

## **Urban Forestry**

### **A Position Statement of the Society of American Foresters**

Initially adopted by the Society on April 24, 1990, revised and adopted by the SAF Council on December 8, 1997, November 11, 2002, and November 14, 2008. It shall expire on November 14, 2013, unless after subsequent review, the SAF Council decides otherwise.

### **Position**

The Society of American Foresters (SAF) believes actions and practices that strengthen and improve the urban forestry discipline within the broader profession of forestry are vital to the social and economic well-being of the nation. The SAF strongly supports activities and funding levels that promote the establishment, maintenance and sustainability of healthy forest ecosystems for all urban communities. The SAF supports integrating the science and art of urban forestry into urban land use planning systems and related commitments. The Society believes that the sustainable management and use of urban forest resources requires an appropriate policy and regulatory framework, forward-looking research and investment programs, and institutional strengthening to make government and private sector investments and partnerships in urban forestry more effective.

### **Issue**

Urban forests play an important role in our nation's urban landscapes. Individual urban forestry programs throughout the U.S. face challenges in meeting increasing demands for forest ecosystem goods and services embedded in rapidly expanding urban landscapes that serve expanding human populations, and in finding sustained financial support and long-term commitments for effective management of urban forest ecosystems. Urban forests can make a considerable difference in quality of life by directly influencing the daily lives of nearly 80% of the U.S. population. Further, what happens in urban areas can have a profound impact on urban ecosystems and extended exurban landscapes. As ecosystems are connected, the use and management of rural forests also impacts urban landscapes and people. Wildlife, fire, recreation, and water management policies are examples. Considering a growing urban population and the benefits of the resource, urban forests are likely to be even more important in the 21st century (Dwyer et al. 2000a). The increasing significance of urban influences across the United States calls for policy makers, planners, and managers at the national, regional, and local levels to bring cooperative attention to planning and management efforts to sustain urban forests.

### **Background**

Urban forestry is the integrated biophysical management of urban forest ecosystems that improve the quality of life for all urban dwellers. This includes the art, science and technology of

managing trees and forest resources as an integral part of urban ecosystems for environmental, social, economic, and aesthetic benefits. The urban forest covers a large and expanding area. Approximately 3.5% of the United States is currently classified as urban. Urban areas have grown tremendously, with urban sprawl being a significant environmental concern of the 21st century. Between 1969 and 1994, urban areas doubled in size (Dwyer et al. 2000b). Substantial population growth outside urban areas continues to extend urban influences to forest resources across the landscape, particularly in places with considerable scenic and recreational value (McGranahan 1999; Stewart 2001). Across the United States, tree canopy cover in urban areas averages 27%. With approximately 3.8 billion trees in urban areas, the magnitude of the urban forest resource should not be ignored (Dwyer et al. 2000b).

### *Ecosystem Goods and Services*

Urban forests provide a multitude of benefits, including the reduction of energy costs through summer shade and winter wind protection (Abdollahi et al. 2000; Akbari et al. 2001). Summer time studies have shown a 1° to 2°F (0.5° to 1.0°C) decrease in temperature for every increase of 10 percent vegetation cover. Homes sheltered from the wind have winter heat savings of as much as 10.3 thousand BTUs (Nowak et al. 1994). Also, there are growing opportunities for the use of urban wood and landscape waste for biofuels. Additional benefits of urban forests include slowing and reducing stormwater runoff, flooding, reducing damage from hurricanes and other coastal storms, erosion, and reducing potential sources of water pollution. Tree foliage works as a natural air filter of particulate matter and pollutants such as ozone, nitrogen oxides, ammonia, and sulfur dioxides (Nowak et al. 2006). Foliar filtration, when combined with the intake of carbon dioxide and the production of oxygen through photosynthesis can have a significant effect on smog and reduce overall air pollution. Nationally, between 400 and 900 million metric tons of carbon are stored in the country's urban forest (Nowak et al. 1994).

