

CURRENT URBAN FORESTRY POLICY OF U.S. GOVERNMENTS¹

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Abstract. US urban forests are financed and managed primarily by local, state and federal governments. More correctly, these forests are actually underfinanced and mismanaged. Improving the condition of our urban forests may depend upon an increase of planting and maintenance expenditures by an estimated \$100 to \$150 million annually, and by increasing the cost-effectiveness of the approximate \$300 million now spent. Improvements will also result only from retaining more skilled practitioners and managers, or from upgrading the skills of existing personnel. Governments must also be restructured so that innovation and efficiency are encouraged and rewarded.

Urban forest policy should be directed to the needs as expressed by urban forest managers, rather than to the somewhat inaccurate preconceptions of policymakers from traditional woodland forestry backgrounds. In depth communication among all levels of government and private practitioners will be the first step toward significant improvement of the condition of urban forests.

The urban forest is of necessity primarily a public property, and in the US is managed through actions of local, state and federal government agencies. At the same time, trees and other urban vegetation are considered critical to the quality of urban life. Even in 1970, a Harris poll found that "trees and green things" topped a broad list of basic life satisfactions (Harris, 1970).

But the urban forest provides intangible benefits and lacks an articulate or clearly defined constituency. The increasing resistance to higher taxation has by default resulted in the severe underfinancing of our urban forests. This is unfortunate because trees may be one of the most cost-effective methods to stabilize urban real estate values, a national goal. Underfinancing compounds the historical and continuing problem of mismanagement of urban forests, widely acknowledged to be in poor condition.

Management of urban trees can be improved, but only after a vocal public and professional constituency has been formed, all levels of government improve speed and accuracy of decision-making, and after reprioritization of government

spending toward quality of life concerns has been achieved.

State of the Urban Forest

Our current urban forest population is considered by most observers to be of improper tree species distribution and moderately to severely undermaintained. A scarcity of data makes measurement of the condition of the urban forest difficult. However, findings of existing surveys (Gerhold, et al., 1975; Ottman and Kielbaso, 1976) can be extrapolated to provide the following estimates. The urban street, park and urban highway tree population is about 60 million. Losses of the population may amount to between .5 and 1 million trees annually. Plantings from all sources are probably within the range .8 to 1.5 million trees annually.

Ottman and Kielbaso (1976) estimate the total 1974 municipal street and park tree budget at \$240 million. Perhaps \$65 million was then spent on removals and \$40 million on planting. It is noteworthy that municipalities spent over eight times as much on refuse removal as on trees, annual spending then, and probably now, being under \$2.00 per resident. When financing by state highway agencies, the Department of Housing and Urban Development (HUD), the Heritage Conservation and Recreation Service, and the Economic Development Administration (EDA) is added, the total current public sector planting budget may range from \$65 to \$85 million annually.

It is apparent that current plantings are probably keeping abreast of losses, except in areas of the country like the Northeast, where municipal tree budgets significantly trail the national average, or in areas where cyclical losses are peaking, due for instance to Dutch elm disease. It is also apparent that we spend little on our urban forests compared

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with perceived benefits. Plantings should be increased. The 60 million tree urban forest population should be upped to about 100 million during the next two decades.

Municipalities are the level of government most directly responsible for management of urban trees, financing about 85 percent of the total cost of US urban forests. Municipalities will continue to be the unit of government most suited to the task of urban forest management. But it is at the municipal level where current policy is most deficient. Underfinancing is the most acute problem.

To picture the municipal situation: the typical municipal forestry staff person is responsible for the care of an overwhelming 7200 trees. Forty-six percent of localities of greater than 2500 population have an urban forest manager whose background does not relate to plant materials. Only 19 percent of managers are professional arborists. Of urban forest managers questioned, 47 percent felt they had insufficient experience or training to perform their duties (Ottman and Kielbaso, 1976).

Only 65 percent of managers are aware of or use differences between cultivars when making planting decisions; only 50 percent of managers clearly consider local occurrence of tree pests when choosing among species. Limited personal experience is usually relied upon more heavily than published technical information (Gerhold and Steiner, 1976). Only 30 percent of municipalities use any type of tree inventory to assess needs, including even quick moving vehicle checks. A scant three percent of municipalities used a computerized tree inventory in 1973 (Bassett and Lawrence, 1975). And finally, only about a quarter of municipalities use master street tree plans or urban forest management plans for planting. More than half of cities and towns manage trees by the crisis system, responding to complaints of critical nature, and to emergencies only after they have occurred.

