

# INTERNATIONALIZATION OF URBAN FORESTRY<sup>1</sup>

by John W. Andresen

**ABSTRACT.** International urban forestry sprung from roots associated with growth and maturation events of the International Society of Arboriculture. National urban forestry research of many countries was joined in 1974 under the Arboriculture and Urban Forestry Working Group of the International Union of Forest Research Organizations. Information exchange programs, research projects and their application, continuing urban forestry activities of IUFRO, those of ISA, and the FAO, U.N. have united the world community of arboriculture/urban forestry researchers and practitioners. Further organizational suggestions are offered to guide international urban forestry into a decade of global tree planting and conservation.

On this 54th anniversary of the founding of the original National Shade Tree Conference (NSTC) and after more than a half-century of service to the world community of nations it is fitting to recognize the transworld role of the International Society of Arboriculture (ISA). Momentum given to the internationalization of urban forestry by ISA has also been significant.

As communications, economics, politics, science, trade, and transport bring all people closer together, the role of trees and forests assumes ever greater importance. Virtually every nation on our globe sets aside a day or a week for annual civic tree planting ceremonies. In some instances the motive is to beautify downtown parks and schoolyards. Promotion of environmental awareness stimulates a different concern. And in countries suffering from timber shortages such as Israel, the Peoples Republic of China and the United Kingdom, tree planting is a matter of national health and survival.

Now that the world attempts to regreen itself after thousands of years of abuse to natural ecosystems, organizations such as ISA, the Ontario Shade Tree Council (OSTC), the National Arborists Association (NAA), the American Association of Nurserymen (AAN) and others, have a very special obligation to assist all people and nations in their conservation endeavor. We have the expertise and resources to help regreen the world,

so let's accept the responsibility.

International assistance and aid programs by individual nations and world organizations grew rapidly after World War II as a war torn world attempted to bind its wounds. Within the United Nations for example, the Food and Agricultural Organization and its Forestry Division embarked on global reforestation projects. In this report I will describe a growing brotherhood of nations concerned with a greening of human settlements. In particular, I will explore the internationalization of urban forestry. As I do, I'll cover three main points: 1) review the fundamental role of ISA in fostering international tree relations; 2) outline current international urban forestry programs; and 3) offer a challenge to the membership of ISA.

## ISA's leadership role

Seeds for today's 3000 member ISA were sown in early 1924 when F.A. Bartlett, of the Bartlett Tree Expert Co., and members of the Connecticut Tree Protection Examining Board planned a conference of practical intent. The planning group wanted to assemble practitioners and scientists to discuss and examine tree cavity treatment (Tilford 1975). The first annual meeting, held in Stamford, Connecticut on August 24 and 25, 1924, and those following were so successful that by the close of the third conference held in Philadelphia, a committee on recommendations suggested that:

*A committee of five report at the next meeting on the formation of a permanent organization and that the meeting be held in Washington, D.C.*

Articles of Organization were presented and approved at the 1928 D.C. meeting (none was held in 1927), thus formalizing the NSTC. By the 11th conference in 1935 a NSTC Constitution and By-laws were adopted which were revised in 1941. In 1961 (Tilford 1961), a signal amendment was passed that expanded the NSTC into the Interna-

<sup>1</sup>Presented at the annual conference of The International Society of Arboriculture in Toronto, Ontario in August 1978.

tional Shade Tree Conference (ISTC) and also provided for the admission of Regional Chapter VII — Canada.

At that time about 100 members of the old NSTC lived in Canada, Australia, Puerto Rico, and England. It is to the credit of the membership and the officers of that time that they had the forethought to enter the international arena.

Once the Canadians became active in Chapter affairs, arborists in many other nations sought membership. Today, in ISA (incorporated in 1975), we count representatives from 22 countries outside America. A further cultural and linguistic connection was made in 1977 by the authorization of the Quebec Chapter which now boasts about 150 members.

