN AN ISLAND FENG SHUI VILLAGE IN OKINAWA, JAPAN

Bixia Chen, Yuei Nakama, and Genji Kurima

A Feng Shui village landscape, which embodies the symbiosis of nature and man, might be re-evaluated as an ideal landscape model in East Asia. Ho:go is one essential word for a Feng Shui village in Ryukyu Islands. The literal meaning of Ho:go is to embrace and protect by forest planting in order to retain the living energy. Ho:go also refers to a forest belt that encircles a house, a village, several neighboring villages, or the coastline, and is called House Ho:go (habitat-embracing forest), Village Ho:go, District Ho:go, and Coastline Ho:go, respectively. However, such Feng Shui village landscapes have disappeared rapidly since Word War II because of the changing life styles. In order to preserve the traditional Feng Shui village landscape, our primary research focus concerns the actual structure, management, and regeneration of house-embracing *Garcinia subelliptica* Merr. trees. We chose to survey the two best preserved villages of Tonaki Island and Bise village in northern Okinawa Island. We reproduced the actual distribution and sizes of house-embracing *G. subelliptica* trees by HO CAD software. We found tree lines were much thicker in the borderline of the village, in particular, those either facing the coast or standing in the north. In contrast, there was usually one tree line inside the village. The surveyed *G. subelliptica* trees on Tonaki Island were much smaller than those in Bise Village. More demand of *G. subelliptica* trees for timber use in this small isolated island and better maintenance might be assumed to be the reasons for the difference in tree height between the two surveyed villages. Thus, proper maintenance in terms of cutting and cleaning are necessary to preserve house-embracing *G. subelliptica* tree lines in a traditional Feng Shui village. A traditional village landscape might also serve purposes for forest tourism and environmental education. (Urban Forestry and Urban Greening 2008. 7(1):53–61)

WHAT DO FORESTERS THINK ABOUT URBAN FORESTRY, URBAN PEOPLE, AND CITIES?

Robert M. Ricard and Maureen H. McDonough

Urban residents affect forest policy and hence forest management decisions and outcomes. In addition, urban forestry has become more visible, integrated, and influential in the Society of American Foresters (SAF). However, little is known about what foresters think urban people know about forestry, what emphasis foresters believe should be placed on urban forestry compared with traditional forestry, and what foresters think about the purposes of urban forestry. Results of a nationwide mail survey of SAF members suggest that urban forestry is well accepted as a community of interest by respondents, that respondents lean more toward loving cities than hating them, and that respondents believe urban people understand some specific forestry objectives, such as the link between forests and wood products, but not many others. (Journal of Forestry 2007. 105(6):285–292)

GIS-BASED GREENERY EVALUATION ON CAMPUS MASTER PLAN

Nyuk Hien Wong and Steve Kardinal Jusuf

In the previous study, it was found that urban heat island intensity in National University of Singapore (NUS) campus as high as 4°C at around 13:00. It is also concluded that the presence of dense greenery in NUS environment is very important in keeping low ambient temperature. National University of Singapore has announced its new master plan in 2005, entitled NUS Master Plan 2005. Many new buildings will be built and in some areas existing greenery will be removed. Geographical Information System (GIS) was use to evaluate the greenery condition. It was found that the greenery rate of NUS Master Plan 2005 will drop by about 3% from 55.10% of NUS current condition to 52.31%. In order to have a sustainable environment, the greenery condition should be at least maintained at the same rate or even make it better. For this purpose, potential of increasing greenery area by rooftop greenery application was also done. The target is to maintain the green rate of different zones at the same rate with current condition. In total, there will be more than 56% new buildings in NUS Master Plan 2005. Therefore, there is a good opportunity to plan and introduce the rooftop greenery or vertical greenery since in the early design stage. The ENVI-met simulation predicts that the ambient temperature in NUS environment will increase about 1°C when NUS Master Plan 2005 is completed. It is due to the reduction of greenery rate. (Landscape and Urban Planning 2008. 84(2):166–182)

CULTURE, PLACE AND URBAN GROWTH IN THE U.S. SOUTH

Cassandra Y. Johnson and Wayne C. Zipperer

People's connection to land is an important contributor to identity in traditional southern society. In small southern communities, to know where someone lives is to know who someone is because place assigns biography. Studies have investigated the physical and economic implications of landscape change in the South, but comparatively little research focuses on the impacts to culture of urban growth. We consider how sense of place (as an indicator of culture) may be impacted, over time, by physical and structural changes in a locale. This point of departure examines the temporal dimension of sense of place, or how place perceptions may vary as familiar places and practices are altered by landscape moderations. We review the literature on sense of place and changing Southern landscapes and also offer a conceptual framework for analyzing sense of place over the long-term. (Urban Ecosystems 2008. 10(4):459–474)

RETRANSLOCATION OF FOLIAR NUTRIENTS IN EVERGREEN TREE SPECIES PLANTED IN A MEDITERRANEAN ENVIRONMENT

D.N. Fife, E.K.S. Nambiar, and E. Saur

Internal nutrient recycling through retranslocation (resorption) is important for meeting the nutrient demands of new tissue production in trees. We conducted a comparative study of nutrient retranslocation from leaves of five tree species from three genera grown in plantation forests for commercial or environmental purposes in southern Australia—*Acacia mearnsii* De Wild., *Eucalyptus globulus* Labill., *E. fraxinoides* H. Deane & Maiden, *E. grandis* W. Hill ex Maiden and *Pinus radiata* D. Don. Significant amounts of nitrogen, phosphorus and potassium were retranslocated during three phases of leaf life. In the first phase, retranslocation occurred from young leaves beginning 6 months after leaf initiation, even when leaves were physiologically most active. In the second phase, retranslocation occurred from mature green leaves during their second year, and in the third phase, retranslocation occurred during senescence before leaf fall. Nutrient retranslocation occurred mainly in response to new shoot production. The pattern of retranslocation was remarkably similar in the leaves of all study species (and in the phyllodes of *Casuarina glauca* Sieber ex Spreng.), despite their diverse genetics, leaf forms and growth rates. There was no net retranslocation of calcium in any of the species. The amounts of nutrients at the start of each pre-retranslocation phase had a strong positive relationship with the amounts subsequently retranslocated, and all species fitted a common relationship. The percentage reduction in concentration or content (retranslocation efficiency) at a particular growth phase is subject to many variables, even within a species, and is therefore not a meaningful measure of interspecific variation. It is proposed that the pattern of retranslocation and its governing factors are similar among species in the absence of interspecies competition for growth and crown structure which occurs in mixed species stands. (Tree Physiology 2008. 28:187–196)

THE EFFECT OF URBAN LEAF AREA ON SUMMERTIME URBAN SURFACE 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 and Urban Greening 2007. 6(2):63–72)