

The State of Urban and Community Forestry in California

*Status in 1997
and
Trends since 1988*



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Executive Summary

- ◆ Though planting trees in urban areas continues to be a significant achievement, especially by volunteer groups, the aging urban forest results in 25% more trees removed than planted, as compared to 18% in 1988 and 1992.
- ◆ The species favored for planting tend to be smaller, shorter-lived, providing fewer of the potential benefits that trees offer in urban areas. This selection is driven heavily by the lack of space available for planting due to concerns over interference with utility lines, sidewalks, etc., and long-term maintenance costs.
- ◆ Cities continue to be the group that maintains trees, while developers are the ones who pay for and plant them. Residential homeowner's role in all three areas is declining. "Ownership" of trees by other sectors needs to take place, especially by homeowners.
- ◆ There has been an increase in urban and community forestry (U&CF) programs funding since 1992, averaging a little over \$5 per resident. U&CF funding is strongly related to the State's overall economic strength, since over 70% of the funds for these programs come from the cities general fund.
- ◆ Increasingly U&CF programs are aligning with the Parks & Recreation divisions in cities rather than Public Works.
- ◆ Standards for pruning trees continue to be emphasized, as opposed to the old, unacceptable practice of "topping." Over 90% of the U&CF employees are certified according to some professional standard, usually the International Society of Arboriculture.
- ◆ More programs are investing in inventories of their urban forests, helping to reduce costs through improved planning.
- ◆ The tremendous volume of "greenwaste" from tree trimming and removals is increasingly seen as a valued resource rather than a cost. Around 20% of the cities utilize these raw materials for solidwood products like lumber, and specialty wood products. Other uses include chipping for mulch, energy and firewood use.
- ◆ Though the trend in tree ordinances continues, their effectiveness is not consistent for all types of provisions. This is especially true of tree planting which must be seen as a long-term commitment to protecting trees on private property.
- ◆ U&CF programs can provide significant reductions in tree-related hazards, improve real estate values, stimulate growth in business, enhance civic pride, and improve air quality. However, these benefits need to be translated into funding returns to the U&CF programs in order to maintain this significant investment in city infrastructure.

A complete, color version of this report can be downloaded from the UFEI website: www.ufe.calpoly.edu.

Introduction

Tree and vegetation management in the urban and urban-interface communities create issues of growing importance in an increasingly urbanized state such as California. Communities recognize urban forest resource sustainability, maintenance and enhancement of forested aesthetics as an important value. They support these areas with tax dollars, local government agency involvement (usually Parks and Recreation or Public Works departments), and with efforts in many cases by both individuals and volunteer organizations in management and planning.

The California Department of Forestry and Fire Protection (CDF) has been concerned over the health and management of trees in the urban environment of California. The Urban Forest Ecosystems Institute at Cal Poly (UFEI)¹ conducted this survey, the third major assessment of the tree management and planning efforts and resources used by cities and counties in California. The 1988 and 1992 surveys were conducted by Phytosphere, Inc. (Bernhardt and Swieki, 1988 and 1992). In all three cases, a census was attempted. This survey used the same 1992 survey instrument, with some enhancements, in order to provide the greatest amount of longitudinal information. The 1988 survey was less detailed than the 1992 instrument, therefore 3 survey trends could not be analyzed for trends on all topics/questions.

Urban and community forestry (U&CF) efforts are a reflection of how communities value the quality of life as it is improved both esthetically and physically by the benefits of shade, wildlife habitat, property value enhancement, and other amenities. Clark and Matheny (1994) have pointed out that the concern for urban area tree preservation, resource conservation, and the budgetary limitations for achieving adequate or increased urban forestry domains are issues important to citizens in California communities. Bernhardt and Swieki confirmed from both surveys that resource limitations are the fundamental problem faced by U&CF programs charged with maintenance and enhancement of urban forests. Their work revealed that many jurisdictions rely to some degree on community volunteer groups and organizations for some tree planting, maintenance, and public input to government-based urban forestry programs.

This report on the status and trends in U&CF is organized into three main sections: 1) trees in the urban forest, 2) the local agency funding, staffing, and management practices, and 3) community group support, involvement, and planning. Each topic in these sections was analyzed for trend information across all three surveys, therefore many of the figures may convey considerable information. We have attempted to provide some interpretation on what seemed to be the larger messages but more are possible.