To remind the participants at the 1969 ISTC annual meeting of its long association with arborists in the U.K., Director W.E. Matthews (1969) of the Southern Tree Surgeons reviewed arboricultural events in the British Isles. To further cement the American-United Kingdom bond, Director Matthews and Viscount Devonport of Hexam, Northumberland, in 1976, invited ISA to hold its 1981 annual meeting in London. Although the invitation was gratefully received by the Board of Governors, and preliminary planning was undertaken, a number of unfortunate logistical problems caused a cancellation of the joint assembly of ISA and the Arboricultural Association of Great Britain. As an alternative Dr. Gordon King plans to lead a post 1980 ISA convention group for a tour of the U.K. to meet with old and new arboricultural and urban forestry colleagues. However, ISA should still have a full fledged international meeting outside of North America as soon as conditions warrant such a venture.

International symbolism was added to the 1976 ISA convention when Canadian Chapter President Al Lapointe gave ISA President Jack Rogers a gavel fabricated from 14 tree species of 11 different nations (Neely 1976). Let us hope that the next symbolic gavel is built from 28 species from 22 countries.

Turning to the more pragmatic international dimensions of ISA, I cite two projects undertaken by ISA's Urban Forestry Committee (UFC): education and metric conversion. Among the

several projects designed to advise the North American shade tree industry of education, research, and service advances, our UFC catalogued contemporary North American arboricultural and ornamental educational programs (Andresen 1977) as well as urban forestry instruction (Andresen and Williams 1975). The intent of this ongoing project was to create a student-employee reference bank.

As another benefit of the data bank, potential arboricultural and urban forestry students now have calendar data to select a school of their choice. And prospective employers are advised of available graduates and their academic backgrounds. Also instructors of a number of new arboriculture-urban forestry courses and curricula have utilized the UFC information to start their work. As this educational inventory continues, another positive spin-off might be the standardization of core courses and recommended electives. The inventory will rely upon a new computer facility at the University of Toronto to ease acquisition of data and speed dissemination of education information.

Metrification of the North American shade tree industry is another assignment undertaken by UFC. For organizational cohesion, the shade tree industry is construed to include commercial, consulting, municipal and utility arborists; arboretum officials; landscape architects and contractors; retail garden centers; and urban foresters. In Canada, implementation of the metric system of measurements within the shade tree industry is scheduled for December 1979 or before (Andresen 1976). Metric awareness documents, a Sector Plan and Sector Plan Summary brochure have been published. A metric conversion guide is now in the composition stage as is a metric conversion workbook. Metric specifications for dimensions of nursery stock and related materials have just been released by the Canadian Nursery Trades Association (Landscape Canada 1978). This compilation is part of the strong liaison between Canadian landscape nurserymen and Metric Commission Canada's sector 8.17 — Urban Forestry/Arboriculture. Canada's metric plan can be easily assimilated by the American shade tree industry to meet its metrification objectives. Our

UFC will continue to coordinate the effort.

### **Contemporary international urban forestry activities**

Within the world community of nations, management of urban dominated trees and forests has been practiced for centuries. Only recently, however, have we recognized the value of synthesizing the many individual, educational, managerial, and research endeavors that could enhance the manipulation of urban vegetation. Indeed, a global systems approach to urban forest management seems to be the only logical methodology to follow in optimizing knowledge and resources.

Early attempts to identify global urban forest patterns were based upon the premise that similarities existed between regional urbanization processes — trajectories that assumed new horizontal and vertical dimensions in the 1950's. Reconstruction of war torn cities in Asia and Europe, urban renewal in North America, conurbation in Australia and the United Kingdom, recreation oriented suburbanization in the United States plus intensifying urbanization in less developed nations signalled future pressures on the world's urban forests.

At one of the first comprehensive urban forestry conferences in North America, Clark Holscher (1971), who was then Director of International Forestry of the Forest Service, USDA shared his observations of North European city and community forestry activities. In contrast to America, he noted that most non-private forest land is owned by local municipal governments and is not under the managerial jurisdiction of provincial or federal agencies. European community and urban forests, he remarked, usually produce numerous economic as well as recreation values.

