

AREA Forum

WHAT PROBLEMS DO TREES FACE IN YOUR CITY? HOW CAN THESE PROBLEMS BE SOLVED?

We invite additional comments to this question for inclusion in future issues. Send your remarks to Journal Editor Bob Miller (see inside front cover) or to Alicia Chacalo at ach@hp9000a1.uam.mx.

Alicia Chacalo
President, AREA

C.Y. Jim

The University of Hong Kong

The range of physical and physiological problems that beset vegetation growth in most cities likewise constrains trees in urban Hong Kong. The limitations in Hong Kong, however, are manifested at an intensified magnitude, diversity, and pervasiveness. Because of its large population, along with high building and road densities, Hong Kong has few natural niches left. Most land surfaces have been disturbed by engineering cut or fill and contain artificial structures and pavings. The mentality and the consequent mode of urbanization are to maximize the use of every inch of the precious and expensive land.

The compact and dense development of the inner city extends to the periphery of Hong Kong. Inner-city tree problems are thus found throughout the area. The higher-level amenity needs of the community, including greening and the provision of open spaces, are often given low priority. The most pertinent problems encountered by trees in Hong Kong and some proposed solutions follow.

Problem: Excessive development density, tree-unfriendly mode of urban growth.

Short-term solution: Search exhaustively for residual plantable sites and plant trees.

Long-term solution: Open up tight town plan in new development and renewal areas, set back buildings from lot boundaries, demarcate roadside tree strips and amenity plots, mandate trees as an essential urban infrastructure, institute a citywide long-term landscape plan.

Problem: Cramped aboveground space, intrusions into tree-growth space, poor air quality, vandalism and inadvertent damage.

Short-term solution: Trim overgrown trees, remove intrusions.

Long-term solution: Reserve amenity corridor and spaces for trees, select species with final sizes that match site dimensions, select species tolerant of polluted air.

Problem: Excessively stony and sandy soil, limited rooting volume, soil compaction, contamination by construction rubble and alkaline reaction, soil pollution, proliferation of underground utilities, frequent trenching.

Short-term solution: Improve soil conditions by amendments and physical manipulation, introduce micro-tunneling technique for digging near trees.

Long-term solution: Adopt urban soil specifications for trees, construct soil corridors, install dedicated tree strip separate from utility zone.

Problem: Inadequate preventive care, poor planting materials, indiscriminate destruction of high-caliber trees, few highly trained arborists, lack of modern equipment, failure to diagnose hazard trees.

Short-term solution: Implement regular tree inspection and maintenance program, repair or remove hazard trees.

Long-term solution: Adopt and enforce stringent specifications for planting materials, protect outstanding specimens through statutes, train arborists to degree and postgraduate level, acquire modern arboricultural equipment and know-how.

Problem: Incongruous species choice, lack of scientific information on tropical species and cultivars for urban planting.

Short-term solution: Learn more about performance of existing trees in other tropical cities, give more consideration to planting trees in appropriate sites.

Long-term solution: Conduct systematic research on suitability of tropical species and cultivars for urban habitats, perform comprehensive studies of tropical amenity-tree diseases, promote scientific dialogue among tropical arboricultural researchers and practitioners, set up a database of tropical amenity trees.

Problem: Lack of awareness of tree care, benefits and functions in cities, low expectations of tree quality, apathy toward tree welfare.

Short-term solution: Sponsor educational and publicity programs to improve understanding of urban trees.

Long-term solution: Establish urban tree study program for school curricula, implement sustained awareness programs.

Problem: Lack of resources and long-term commitment, poor coordination among government departments, few private-sector initiatives, inadequate leadership and overall plan.

Short-term solution: Mobilize support within and outside the government.

Long-term solution: Initiate clear and visionary high-level policies for a green city, establish a dedicated government unit with adequate budget for trees, motivate and coordinate participation of private developers, organize a tree council to oversee and coordinate all urban-tree efforts.

ISA can play an active role in nurturing the research suggested above by

- advocating and providing grants and logistic support for relevant studies
- fostering liaison among researchers and practitioners in tropical arboriculture
- organizing seminars and publishing books and journal papers to communicate research findings and their translation into practices
- encouraging government and community leaders to devote more attention and resources to urban trees.

Thomas Barfoed Randrup
Danish Forest and Landscape
Research Institute

Copenhagen, the capital of Denmark, lies in the northern hemisphere just above the 56th latitude. The coastal climate is characterized by summer average temperatures around 16°C (61°F) and winter average temperatures around 0°C. Annual precipitation averages 500 to 600 mm (20 to 24 in.). This rather mild climate, combined with long summer days, provides fairly good growing conditions.

The city of Copenhagen, however, has probably never been as gray as it appears today. At least one-third of all street trees in Copenhagen have disappeared due to Dutch elm disease (DED) during the last 5 years. The total volume of tree cover lost due to DED is close to 50%. Most of the major large trees in Copenhagen are elms, many as tall as 20 to 25 m (65 to 82 ft). The loss of these trees placed the issue of urban trees on the political agenda for a while. Our current task as professionals is to re-establish the once-green image of the city.

A product commonly used in Copenhagen as a base and sub-base material for roads, bicycle paths, and pavements consists of well-graded gravel, originating from the glaciated clay soil left over from the last Ice Age some 10,000 years ago. The product is easily compacted, and it stays well-compacted after installation. Not surprisingly, this material is detrimental to root growth. To overcome this problem, the park department of Copenhagen plants trees in large planting pits whenever possible, and success has been obtained in parking lots converted into planting pits. Tests have been conducted on root-penetrable base and sub-base materials for use where planting pits are not feasible. After approximately 10 years of experience with these different materials, the results are promising.