The section on Trees of the Urban Forest includes trends in species selection, recent planting effort, the resultant changes in tree inventory, and nursery stock used. The second area on Managing the Urban Forest issues includes organizational and staffing changes, funding and budget changes, use of contract and volunteer services by cities and counties, pruning standards, handling of greenwaste, and irrigation. The last area of Community Involvement investigates how agencies muster public support, participate in educational functions, work with volunteer groups, and the effects of tree ordinances.

Quotation “sidebar boxes” appear throughout the report. They are intended to provide insightful comments from respondents on key programmatic issues. These remarks were offered voluntarily.

¹ UFEI website: www.ufe.calpoly.edu



Survey Response

The 1997 survey of urban and community forestry in California was conducted between the summer of 1998 through summer of 1999. The survey retained the same design as used by Bernhardt and Swiecki in 1992 with some enhancements identified in a pilot test in order to address current issues. Using the same questions as in the 1992 survey was critical to provide the maximum amount of trend information. This trend information conveys an entirely different dimension of information that can only be detected through changes over time.

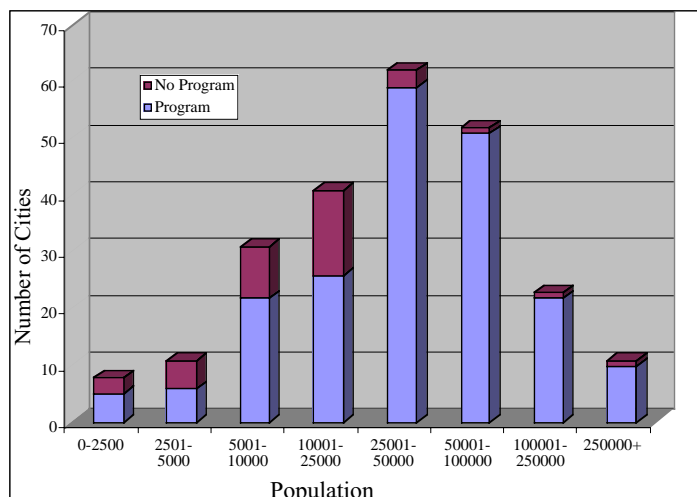


Figure 1. Survey returns by city population in 1997

The same population of 468 incorporated cities and 58 counties were surveyed as in 1992, attempting to create a census of this population. Using an Internet website (30 responses), 3 mail-outs, and 2 phone follow-up surveys, the 1997 had a response lower than in 1992 but very similar to the 1988 response rates. We received 256 responses from cities and 14 from counties, accounting for a 55% and 24% response rate, respectively. This compares to 74% and 81% in 1992.

The number of responding cities with programs in 1997 was 211, very close to the 224 in 1992. Based on this information, our explanation for the lower overall response compared to 1992 is that cities, and especially counties, that do not have tree programs saw no reason to respond.

Figure 1 illustrates the distribution of respondents with and without tree programs by city size. It shows a fairly normal distribution across city size, where cities with populations over 25,000 are clearly more likely to possess tree (U&CF) programs (defined as a city receiving public funds for tree planting and care). This is a higher proportion of respondents with programs than in 1992 as illustrated in figures 2 and 3.

Reorganization of U&CF programs to bring them into a single department also seems to be occurring. From mail and phone responses it seemed that there is a trend toward consolidation of tree programs into a single organization in medium and large-sized cities. A support of this argument is that the number of responses to most of the questions was higher in 1997 than in 1992. This is a positive result since the vast majority of the survey relates to the critical issues of cities and counties with U&CF programs.

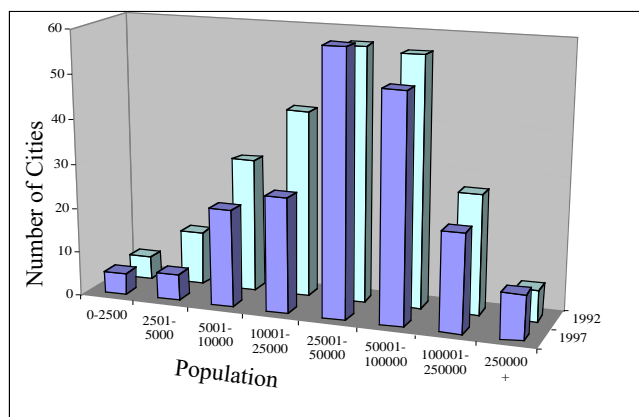


Figure 2. Comparison of responding cities with programs.