Forests that surround European cities and form intra-urban greenspace, provide an excellent aggregate example of intense, practical urban forest management. This archetype can serve two worlds. On one hand, emerging nations could profit by husbanding local resources (Goodman and Goodman 1960). On the other, affluent, post-industrialized societies must acknowledge that there is more to be gained from the urban forest

than floral amenities and environmental amelioratives. Fortunately, North Americans are beginning to recognize that food and fibre can also be produced from urban trees.

Recent congresses of the world's foresters have been reflective of contemporary global concerns. In 1966, the theme of the 6th World Forestry Congress held in Madrid was "The role of forestry in the changing world economy". This analysis was a reaction to a global spirit of high human expectations and grand aspirations that was coincident with accelerating urbanization. By October 1972 in Buenos Aires, participants at the 7th World Forestry Congress contemplated "The forest and socio-economic development". Extensive damage to the global environment through uncontrolled development accompanying the urbanization process was painfully apparent by then. It was not surprising that many of the forestry issues discussed in Argentina were also topics of debate at the June 1972 United Nations Conference on Human Environment held at Stockholm. Now in 1978, the 8th World Forestry Congress to be convened in October at Jakarta further recognizes human needs by concentrating on "Forests for people". The Indonesian Congress, for the first time at a world forestry congress, will include as one of the thirty major position papers "Urban forestry and its influences in human settlements."

Returning to deliberations at the 7th World Forestry Congress, Richardson (1972) presented a provocative paper entitled "Urban forestry — apartheid or integration?". His iconoclasm attacked the prostitution of urban greenspaces for elitist aesthetic and recreation activities. Sylvan requirements of disadvantaged city dwellers throughout the world were receiving scant attention. He further criticized the "embalming policies" of traditional or ultra-reactionary preservationists and the effete cosmetology of many urban planners.

In response to the censure of Richardson and others, delegates at the 7th World Forestry Congress approved a number of Declarations. Among them was the tenet that:

*Foresters recognize that forestry is concerned not with trees, but with how trees can serve peo-*

ple.

Further, as the Penultimate Declaration, the doctrine was evinced that

*... this Congress does not share the views of the prophets of doom. It recognizes that the world will need an ever-increasing flow of goods and services from the forest. It is fully confident that these needs can be met, through the rational management and valorization of existing forests and through the creation of new man-made forests. (Takacs 1972).*

Through these and related declarations, a multiple challenge was given to urban foresters to help meet the needs of the world's human settlements.

Meetings of Commonwealth foresters have also demonstrated a new solidarity that bodes well for the urban forests of Great Britain's former colonies and protectorates. Urban forestry was discussed by the Technical Committee on Recreation and Amenity at the 9th Commonwealth Forestry Congress held in New Delhi (Anon. 1969). Section (c) of Conference Resolution No. 5 reflected the consensus of the Committee and appeared as:

*(c) Whereas the growing importance of tree planting in planned development of urban areas and to improve the aesthetic amenities of urban areas are recognized, RECOMMENDS THAT — tree planting in urban areas should be given adequate attention and suitable research should be undertaken in this direction and the subject of urban forestry and landscaping be included in the syllabus of forest institutions as a specialized course.*

At the 1974, 10th Commonwealth Forestry Conference held at Oxford and Aberdeen, U.K., Jorgensen (1974), among a series of four recommendations advocated:

*2. That forestry departments throughout the Commonwealth make a special effort to establish urban forestry management through:*

- (a) The development of pilot projects;*
- (b) Research on the relationships between trees and man in all their many facets;*
- (c) The provision of outdoor educational facilities for the orientation of urban populations with regard to the principles and goals in biologically-oriented forest management; and*

*(d) The improvement of forestry schools by the introduction of appropriate teaching in urban forestry management. This requires an upgrading of courses in ecology, sociology and general biological subjects.*

*4. That continued discussion and exchange of experiences in urban forestry become a part of future Commonwealth Conferences.*

Urban forestry suggestions arising from both the 9th and 10th Conferences have progressed from rhetoric into action programs at a number of Commonwealth forestry schools, governmental agencies and research organizations.