Another major problem faced in Copenhagen is use of deicing salt. The winter maintenance season runs from mid-October until mid-April. During this period, there are temperature fluctuations above 0°C,

and a few days with hard frost and snow, which leads to icy road surfaces followed by thaw. Because of the climatic situation in Denmark, a sophisticated warning system was introduced approximately 15 years ago. The electronic system uses sensors implanted in the road to measure temperature, humidity, and amount of deicing salt on the surface. On the basis of these measurements and forecasts from the Danish Meteorological Institute, the road maintenance department can decide whether to apply salt on the roads. This method is referred to as “preventive salting.” In some cases, however, forecasts are wrong, and salt is applied when it is not actually needed. Consequently, over the last 15 years, the amount of deicing salt used in Denmark has increased.

Danish city trees are protected from deicing salt by straw or other types of mats placed in front of trees. Recently, we have found that the efficacy of these protective mats depends on traffic speed and intensity. In some cases, the mats collect deicing salt dust and expose tree roots to salt. The use of these protective measures should be restricted to areas where splash can be stopped by a fence and where runoff will lead directly back to the paved surface and to drains.

As researchers, we believe that a more holistic approach must be used if the problems with deicing salt are to be alleviated. A ban on the use of deicing salt is not likely at this time. Economically realistic and feasible alternatives must be found but, until then, the amount of salt must be reduced. The reduction in use of salt may be possible if we can introduce a reduction in traffic speed at the same time. This approach has been tested with success in Chicago, and we are working on a similar project in Copenhagen.

A city may be characterized as a place in which many people have chosen to live together on a limited area of space. Many people living on a small area causes wear. To avoid wear, strong, robust, and hardwearing materials are needed—and used. This in itself creates a contradiction in relation to planting and growing trees in the urban environment.

Trees in Copenhagen face many of the same problems faced by urban trees around the world, including limited soil volumes due to compacted base materials, exposure to deicing salt, and conflicts be-

tween the infrastructure and trees caused by inappropriate planting or inappropriate planning. As a result, the trees are not healthy; they are dying and do not grow and look as anticipated. Thus, most problems related to urban trees today may be categorized as anthropogenic stresses. A street tree should be chosen, established, and managed as a street tree, and not as a park tree, a forest tree, or a rural tree.

Alicia Chacalo

Universidad Autónoma Metropolitana,
Mexico

Because of Mexico City’s subtropical location, climatic conditions are favorable for the growth of trees year round. Most of the problems faced by urban trees in Mexico City are not caused by population density, inappropriate infrastructure, or severe pollution. The majority of urban tree problems are due to inappropriate species selection and cultural practices.

Few species are used with great frequency. There are problems with the quality of trees from a nursery because such trees do not satisfy the requirements (e.g., tree size and shape, size of the root ball, or ratio between tree height and diameter) for the urban environment. Also, improper planting practices are often a culprit: the species is not appropriate for the planting site, mature tree height is not considered when selecting sites, the planting distances between the trees are inappropriate, or homogeneity with existing species is not considered.

Many tree planting programs exist, but programs often do not include sufficient postplanting tree care. Municipalities do not conduct tree inventories, nor do they plan or record treatments that should be applied to trees and sites.

Although the causes of these problems can be attributed to inadequate planning or management programs, another factor contributes to the problems: lack of training.

Personnel responsible for planning, production, planting, and postplanting care of the urban trees in Mexico generally have neither specific training in arboriculture nor the knowledge to design and carry out a management plan, to select species, to plant trees, or to provide the maintenance that urban trees

require. In the best case, such personnel are biologists or agronomists. Although these disciplines have a common base with arboriculture, they do not provide a solid foundation of knowledge and training specifically for arboriculture. Therefore, one recommendation is to train those involved with urban trees. Also recommended is legislation requiring that only people possessing training in arboriculture, urban forestry, or urban horticulture can be responsible for activities related to urban trees.

Also helpful would be an ISA representative to assist Latin American countries in promoting the field of arboriculture in the governmental, academic, and private sectors. The final recommendation is to adopt arborist certification and create local associations of arboriculture.

ISA NEWS & NOTES

URBAN PLANT HEALTH SYMPOSIUM

The International Symposium on Plant Health in Urban Horticulture, to be held at the Technical University of Braunschweig, Braunschweig, Germany, May 22–24, 2000, will present a scientific platform to discuss and summarize the basic and applied scientific work concerning plant health in urban horticulture and its impact on the life of humans and the environment.

The symposium will cover such topics as plant diseases and pests (epidemiology, bionomics, diagnosis, monitoring, forecasting and modeling, and control), abiotic disease factors, weed control, beneficial organisms, ecological networks, integrated plant protection, impact of tree locations and treatments, and interactions of production methods in nurseries and plant health after transfer to urban stands.

The symposium is being organized by the Federal Biological Research Center for Agriculture and Forestry and the Plant Protection Services of Berlin. The official language of the symposium will be English.

For more information about registration, contact Georg F. Backhaus, Federal Biological Research Center for Agriculture and Forestry, Institute for Plant Protection in Horticulture, Messeweg 11/12, D-38104 Braunschweig, Germany; email g.f.backhaus@bba.de; phone (49)-531 2994400; fax (49)-531-2993009.

FOURTH ISA EUROPEAN CONGRESS

The fourth ISA European Congress will be held at the University of Valencia Botanical Gardens in Spain June, 7–10, 2000.

The congress is being organized by the Spanish Arboricultural Association and ISA's Spain Chapter. The agenda will include certification, palm tree management, and the usual trade fair and international tree climbing competition.

Further details will be provided as they become available.