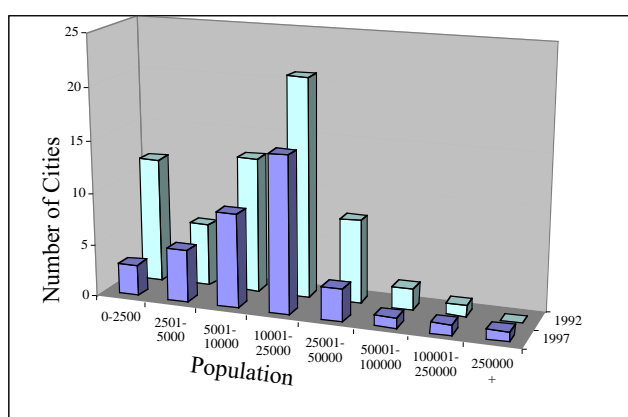
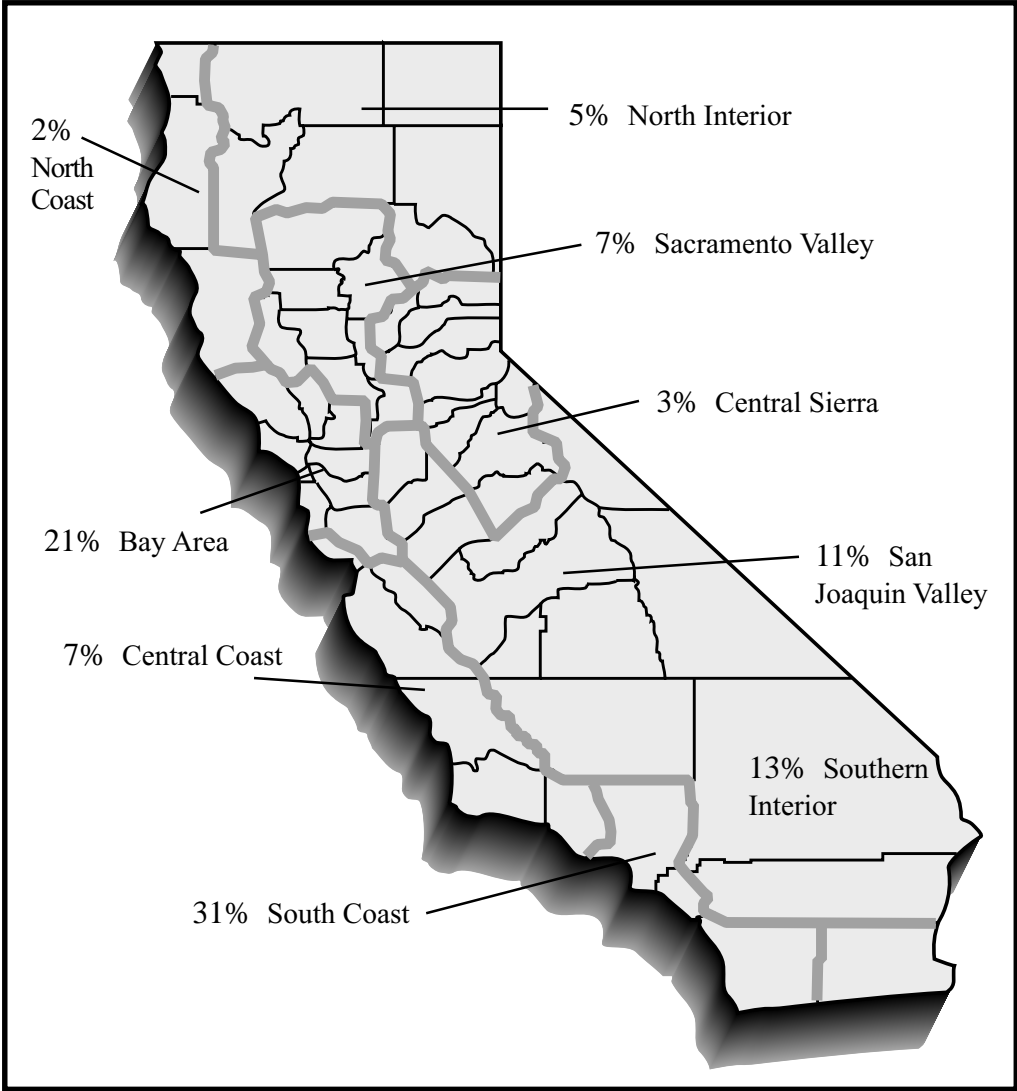


Figure 3. Comparison of responding cities with no program.

