

URBAN FORESTRY IN COLORADO SPRINGS, COLORADO¹

by Ronald A. Morrow

Abstract. Colorado Springs, Colorado, is located in the semiarid West at an elevation of 6035 feet and is nestled in the plains at the base of 14,110 foot Pike's Peak. In 1910 the city created a Department of Forestry which has steadily grown through the years. The Forestry Division's responsibilities now include the management of more than 50,000 street trees and 15,000 park trees in addition to some unique projects. Expenditures to manage the city trees totals \$779,211 for 1981 which is roughly \$3.60 per city resident or \$10.75 per city tree. This article describes the many functions of urban forestry in Colorado Springs, how they are funded and some tips on strengthening tree care programs.

Colorado Springs is nestled in the valleys and plains below Pike's Peak. The top of Pike's Peak is 14,110 feet above sea level and became famous in the mid-1800's for leading prospectors to the gold fields. The area is part of the semiarid West with the city standing more than 6000 feet above sea level. Low humidity and an average precipitation of fourteen inches combined with an abundance of sunny days makes Colorado Springs a beautiful place to live. High summer temperatures can be in the 90's with the low sometimes dropping below 0°F in the winter.

Today the city has a population of more than 215,000 and covers approximately 110 square miles. More than seventy percent of the city was once open grassland, with the remaining thirty percent covered with native ponderosa pine, pinyon/juniper, or scrub oak forests. The bulk of the open grassland is now forested with trees planted through the efforts of the city and its residents.

Urban forestry in Colorado Springs started just after the founding of the city by General William Jackson Palmer. With the city located in the treeless grassland General Palmer initiated a massive street tree planting program shortly after the city's founding. On August 3, 1910, the city created a Department of Forestry and a City Forester was appointed shortly thereafter. This makes Colorado Springs one of the first urban forestry programs west of the Mississippi River.

Tree planting in the late 1800's assured

beautiful tree lined streets, and the trees were maintained by the City Forester and his crew. During the years, the City Forester's responsibilities have expanded to include the management of more than 15,000 trees in the city's park system and more than 50,000 trees along 850 miles of street rights-of-way. Additional responsibilities include environmental programming, regional park management, urban wildlife management, tree planting projects, street rights-of-way landscaping, alley tree maintenance, and tree insect/disease diagnosis. In the remainder of this article I will review how our trees are managed and describe several of the unique projects conducted by Colorado Springs.

Services Offered in Urban Forestry

More than \$750,000 will be spent in 1981 on urban forestry in Colorado Springs (Refer to Table 1 for budget detail), which is an expenditure of roughly \$3.60 per resident or \$10.75 per city tree. These expenditures fund street tree maintenance, street rights-of-way landscaping assistance, tree service licensing, park tree maintenance, tree planting programs, tree insect and disease diagnosis and control, and various other services.

Table 1. 1981 Urban forestry budget for Colorado Springs, Colorado

| Description | |
|--------------------------------------|-----------|
| Salaries (13 permanent; 8 temporary) | \$248,996 |
| Operating | \$16,092 |
| Vehicle lease and maintenance | 138,843 |
| Dump fees | 3,000 |
| Tree maintenance contracts* | 266,000 |
| Tree planting** | 102,000 |
| Capital purchases (chain saws; etc.) | 4,280 |
| | \$779,211 |

* General Revenue Sharing money from the federal government.

** \$40,000 is from fees paid by builders for new home street tree planting

¹Presented at the annual conference of the International Society of Arboriculture at Boyne Falls, Michigan in August 1981.

Street tree maintenance. The maintenance of street trees takes up the bulk of each year's budget. To assist in managing this multimillion dollar natural resource, a computerized street tree inventory system was initiated in 1980. Each street tree will eventually be placed into computer storage, which provides fingertip availability of information on the species, size, location, condition and trim/spray history of every tree. Each tree will be recorded by address and location, with information on utility type and placement, sidewalk placement, street lights, traffic signs and street right-of-way width also available. Programs are available to estimate tree value and to develop tree trimming/spraying/planting schedules. By computerizing these data, the urban forest manager will be able to provide individualized tree care while still accurately determining whole forest needs.

Contract with local private tree service firms are used primarily to provide the maintenance of street trees. All regular street tree trimming is done by contract, while city crews handle emergency traffic hazards. Current budgeting allows the city to provide a complete trim for each street tree every 12 to 15 years (3000 to 5000 trees annually). Tree spraying for 9000 to 11,000 trees, annually, is done as needed. Major pest problems are fire blight, tussock moth, mountain pine beetle and Dutch elm disease. Street tree removal is accomplished during the winter months by forestry crews, which requires year-round employment for the majority of the employees. The exception is elm removals for Dutch elm disease control which are done by contract during the busy summer season.

