

URBAN FORESTRY EDUCATION¹

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Abstract. Urban forestry is a specialized branch of forestry which is multi-managerial in nature involving forests, watersheds, wildlife, outdoor recreation, landscape esthetics, individual tree care, waste recycling, and wood production. It encompasses many disciplines other than traditional forestry, including arboriculture, horticulture, plant pathology, landscape architecture, entomology, community planning and development, and political science. Universities need to revise their curriculum structures in urban forestry to reflect aspects other than traditional forestry so that graduates are better qualified to work in this field.

Urban Forestry is a relatively new field that has developed rapidly during the past 10 years. The term "urban forestry" has generated considerable controversy since its inception. Many believe that its content does not differ from arboriculture and more properly belongs in horticulture.

The concern of this paper is not nomenclature of the field or where it belongs. Instead, it is the educational backgrounds of people entering the field of urban forestry. What type of courses should be integrated into standard educational curricula, forestry or others, to provide the individual with the tools necessary to work in urban forestry?

Foresters have long been associated and concerned with trees in urban areas. One of the early texts dealing with street tree maintenance and arboriculture was written by Bernard E. Fernow in 1911, "The Care of Trees in Lawn, Street and Park." Fernow was a forester and was on the faculty of Forestry at the University of Toronto, Canada, at the time. His book has been referred to as the beginning of forestry education and arboriculture in Canada (Jorgensen 1970). Fernow's book is probably also the beginning of ur-

ban forestry in North America, since he devoted one chapter to *Esthetic Forestry*. However, Fernow disagreed with the term *forestry* or *forester*. He preferred *tree warden*. This term was not new. Towns in Massachusetts and other northeastern states had tree wardens as early as the 1700's.

Early developments in urban vegetation management centered on tree planting, tree maintenance, and landscape architecture. The concept of urban forestry or total management of the urban forest system did not mature until the mid-1960's. However, pressures began to build toward such a management concept as early as the 1930's. Ironically, the major impetus came not from within the system as much as from outside factors. Dutch elm disease was one of these factors, along with phloem necrosis, oak wilt, and others. With the advance of such diseases, came a recognition of the need for knowledge, and management systems to cope with them. Research was directed to needed areas, and specific courses in arboriculture were introduced at many universities. The need for competent individuals versed in shade tree management was recognized in many cities. Individuals, and in many cases, entire staffs were added to cope with the growing problems of managing the tree resources in urban areas. Individually, these took the form of city forester, tree warden, municipal arborist, etc. Collectively, they became park and tree departments, city forestry departments, or tree and landscape divisions of public works and transportation departments.

Yet, such programs were still limited in scope and centered around the concept of the in-

¹This paper was presented at the Midwest Chapter Meeting of the International Society of Arboriculture, Milwaukee, Wisconsin, on February 3, 1977. At that time, the author was on the staff of the Department of Horticulture and Forestry at Kansas State University and actively involved in teaching an upper level course in "Urban Forestry." The views presented are offered to stimulate thought and discussion regarding urban forestry undergraduate education.

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dividual tree and its needs. Cities had not yet come to grips with the concept of integrated urban forest ecosystem management. The concept of urban forestry was introduced first at the University of Toronto in 1965 (Jorgensen 1970). Jorgensen states that urban forestry, as developed in Canada, "does not deal entirely with city trees or with single tree management, but rather with tree management in *the entire area* influenced by and utilized by the urban population. This area naturally includes the watershed areas and the recreational areas serving the urban population, as well as the areas lying between these service areas and politically designated urban areas and its trees. The politically established boundaries for municipalities rarely include the entire geographical area influenced by urbanization."

An early and continuing spokesman for urban forestry in the United States is Professor John W. Andresen, formerly with Southern Illinois University, Carbondale, Illinois, now professor of urban forestry at the University of Toronto. He was one of the first educators to design an urban forestry curriculum.

In 1974, the Society of American Foresters (SAF) Urban Forestry Working Group defined urban forestry as follows:

"Urban forestry is a specialized branch of forestry that has as its objective the cultivation and management of trees for their present and potential contribution to the physiological, sociological, and economic well-being of urban society. Inherent in this function is a comprehensive program designed to *educate* the urban populace on the role of trees and related plants in the urban environment. In its broadest sense, urban forestry embraces a multi-managerial system that includes municipal watersheds, wildlife habitats, outdoor recreation opportunities, landscape design, recycling of municipal wastes, tree care in general, and the future production of wood fiber as raw material."