In the northeastern US, the above picture is optimistic. During budget review time, the already underfinanced urban forest is the perennial target of cost cutting measures. The typical urban forest manager, especially in cities or towns of less than 50,000 population, not wholly suited to his or her

task, is unable to factually defend budget requests. Tax crusading finance committees, altermen or council members, entirely lacking in urban forest management expertise, often make ultimate spending and policy determinations. These municipal budget makers, usually facing two year election cycles, are penalized for decisions which would reduce long term urban forest management costs or deliver improved long term benefit, but which would add to current budgets.

Budget making by uninformed cost cutters results in the inefficient and substandard performance of necessary maintenance, and also in overpressured forest managers who typically lack either the time or inclination even to answer letters or phone calls. Poor communication is an essential result. This broken down decisionmaking hierarchy makes flexibility and innovation improbable. The typical small city or town is often unable to plant a more costly tree species which would deliver substantial payback in reduced lifetime maintenance costs. The Norway maple, the most widely used species in the northeast due to its low planted cost, will continue to unnecessarily burden taxpayers until required policy and structural changes are instituted.

The root solution can only result from taxpayer insistence upon adequate forestry budgets. Then adequately trained and competitively paid managers can be retained. Such persons can then work with the public to determine needs and then manage the urban forest at the least long term cost per unit of desired benefit delivered. Zero-based-budgeting should replace the former buzzword, level-funding. Tree inventories, planned grouped maintenance, and orderly planting plans can then be implemented.

Unfortunately municipalities have little choice but to raise taxes to support adequate tree programs. A significant federal aid program is unlikely in the short term. Opinion polls disclose the current tax revolt to be against inefficiency and muddled spending priorities, not against desired new or expanded public programs, and certainly not against those programs raising the quality of life. A properly informed public may vigorously support the added one to two dollar per capita cost of an adequate municipal tree program. It is among our

tasks as urban foresters and arborists to catalyze public support. As a rough standard, an adequate municipal forestry budget will be \$7 to \$10 per tree, or \$1.50 to \$2.75 per capita.

One last problem to be resolved: recently the Stanford Research Institute released a study showing that about 8 of 10 municipal governments are in some measure corrupt. This is a definite obstacle to rational decision making.

State forestry agencies have become involved in improving our urban forests during recent years, accomplishing much with modest program funding levels. The State of Georgia is a front runner, having employed about ten full time urban foresters for a number of years. The USDA Forest Service Urban and Community Forestry matching grant program has stimulated a number of state forestry agencies to begin providing technical assistance to municipal urban forest managers. With \$3.5 million funding, this federal grant program is one of the few parts of urban forestry to have been adequately funded. Unfortunately, this Cooperative Forest Management program has been improperly designed and falls short of full positive impact.

Many states most in need of technical assistance grants cannot secure matching funding from state legislatures. And the overlap of fiscal years between some states and the federal government makes grant application and administration difficult and time consuming relative to the dollar size of the program. These factors inhibit already understaffed state forestry agencies.

State foresters who have successfully obtained Urban and Community Forestry grants are unsure of the year to year duration of the federal program, and are hesitant to hire full time specialist urban foresters. Many states have responded by recycling staff woodland foresters into state urban forestry programs as an in-kind match for the federal CFM grant program. Woodland and urban forestry require widely different skills and knowledge. The desired effect of an urban forestry program can only be hampered by staff operating outside their fields, with little commitment to a perhaps on again-off again program, and burdened by the increasing requests for technical assistance of small private woodlot owners. Some

states may slide into defining these non-industrial private forests (NIPFs) as urban forests as an indirect bias resulting from this staff recycling.

What could be done at the state level? Gerhold et al (1975) and Ottman and Kielbaseo (1976) provide excellent data on perceived technical assistance needs of municipal urban forest managers. State Urban and Community Forestry programs could improve their assistance targeting by reviewing these expressed needs.

Much of the foregoing information was gathered during the author's effort to market his firms' urban forestry consulting assistance to a number of state foresters. These efforts have been hindered as two of nine State Foresters contacted would not consider use of consulting foresters from outside their states. This protects the interests of in-state foresters. Qualified urban foresters are few in number, and it is likely that such walled states are impeding information flow necessary to the success of their own urban forestry programs. Such action and policy inspires a theme of this paper: government resistance to required innovation.

Information flow problems are compounded by the current most accepted method of credentialing urban foresters, the method accepted by many state foresters. The method works as follows. The Society of American Foresters (SAF) currently defines urban forestry as a specialized branch of forestry, rather than an entirely different field with an almost entirely different body of knowledge. According to this definition, all foresters could then be urban foresters. SAF foresters therefore credential themselves without adequate peer review merely by checking off urban forestry on some membership questionnaire. The credibility of SAF and of the urban forestry profession will continue to be damaged until present credentialing is revised.