Survey Response (continued)

Using the same geographic regions as Bernhardt and Swiecki (1992), it appears that the 1997 survey obtained a similar geographic distribution of respondents, as illustrated below.



Survey Regions in California

Trees of the Urban Forest

Planting

In 1988, the percent of existing inventory planted statewide was virtually constant at 3% across city population sizes. By 1992, smaller cities made a tremendous surge in planting (see Figure 4). Larger cities more than doubled their relative planting effort, while medium-sized cities dramatically increased efforts to build inventory. Certainly it does not take a large planting initiative in a small city to represent a large proportionate effect on small standing inventories as compared to larger cities. Nevertheless, this evidence indicates that urban forestry programs that began in the large cities may now be taking hold in smaller and especially medium-sized cities.

It appears that small cities reduced their planting efforts significantly after 1992 to a rate not much more than the large cities.

Medium-sized cities reversed the decline in planting up to 1992 -- more than tripling their planting. Smaller cities seemed to return to their 1988 level of planting, though their inventories were enlarged by their 1992 tree planting initiatives.

The overall effect across all respondents is illustrated in Figure 5, where change in plantings of only those respondents to all three surveys were compared. The results show that now slightly fewer cities/counties increased the number of trees planted than decreased between 1992 and 1997, the reverse of the trend between 1988 and 1992.

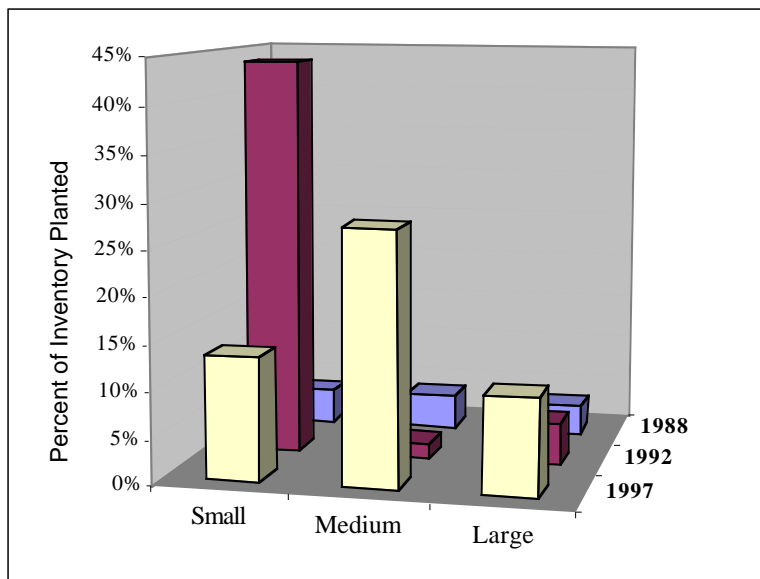


Figure 4. Percent of Inventory Planted by City Size

Note: For the purpose of this study, city size groups were defined using 1997 populations, where “small” cities are less than 25,000, “medium-sized” between 25,000 and 50,000, and “large” cities greater than 50,000.

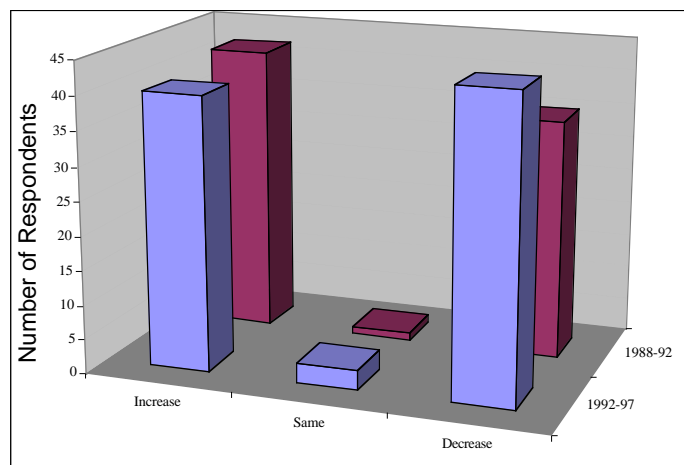


Figure 5. Changes in Plantings for Respondents to all Three Surveys



Inventory Changes - *Plantings and Removals*

The information displayed in Figure 6 suggests a steady reduction in program-wide planting from 1988 to the present, while removals remain a roughly constant percentage of inventory. Overall net gains to the California municipal tree inventory have occurred since 1988. (1% of a large inventory can represent many more trees planted than 4% of a small inventory). But 25% of the reporting cities and counties removed more trees than they planted in 1997 as compared to 18% in the two previous surveys.