Street rights-of-way landscaping assistance. Although street tree trimming, spraying and removal are provided by the city, watering and fertilizing of street trees, and all other street parking maintenance are by ordinance, the responsibility of the contiguous property owner. To assist the homeowner the city distributes two free booklets, *Tree Care Tips* and *Street Parking Landscape Plans*. *Tree Care Tips* provides information on tree planting, tree care, recommended tree planting lists and brief descriptions of ordinances relating to forestry.

The *Street Parking Landscape Plans* provides sketches of possible landscape plans, listing of materials needed, estimated material cost in addition to watering requirements and cost. In the last five years many people have replaced grass street parkings with rock to reduce water use, and therefore their utility bills. The landscape plans were developed to show how to conserve our precious water resources, while still keeping the benefits derived from plants.

Tree service licensing. In 1970, an ordinance was adopted, creating an Arborist Board whose primary responsibility is to oversee the licensing of tree service firms that operate within Colorado Springs city limits. The board is composed of five members who work in the green industry (two professional arborists, a nurseryman, a landscape designer and a sprayer). All members are appointed to three year terms by City Council. To be licensed, an applicant must satisfactorily pass both a written and field test. The board reviews these tests and must approve each applicant prior to issuance of a license.

The license fee is \$25 annually plus an initial \$25 application fee. The license is issued through the City Clerk's office, which also requires the tree service company to have proper insurance. The city requires a minimum policy of \$100,000/\$300,000 for both bodily/injury and property damage. Through the licensing program the city has virtually eliminated the "fly-by-night" operator and poor trimming techniques. Local tree service companies have supported the licensing program, and have helped in enforcement by notifying the City Forester's office of unlicensed firms working in the city.

Park tree maintenance. There are more than fifty different species of trees in the approximately 15,000 trees located in the city's neighborhood park system. All maintenance of park trees is done by city employees (7 permanent, 4 temporary) with the exception of tree spraying, which is done by contract. Tree trimming is more intensive in the park system, with a four to six year trimming cycle. In addition, a special two man crew handles any special needs, and concentrates on small tree trimming to minimize future problems.

Tree planting programs. The Urban Forestry Division administers both street tree and park tree planting programs. The trees are purchased through local nurseries to support that section of the local economy. Three cooperative programs are currently authorized to promote street tree planting. The first, provides city technical assistance and labor for neighborhood tree planting. To qualify, more than twenty trees must be planted, and homeowners must purchase the trees and other materials. With the advent of a new home tree planting program in 1976, this program has not been fully utilized. The new home street tree planting program is funded equally by home builders and the city. When a builder obtains a building permit, a \$30 fee is assessed, and the city plants a tree after the new homeowner moves in. All trees are planted by contract. Any trees refused by homeowners are planted at nearby parks. The third street tree planting program is geared towards neighborhoods that need replacement trees. This program is also cost-sharing, and provides tree certificates (which cost \$5 each) that pay one half the cost of a tree up to \$50, which can be redeemed at participating nurseries. These programs enable the planting of 1000 to 2000 trees annually along the streets.

Park tree planting utilizes four different funding approaches. The first, is funded through new park development projects which provide "instant" parks and are funded through citywide capital improvement funds. A second program, the Tree Tribute, initiated in 1980, is funded entirely through donations. Through a donation, existing or new trees can be dedicated to someone, or for an event. Many people use this program to memorialize the death of a loved one, but it can also be used to recognize births, top employees or special events. The mainstay of park tree planting is the annually funded park tree replacement project from the city General Fund. In 1981, \$20,000 is available to purchase trees to replace those lost to insects, diseases, vandalism or other causes. Without this program, Colorado Springs could not perpetuate its urban forest and continue to receive its many benefits. Lastly, funds received from vegetation damage claims are used for tree plantings. Police reports are received on