The Federal Level

Three federal agencies — HUD, EDA, and the Heritage Conservation and Recreation Service (formerly BOR) — contribute very significantly toward the cost of replanting our urban forests. There are no accurate data, but these three agencies as part of their urban assistance efforts,

spend between \$15 million and \$35 million annually on woody vegetation planting, amounting to perhaps 25 percent or more of the nation's total urban tree planting spending.

None of these three agencies controls allocation of urban grant funds toward tree planting, leaving this entirely up to the recipient state or local government body. No agency attempts to measure cost-effectiveness of these funds spent on tree planting. Local autonomy is the guiding principle. Decisions concerning where to plant and which species are left to municipal staff planners or landscape architects, to local forestry managers and park and recreation administrators, or to consultant planners, architect-engineering firms, or landscape architects. The general level of expertise of municipal forestry managers have been discussed.

Staff and consultant landscape architects often fulfill the role of the urban forester when expending federal aid funds. Landscape architects select tree species predominantly from lists of trees classed indefinitely as "hardy to city conditions" (Gardescu, 1976). The bulk of these trees are expensive downtown sidewalk and mall plantings that survive an average of 8 to 15 years and never reach maturity (Foster and Blaine, 1978). Landscape architects perform admirably at what they are trained and paid to do. They do not plan for tree survival past the establishment period, for tree maintenance requirements, or for local urban environmental effects upon a tree's long term performance. Thus a significant fraction of federal tree planting funds are wasted. Responsible landscape architects need the assistance of urban foresters, or an immediate updating of their training.

The author has communicated with policy makers within each of the three mentioned federal agencies. There was little awareness of this form of tax dollar waste on improperly planted urban trees. Although each policy maker acknowledged the problems and was grateful for the information, the author was unable to obtain commitment toward even the simplest or least costly of remedies, i.e., preparation of non-binding tree planting recommendations for distribution to grant recipients.

Other remedies politically more difficult to implement would include the requirement that grant recipients have adequate urban forest management plans (a stipulation in versions of the pending Urban Trees Act), funding predisposition to use of trees in mini-parks with more favorable growth environments than sidewalk cutouts, or the very difficult to implement granting of tree maintenance trust funds of approximately \$150 per tree planted.

The current HUD Community Development Block Grant urban aid program allows expenditure for urban forestry planning at local discretion, but few municipal planners currently recognize the value of long range planning for trees, or are not aware of the inadequacy of some landscape architect's services. It is unfortunate that the political reality of local autonomy often takes precedence over considerations of cost-effectiveness when federal funds are distributed, or when policy is being shaped.

Many factors discussed in this paper restrict growth of professionalism among urban foresters and arborists. We must recognize that important structural changes at all levels of government will precede any upgrading of our profession.

Some Possible Remedies

It is apparent that we can wring more benefits from the approximate \$300 million we now spend annually on urban trees. But increased spending efficiency will by no means entirely correct the present underfinancing of our urban forests. In order to bring the total urban tree population to a desirable 100 million level and to adequately maintain existing trees will require increased annual spending of an approximate \$100 to \$150 million minimum.

The pending \$10 million Urban Trees Act, not favored by President Carter, is thus ten times too low and should be expanded or converted to uses where a ten million dollar funding level will have a more significant impact on the condition of urban forests, and a better return on municipal staff time spent on grant application and administration. Increased state spending can also improve our underfinanced urban forests. In FY 1976-1978 Minnesota spent \$26 million to match municipal

Dutch elm disease control and tree planting efforts.

Tax revolt notwithstanding, we arborists and urban foresters should vigorously support increased spending on trees and should put the final decision in the lap of an informed public. We must seek the support of this public. But because total US taxation has reached what many economists and all taxpayers consider a virtual maximum, we can rightfully ask for increased public spending on trees only with equivalent reductions elsewhere. In short, a reprioritization of public spending.

Localities and many states have little budget flexibility and so the bulk of spending redirected toward urban forests must be at the federal level. The President's Office of Management and Budget (OMB) has divided the federal budget into controllable and non-controllable outlays. It is from these \$120 billion controllable outlays where spending reprioritization must take place. OMB classifies over 55 percent of controllable expenditures as defense programs. As an urban forester, I find myself in support of enlarged efforts to achieve world disarmament so that our nation and world can attend to our more important quality of life needs.