Research endeavors of international urban forestry organizations are well coordinated through the International Union of Forestry Research Organizations. In 1975, the Executive Committee of IUFRO established PI.05-00, a Project Group on Arboriculture and Urban Forestry. Its purposes are to identify urban responsibilities of forest scientists and to develop a system of cooperation and coordination of global urban forestry research. PI.05-00's first major endeavors centered about symposia held in 1976 at Vancouver at the U.N. Conference on Human Settlements and in Oslo at the XVIth IUFRO World Congress. Proceedings of the meetings appeared within the book "Trees and forests for human settlements" (Andresen 1976) and included 40 urban forestry and arboricultural papers of international breadth. In addition, two resolutions were prepared by PI.05-00 at the symposia and were sent to and acknowledged by U.N. Secretary-General Kurt Waldheim and UNEP Executive Director Enrique Penulosa. The resolutions read:

*a) The Governments represented by the General Assembly of the United Nations should acknowledge the intensifying global trend towards urbanization and the crucial role that greenspace and trees play in the well-being of human populations in densely urbanized areas;*

*b) As a first step toward international responsibility in advancing the recognition of the importance of urban greenspace, all Governments are urged to join in the initiation and development of machinery to coordinate research programs which explicitly concern arboriculture and the specializations of amenity, community, recreational and ur-*

### *ban forestry.*

With the foregoing development of events in mind let us examine a few representative urban forestry examples now underway in developed as well as emerging nations. The saga of urban forestry in the United States is well documented. Several new aspects are being described today by other authors, so my comments will refer to external American situations.

### **Recent urban forestry developments of industrialized nations**

Urban forestry endeavors throughout the developed capitalistic and communistic worlds are often responsive to outdoor recreation demands and needs of urbanites who seek escape and refuge from daily living and working routines.

Broadening trends to conserve and rehabilitate greenspaces within the metropolitan complex, at its periphery, or at a remote locale are expanding the horizons of urban forest management. An awakening use to urban forests as pollution and waste sinks as well as sources of energy, fibre and nutrition add further dimensions. Management techniques that manipulate urban forests vary by nation but usually are reflective of cultural affinities, affluence levels and post-industrial evolution.

Australia, buoyed by a spirit of rugged individualism, but tempered by urban realities has developed a sophisticated urban forestry systems approach to better managed greenspaces in its six metropolitan centers on the east coast and in its western city, Perth. Urban forest management that has been incorporated into the urban planning process is working well. In Melbourne (pop. 2.7 million) urban forestry operations mesh nicely with TOPAZ (Technique for the optimum placement of activities into zones) (French and Sharpe 1976).

On the Canadian scene, urban forestry research activities administered by the Canadian Forestry Service have been described by Pollard (1976). Based upon his review of six CFS Research Centers and three Institutes, Pollard concluded that his CFS was providing valuable assistance to municipal authorities as well as meeting urban forestry research needs in the fields of education and recreation, waste disposal,

wildlife habitat management and water conservation. Another Federal Agency, Agriculture Canada, through its southern Manitoba Morden Arboretum is combining urban forestry research with practical demonstration. The Morden has provided 12 replicate sets of 70 prairie-hardy tree cultivars for testing in the cities of Edmonton, Regina and Winnipeg. In each of these cities, 850, 5-cm caliper trees have been planted along major boulevards as part of general landscaping. For the next five years the trees will be evaluated for growth, hardiness, and survival characteristics (Putt 1975). At the Provincial level, the Ontario Shade Tree Council sponsors training schools in Dutch elm disease control, has surveyed and reported on the urban forestry needs of Ontario's municipalities, monitors the Kings Highways to promote sound roadside vegetation management, and is preparing a set of model tree by-laws for local municipal use.

In Sweden, where the populace enjoys the "right of common access to private forestland," municipal councils have also purchased urban-fringe forests to meet expanding urban recreation needs (Hultman 1976). These peri-urban forests serve a dual purpose. Timber is harvested under sustained yield practices that also permit managerial latitude to provide quality recreation experiences for the urbanite. This plural endeavor is encouraged by an aware urban public educated to the benefits of multiple use urban forestry.