In this definition urban forestry is a new concept. It is a field that encompasses many different disciplines, thus arboriculture, municipal forestry, environmental horticulture and others are but specialties under the common umbrella

of "urban forestry." In themselves, they have not in the past nor do they now embody such a multi-managerial philosophy as found in the SAF definition of urban forestry.

Urban Forestry Education Today

As mentioned previously, terminology is not the main concern of this paper, but, rather it is the training of the people who are to work in urban forestry. Some would argue that traditional forest management graduates are entirely competent to work in the field of urban forestry. This probably depends upon the field of specialty within urban forestry. While this may be true when they are working with woodlands or forests which are managed as forests, for the most part, traditional forestry graduates are not adequately prepared to work in urban forestry. Most who feel otherwise forget that their expertise in the field has either developed over time by working in related specialties, by additional education in other sciences, by specialized research problems, or by utilizing a particular personal talent. Traditional forestry graduates need additional coursework or experience to allow them to work effectively in urban forestry programs. How many forestry graduates have taken a course in arboriculture? How many have taken courses in ornamental plant materials, nursery management, turf management, landscape design, urban land use planning, regional and community government or development, and urban tree insect and disease problems? For that matter, how many have taken a specific course in urban forestry to expose them to the multi-managerial concepts inherent in the SAF definition of this field? The same is true for horticulture graduates. Many environmental horticulturists desire to work in urban vegetation management. Again, their qualifications will allow them to fill specialty areas within urban forestry. But, these people probably are not qualified to be urban foresters. Even though arboriculture may be included in their programs of study, very rarely will they have taken courses in forest ecology, silviculture, forest management, forest tree insects and diseases, forest hydrology, forest soils, forest protection, land use planning,

and regional and community development.

It is evident that current programs are not doing the job. They are either turning out students who can deal with forest communities but are lacking in individual tree care background, or students who can relate to individual tree management but can't see the forest as a community because of the individual tree philosophy.

Clearly we need interdisciplinary programs which will give students the proper exposure to both forestry and horticulture along with some of the necessary related subjects mentioned previously. Curricula in urban forestry belong within forestry colleges with major support coming from horticulture and related areas, although this is not an absolute. Many foresters believe that urban foresters should be first and foremost foresters. In other words, a horticulture graduate with a considerable course background in forestry would not qualify. They feel this is important to "professionalism." However, this is not the proper approach to responsible educational programs in urban forestry. The latter student is often better qualified to work in urban forestry than a traditional forest management graduate because of the broader educational background in vegetation management. Urban forestry is a concept, a management philosophy; it is not simply a staff position, though it may be in specific instances. Thus, the title of "urban forester" should not be limited to foresters but given to all who apply this management philosophy.

While urban forestry curricula are, for the most part, best served by Colleges of Forestry, the design of urban forestry curricula must be more flexible to insure that sufficient courses from supporting areas are included; horticulture, landscape architecture, and regional and community planning and development in particular. In doing so, we may wish to review our stand as to SAF forestry accreditation (i.e., so many courses in different forestry subjects to qualify as a forester). It may be better to eliminate certain forestry course requirements in favor of expanding exposure to courses in horticulture, landscape architecture, land-use planning, etc.

According to Andresen and Williams (1975), 33 universities have initiated new courses and curricula in urban forestry since 1968. Yet, it was disappointing that many of the programs listed in that paper did not even have specific offerings in arboriculture or urban forestry nor many of the other courses mentioned previously. However, others have recently incorporated the integrated approaches mentioned earlier. Most notable of these in the United States are Michigan State University and Texas A&M University. This is encouraging as urban forestry is a field that is a blend of forestry and horticulture plus other topics of study related to cities and urbanization.

A major limitation in urban forestry education, as in other disciplines, is that it is impossible to incorporate all of the necessary courses into a 4-year program of study. Job experience and advanced studies will always play a major role in preparing people to apply the concept of urban forestry. That does not mean, however, that we should simply continue with the traditional approach. We must recognize that traditional programs are outdated by the demands of this new branch of forestry. Once we realize this and structure our curricula to represent this concept, plus offer specific courses in urban forestry, only then will we be turning out graduates who are qualified to work as urban foresters.

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