### *The Changing Landscape*

The amount of urban land in the U.S. is projected to increase (on an area basis) by 79% during the next two decades (Alig et al. 2004). As urban areas expand, forests may be destroyed, fragmented, or “subsumed” into urbanized landscapes, exposing them to a number of threats – including destruction of native species and biodiversity, invasion by exotic species, human-caused fires, pest and pathogen outbreaks, and unmanaged outdoor recreation (Chavez 2005; Nowak et al. 2005). Social systems and attitudes may also be impacted with more urban people and more urban infrastructure. People's attitudes towards resource use and management may become more urbane, including the notions of less consumptive behavior and more concern for the environment (Egan and Luloff 2000). Further, some sociologists think the fundamental processes of community development and community are negatively impacted by both unhealthy environments and the separation of people from nature and from each other in a growing suburbia (Wilkenson 1990). Local planning processes do not often address the issues created by urbanization, local policies often fail to address these issues, and local management agencies (i.e. city planning and forestry departments) are challenged by the situations created by rapid urban growth, along with insufficient resources to deal with them (e.g. Lewis and Boulahanis 2008).

### *Sustainability*

Urban forest sustainability is broad-based and complex due to the diverse and dynamic character of urban forests and their environment, owing to the impact that people and their activities have on urban trees - e.g., planting, removal, pruning, land development, plant injury (Nowak 1993, Clark et al. 1997). Wide-ranging activities of people are among the major forces for change in the health and character of the urban forest and ultimately determine its sustainability, more so than with any other forest resource (Nowak 1993). In many urban areas, lack of proper tending and maintenance results in tree mortality rates much higher than can be sustained over the long term.

Given the relatively slow growth rates and high values of urban trees, substantial efforts are warranted to reduce the losses of large trees. It may take decades for newly planted trees to become large enough to make substantial contributions. Large trees are especially important for aesthetics, air purification, rainfall interception, shade, and symbolic community heritage values. In fact, it is the enduring nature of large trees in a rapidly changing urban environment that contributes to their high symbolic values and a sense of permanence in our fast-changing society.

### *Social Dimensions of Urban Forests*

Through healthy places and increased interaction and decision making, trees and nature also play an important part in both increasing community capacity and the process of developing community (Elmendorf 2008). Accessible open space has been found to reduce chronic fatigue associated with urban life. Trees, shrubs, and related plants are valuable community assets that enhance neighborhood beauty, recreational opportunities and wildlife habitat, and also provide city dwellers with opportunities to experience and understand forest-related benefits (Kuo and Sullivan 2001). Nature also provides urban dwellers with safety and civility values including less domestic violence, general calming, and improved traffic safety (Kuo 2003; Wolf 2006). The urban forest provides significant economic values including increased property values (Irwin 2002) and greater visitation and spending in forested commercial areas (Wolf 2003). These opportunities in turn, help them to understand and appreciate the value of the nation's rural forest resources. Urban forests also represent an opportunity to engage a variety of stakeholders (citizens, civic officials, developers) in dialog about the value and function of natural resources. Although forest protection in urban settings can be contentious, a focus on shared values may generate additional support for forest management activities (Thompson et al. 2005).

### *Factors Limiting Urban Forestry Programs*

Establishing and maintaining urban forests requires an investment of significant resources in community infrastructure (Dwyer, et. al. 2000b). Urban forest regeneration, for example, requires relatively large planting stock and often expensive installation. Program funding must include annual maintenance costs for utility line clearance, storm damage repair, debris removal, and protection from pests and pathogens. Because of increasing financial constraints at the municipal level, program-supported planting and maintenance of urban forests has decreased. Many communities lack professional staff and the information and funding necessary to make planning decisions. Long-term planning, appropriate tree species selection, care and management practices, and sustained local budgets would allow municipalities and communities to avoid crisis management (e.g. Hauer and Johnson, 2008).

Coordination among federal, state, and local governments, non-profit organizations, and educational institutions will be essential to effectively plan for and manage our urban forest resources in the coming decades. Creating opportunities to meet the wishes of communities to improve their natural resources and forest environments will help engage additional partners in improving the quality of life for all citizens.

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