During the last two decades foresters of the United Soviet Socialist Republics have perfected a sophisticated system of management for their urban and suburban forests (Gal'perin 1973). Since many Soviet cities west of the Urals were rebuilt after World War II and their demolished forests replanted, the majority of the western urban forests as well as the new city forests of the eastern Soviet Republics are composed of superior trees and shrubs that serve a multitude of urban needs. Invaluable data used to select these hardy urban species and cultivars derived from large, experimental arboretum tests dispersed throughout the Soviet Union (Lapin et al. 1975).

Under the financial aegis of the Department of the Environment, the United Kingdom's Forestry Commission is providing urban forestry advice and

guidance to individuals as well as municipal governments. An arboricultural Advisory Officer and research staff at Alice Holt Lodge respond to information and planning needs of urbanites seeking assistance (Johnston 1977). A number of amenity/urban forestry research projects are also underway that provide input into the advisory service.

### **Urban forestry in the less developed nations**

In the management of their urban greenspaces urban forestry programmers in developing nations often attempt to emulate urban outdoor recreational approaches of the industrialized countries. Many European and North American models, however, are unsuitable to the genuine needs of the masses of low income city dwellers of the Third World.

More realistic urban forestry endeavors should be emphasized which result in the production of fuel wood, edible fruits and other human food, forage, raw materials for handicraft manufacture, and cooling shade. Landscape designers, urban and community planners, and urban foresters have a fabulous opportunity to combine their skills to provide emerging nations with significant goods and services that generate from urban forests.

Pollard (1977), during a recent urban forestry tour of the Peoples Republic of China, observed effective and efficient roadside planting of trees in a number of cities such as Kwangchow, Peking, Shanghai and Shenyang. Most of the urban and suburban forests he saw were recently planted (post 1950). In addition to visual and sensual amenities, trees were established for timber production, oil, nuts, other fruit and fuel.

Recent shade tree work in Israel will have wide application in other arid or semi-arid countries. Karschon and Schiller (1976) have quantified ameliorating effects of shade cast by trees planted to reduce heat stress on urban man. Geared to exurban recreation activities, their studies formulated thermal comfort indices related to the contribution of foliar densities by a variety of tree species. Conversion of shade coefficients to city conditions would be simple.

Plantings of trees along highways, canal sides

and rail tracks has been accelerated in Pakistan (Sheikh 1976). Systematic planting of amenity trees and shrubs in developing towns and cities has become commonplace in spite of serious soil, climatic, and irrigational difficulties. The Forest Institute of Peshawar is undertaking research to test trees hardy to the environmental extremes of varied geography from Karachi to the Kyber Pass.

In Nigeria, plans are proposed to reduce severe urbanization pressures that confront rural migrants as they encounter city life (Uwasomba 1976). Landscape designs for new, urban peripheral residential communities incorporate trees to be used for food forage, shade, worship and beauty. Housing in well-planned peri-urban village clusters can ameliorate the trauma of unaccustomed industrial or clerical work in the cities.

Country reports<sup>2</sup> prepared as background materials for the 8th World Forestry Congress indicated that new urban forestry programs are also emerging in Indonesia, Malawi, Malaysia, New Caledonia, Thailand, and Western Samoa and other developing nations. These programs are growing through self help and foreign assistance.

### **Future international challenges and opportunities**

With wise planning and selfless consent, economic inequities between developed and less developed nations should be reduced in the future but not entirely eliminated (Kan, Brown and Martel 1976). As equalization proceeds, living standards of the affluent nations will probably decline. Concurrently, Third World expectations will rise and life styles will improve.

Well orchestrated urban vegetation management will help the wealthy adjust to a more simple life and the liberated to optimize their resources. Closer bonds between agriculture and forestry (Bene et al. 1977, Sanger et al. 1977) especially at the urban fringe will benefit urban and rural dwellers alike. Programs now being investigated by the International Development Research Center, the U.N. Development and Environmental Programs with potential funding by the World Bank will add new and exciting dimensions to the work of future urban foresters.