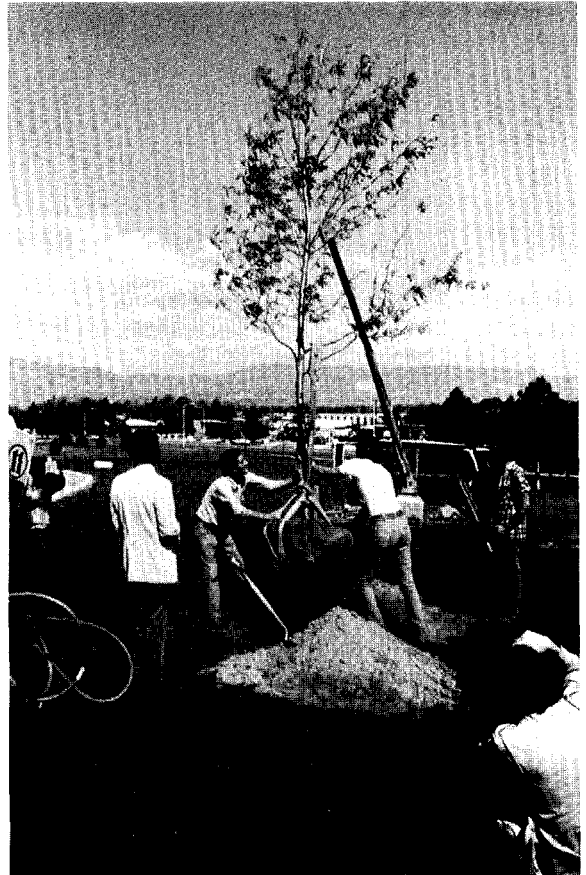


Fig. 1. Planting a dedication tree as part of the Tree Tribute program. Officiating at the planting was Leon Young, Vice-Mayor. A local television reporter and newspaper photographer record the event.

all auto accidents that involve trees with any damages (as determined by the ISA supported *Guide for Establishing Values of Trees and Other Plants*) being assessed to the guilty parties or their insurance carrier. This results in several thousand dollars annually, used to replace destroyed trees and to supplement other plantings.

Tree insect and disease diagnosis and control. For all public and private property within Colorado Springs the city will provide tree insect or disease diagnosis. On private property we diagnose the problem and make recommendations for control, if needed. The city does not provide tree maintenance services on private property. In the event an elm or pine tree needs correc-

tive treatment to control Dutch elm disease or mountain pine beetle, the city requires proper treatment and follows through on condemnation proceedings, if necessary. In cases where action has been required the public has usually been very quick to respond, and has been very cooperative.

Since 1976, an intensive Dutch elm disease (DED) control program has been conducted by the city. It includes an integrated pest management approach. The major effort involves sanitation and includes dead/diseased elm removal, elm firewood condemnation and the trimming of dead limbs in elm trees. All dead elmwood is buried at a local landfill. Through a state program, a wasp that is parasitic on elm bark beetles has been released throughout the city. However, this biological control was probably only marginally effective. Chemical control for DED is two-fold, using both insecticides and fungicides. A summer insecticide spray is applied toward the end of June or in early

July to aid in aphid, scale, leaf beetle and bark beetle control. A fungicide injection utilizes Lignasan BLP with root injections for special high value trees. Through these efforts, annual removals for Dutch elm disease control has consistently been less than two percent of the total American elm population.

Other. As in all city programs, there are always several small projects unique to an area. Colorado Springs' seven regional parks include the nationally renowned Garden of the Gods. Each regional park is dominated by native pine forests. With the intensive use (the Garden of the Gods park receives more than one million visitors a year) and our usually dry summers, an occasional forest fire develops that falls under the City Forester's direction.

Regional parks and urban trees are managed to promote urban wildlife. Dead trees not in heavily used areas are designated as wildlife trees, and are saved for that use. park development is



Fig. 2. A local tree service company, under contract to the city, applying a bactericide to minimize the possibility of fire blight infection.

geared towards a concern for wildlife. In cooperation with the Colorado Division of Wildlife, Colorado Springs helped develop a forty-two page magazine about urban wildlife, which is free to the public. Containing numerous color photographs, the magazine includes articles about the benefits of urban wildlife, how to provide a home for wildlife, dealing with problem wildlife and what wildlife lives in our area.

To promote water conservation, the use of wood chips as a mulch is encouraged. Each Christmas season, at a central location in the city, used Christmas trees can be dropped off for recycling. Whole trees are used in combination with check dams to control erosion in many deep gulleys in the city park system. The other trees are chipped for use as a mulch, to promote water conservation, and to keep weed growth at a minimum. More than 30,000 trees were recycled last year. Additionally, near our offices, we maintain a free dump area for wood chips. Local tree service companies and city crews can dump wood chips at this location which are then available for public use.

Problems

Every city faces common and unique problems in their efforts to grow and maintain their urban forests. The two most common problems are "lawnmower-itis" and vandalism. To minimize lawnmower damage to trees, we have tried many alternatives. The four most successful are: 1) using a wood chip mulch under closely planted groups of trees; 2) applying Roundup, a systemic herbicide, around the base of a tree two to three times annually, which kills all plant growth, yet does not harm the tree; 3) installing a plastic tree well cover to protect the tree trunk of small high value trees; and 4) proper spacing of trees to allow adequate room to maneuver a mower between trees.