As if achievement of world peace were not a difficult enough barrier to adequate urban forestry, many government organizations responsible for urban forestry must also be restructured. We can simply no longer afford slow moving, inefficient, and innovation stifling governments. Federal agencies should no longer view themselves as spending machines, but should make grant applicants compete for funds on the basis of measurable desired results. Healthy, surviving trees is one common sense measure of value. Agencies themselves should foster internal competition among regional, state and local administrators for innovative cost-effective solutions to carefully determined problems. And those in government who do most to increase the benefits derived from tax expenditures should be rewarded with advancement and higher pay. Public employees who ignore or stifle required innovation should look for more suitable jobs.

Municipalities could recognize and encourage citizen participation in urban forestry planning,

becoming more flexible to the needs of the various "neighborhoods." Smaller towns and cities could make use of multi-jurisdictional programs to cut costs and ease management by sharing tree maintenance equipment or personnel. These are hard to implement, but are a good, direct route to improved urban forests.

State forestry agencies could curb the coming barrage of urban forest brochures and retain trained, full time urban foresters to help answer tough questions in useful detail. Rather than spend tax dollars intoning about the value of tree inventories, states could set up computer services to process inventory data, or could underwrite the cost of development of a weatherproof, hand held inventory machine for direct entry of data onto magnetic tape. Or states themselves can generate immediate effect by improving state highway agency tree plantings.

At the federal level urban forestry policy review and reformulation is of first importance. An ad hoc urban forestry policy review group composed of interested public, knowledgeable professionals, the vested interests, and agency representatives should be formed. Perhaps to start, federal agency officials should reign in the principle of local autonomy when precious tax dollars are wasted by haphazard and sometimes corrupt grant-slingers or mayors looking for token flowering tree plantings during election year, maintenance be damned.

Emerging urban forest policy at the federal level suffers finally because the bulk of policymakers are of traditional woodland forestry background. Attempts to fit traditional forestry models or policy to the urban forest are entirely off the mark. The gap between foresters' and arborists' views of the urban forest is wide. The currently accepted SAF definition of the forest as an ecosystem, although correct, is incomplete and inadequate. Resources utilized in urban forest management are directed primarily to the individual tree. Growth environments vary widely between trees in very close proximity.

Traditional forestry methods and solutions such as aerial photography or waste wood utilization, although productive, should not be the focus of urban forestry research. Practicing urban forest

managers and arborists should be consulted in much more than a dutiful way before tax dollars are allocated to research or to implementation programs. Communication among all levels of government and private practitioners is a good first step toward accomplishing solutions to urban forest problems.

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EPA SPILL REGULATIONS

Hazardous-material spill regulations were announced recently by the Environmental Protection Agency. The regulations providing for large civil penalties to prevent spills by improving packaging and handling techniques, apply to all facilities that can cause chemical spills, including industrial plants, storage facilities, and transportation vehicles such as trucks, railroad tank cars, and tanker vessels. The regulations, applying initially to 271 hazardous chemicals, specify five categories based on relative toxicity. A designated "harmful quantity" ranging from one pound to 5,000 pounds, specifies the amount of a particular chemical that is considered hazardous when dumped or spilled.

In cases of spills or discharges of harmful quantities, responsible parties are liable for cleanup costs and may also face civil penalties of up to \$5 million. The Government could recover cleanup costs up to \$50 million, with no limit on the discharger's liability in cases of "willful negligence." Failure to report a spill or discharge of a harmful quantity could result in criminal penalties of up to \$10,000 or a year in jail or both.

In addition to adopting the final spill regulations on the 271 chemicals, EPA also proposed adding an additional 28 chemicals, including kepone and

carbon tetrachloride, which have been involved in serious spills in Virginia and Ohio respectively in the past two years.

The regulations "place the responsibility upon dischargers to notify federal authorities, and appropriate state or local authorities, immediately when a spill or other illegal discharge occurs," EPA Administrator Douglas M. Costle said in a prepared statement announcing the regulations at a press conference. The regulations "require those who are responsible to pay the costs of cleaning up a spill," he said.

Toxicity to aquatic life resulting from short-term exposures was EPA's first consideration in choosing substances to be covered by the regulations, Costle said. "Substances were chosen based on their demonstrated toxicity to aquatic animals and the fact that their widespread use by industry gives them a reasonable chance for spillage." He said those criteria are being revised to include also chemicals causing cancer, birth defects, and genetic abnormalities from long-term exposures. "We will also include those that are dangerous primarily because they accumulate in animal tissue and thus threaten the aquatic food chain," Costle said.

"We know that at least 700 damaging spills oc-