<sup>2</sup>Available as mimeographed separates from Forestry Dept., FAO, Rome, Italy. Attn: Associate Secretary-General Oscar Fugalli.

However, at present there seem to be a number of challenges offered to the urban forester that will influence his future activities. Although most of the formative problems associated with westernized urban forestry have been resolved, new perplexities have arisen as urban forest management has assumed a global dimension:

- (1) A shortage exists of trained urban forest managers who can lead programs within developing nations.
- (2) International information exchange of research and practical experiences is inadequate to apprise urban foresters of new developments. Language barriers are formidable.
- (3) Foreign aid programs generated by the capitalistic and communistic nations are not yet supportive of urban forestry development in the Third World.
- (4) Urban forestry experts often are called only after a new town is under construction or after redevelopment projects begin.
- (5) Adequate, quantitative data are lacking to depict global urban forestry areas and valuation.
- (6) More precise economic models and theory are needed to depict fiscal benefit/cost relationships, managerial cost effectiveness, and social costs of urban forest conservation and preservation.
- (7) Allocation of research and management funding for urban forestry projects and operations have fallen behind needs as agency and municipal budgets are affected by recession and inflation.
- (8) Regulatory legislation is inadequate and where present is seldom enforced.

In the near future four significant arboricultural or forestry conferences that include urban forestry programs should provide solution guidance to many of the foregoing challenges. As mentioned earlier, the 8th World Forestry Congress, where thousands of foresters will convene in the tropics of Java, will concentrate on how to improve the quality of life for people by effectively managing urban and near-urban trees and forests. In November, 1978 a National Urban Forestry Conference will be held in Washington, D.C. Par-

ticipants will examine the contributions to man's physical, economic, and social environments by urban forests and contend with the costs and responsibilities to plan, manage and protect those same urban forests.

The Quebec Chapter of our ISA will sponsor a North American Urban Forestry Symposium in August 1979, getting down to the basics of applied greenspace management to improve the appearance and vitality of small towns and inner cities. Special emphasis will be placed in improving tree environments in the redevelopment of metropolitan centers and the rejuvenation of worn out towns and villages. Finally, the XVIIth IUFRO Congress to be held in Tokyo in 1981 will examine circumpacific urban forestry research that will benefit those nations that ring the Pacific Ocean.

This array of international movements to regreen the world's openspaces with trees and forests also challenges the international community of arborists, ornamental horticulturists, landscape architects, and urban foresters. They are called upon to roll up their sleeves and get involved in global affairs.

A special challenge and a singular opportunity is offered to ISA. Through education, research, and practice, interdisciplinary teams of experts can offer significant assistance to both developed and developing nations as they green the world.

The theme of our current conference is "78 Crusade for the Preservation of Trees," but I would like to make a quantum leap into the future. I ask our ISA colleagues and all those concerned with trees and forests for urban spaces to join in a two-year planning endeavor in preparation for an international green decade to last from 1981 to 1990. Let's join with all nations in a ten-year program to halt needless destruction of trees, replant and conserve our urban forests, and prepare for a 20th Century that is tree and greenspace oriented.

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Director, Urban Forestry Studies Programme  
Faculty of Forestry  
University of Toronto  
Toronto, Ontario, Canada

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## ABSTRACTS

Van Alfen, Neal. 1977. **How and why of healthy plants**. Utah Science 38(4): 108-112.

Utah's unique soil and climatic conditions preclude routine transfer of plant disease research results developed in other parts of the country. In arid states, plant diseases are more subtle than in more humid areas. Pathogens that attack the foliage of plants are relatively uncommon in arid climates. These, of course, are the easiest organisms to see and control since protective chemicals are readily placed on the surface of the leaf. But diseases such as those that produce cankers on trees, attack the roots of plants, grow in the vascular systems of plants and/or are transmitted by insects do not need humid conditions. These diseases are by far the most difficult to control. Research is needed if we are to learn how to control these potentially costly although often inconspicuous problems. Utah's climates, soils, and topographic conditions often preclude adapting results from work done on the same diseases in other areas.