Vandalism is another common problem. To minimize vandalism, we quickly repair or replace vandalized trees to keep the park looking good. Probably the best deterrents are the firm prosecution of vandals who are caught (which is infrequent), and the involvement of the public in our programs. Whenever possible, neighborhood

schools are asked to get involved in tree plantings in nearby parks. By getting school children to assume some ownership, peer pressure usually reduces vandalism.

A unique problem to the West is alkali, whereby a high salt content in the soil reduces the vigor and kills trees. In several of our parks poor drainage increases alkali concentrations. These alkali concentrations have annually killed more than \$10,000 worth of trees. Alkali tolerant trees are being tried, but without much success. Our only alternative is to correct the drainage problems. The cost is estimated at more than \$500,000 for one park alone and budget limitations are delaying this solution.

Budgets are another common problem with every natural resources agency. Urban forestry programs compete with other high priority programs (i.e., police, fire, public works) for funding. Because the citizens care about their trees, Colorado Springs has an excellent urban forestry program, however, street tree maintenance does not receive optimal funding. Maintenance of trees, or any resource, is difficult to optimize due to differences in opinion on the quality of care desired and the amount of risk that can be taken.

One of the keys to an adequate budget is to use every funding opportunity available to provide a quality, yet economical, program. We always investigate federal and state assistance, and when feasible, use it. The largest untapped source of funds is donations from individuals, corporations and foundations. Our Tree Tribute program is an example of tapping this source.

Proper timing is another key. Often, it may take a natural disaster to provide the proper timing to enable a well planned and justified presentation to get the results desired. Due to Dutch elm disease our tree maintenance program was expanded, the tree insect/disease diagnosis service was initiated, and a tree replacement program was initiated. A mountain pine beetle epidemic necessitated hiring a seasonal tree inspector. A twenty-one inch snowfall, in late spring 1978, caused extensive damage, with a cleanup cost of over \$100,000 for trees alone. Due to this extensive damage, an additional highranger was authorized. These additional expenditures were

needed for years prior to the natural disaster, but the timing was not right to gain funding approval until the disaster occurred. With budgets currently becoming even tighter, revenue sources are being closely investigated. Wood from our tree removals is sold and generates several thousand dollars annually. Wood chips may also be marketable in a few years. Each program is being analyzed to see if users should help pay its cost. An example of this, is charging for the tree certificates that help pay for street tree planting. This assures that the certificate will be used, which reduces operating costs while still providing an incentive to tree planting. Any money generated or saved helps reduce the cost of the program, and minimizes the need for taxpayer money.

Finally, a good public relations program is a must. Publicize what you do! Be available to the local news media, and let them know when you have something of interest happening. Be sure to publicize any awards your city receives. Colorado Springs has been a Tree City-USA award winner since 1977, and received awards for best Arbor Day program in 1980 from the Rocky Mountain Chapter of the International Society of Arboriculture and the National Arbor Day Foundation.

Above all, get the city fathers and the public involved! Use Arbor Day as a focal point for involvement, but don't let it stop there. Support the other green industry portions of your department. A good flower bed program in your city helps promote a quality environment, which includes tree care.

Conclusion

By sharing with you the urban forestry program in Colorado Springs, I hope I have generated some new ideas. A municipal urban forestry program is exciting, and each city has unique challenges. By taking advantage of these unique characteristics and funding sources urban tree care will continue to be a high priority in city services. It is the urban forester's job to make sure the benefits and costs of urban forests are brought to the attention of the public, especially to those who determine policy and funding levels. The challenge is there: let's accept that challenge, and improve the quality of our environment and of our lives.

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ABSTRACT

CHAPMAN, DOUGLAS. 1981. **Rhododendrons flourish with plantings in acid soil.** Weeds, Trees & Turf 20(3): 30, 32.

Rhododendron is a low maintenance, broad-leaved, evergreen shrub which can provide color from mid-April through July. This color can vary from deep red to clear white, with the most common color being magenta. Selection of the correct species and/or cultivar can result in a shrub 2 to 3 feet in height or one 10 to 15 feet in height. Many cultivars are hardy from Chicago to Michigan to Boston and south. These hardy specimens provide a gene pool for breeding colorful, disease-resistant, and hardy rhododendrons. Some of the hardy species for the northern Midwest and Northeast include *Rhododendron carolinianum*, *R. catawbiense*, *R. fortunei*, *R. x laetivirens*, *R. maximum*, *R. mucronulatum*, and *R. smirnowii*. The real key to growing rhododendrons is to understand their requirements. These requirements include: protection from sun and wind, high humidity, acid soil pH (below 7.0), and high organic soils.