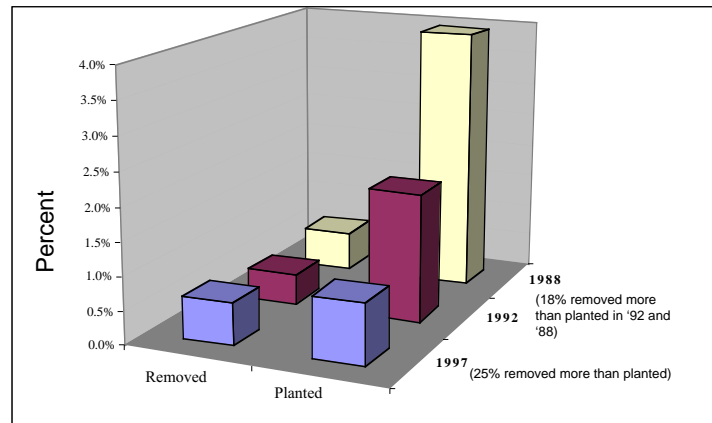


Figure 6. *Removals and Plantings as a Percent of Inventory*

To clarify trends in the inventory of urban trees, the number of trees managed by cities and counties that responded to all three surveys were analyzed. These respondents whose inventories increased, stayed the same, or decreased between the three surveys are shown in Figure 7. A significant increase in the urban forest inventory is indicated between 1988 and 1992, while inventories did not change much between 1992 and 1997 given the balance between increases and decreases.

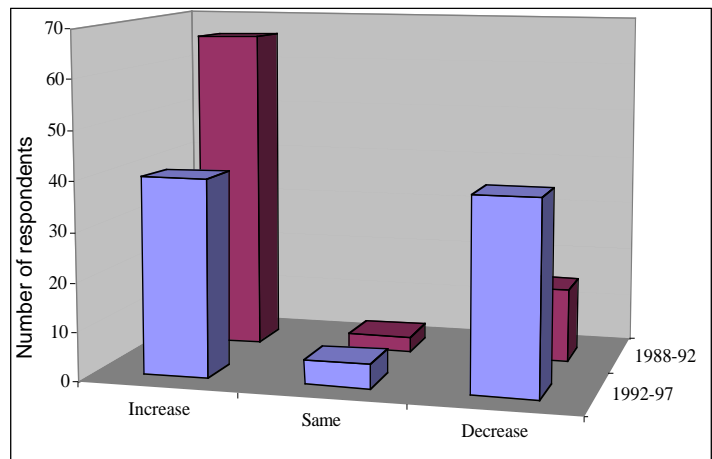


Figure 7. *Change in Tree Numbers for Respondents to all Three Surveys*

The increase in fire and flood damage in many cities may account for increases in removals (see “Fire, Flood and Drought Effects”). However, it may be that the aging of the urban forest is the underlying cause. The beautiful, large shade trees planted in the early days of city building are now reaching “old age” and are more vulnerable to damage. These structurally weakened, older trees represent hazards to the utility infrastructure forcing public works departments to remove them.



“When a resident requests a removal, I must meet one or more of four items to justify removal. If not, they must appeal the denial of removal directly to the council (city). The City Council decides, not the employee. This takes a lot of pressure off the tree care manager. The four items are decided by the council based on recommendations of the Public Works Director.” *Cypress*

Species Selection

Street tree selection criteria are most influenced by space limitations and projected maintenance costs (see Figure 8). Unfortunately, the factor that has the least influence on species selection is the tree's shade potential once mature. Comparing these results with 1992 indicates that emphasis on space and maintenance costs has grown. As one might expect, the relative importance of these influences seems more evenly distributed for park tree species selection (see Figure 9). It appears that concern over planting space for street trees gave way to shade preference for park trees.

The 11 most frequently used species in recent street tree plantings are Crape Myrtle (*Lagerstromia*) followed by Chinese Pistachio (*Pistachia chinensis*) and Liquidambar (*Liquidambar styraciflua*), see Figure 10. This represents about one-third of the responding programs. London Plane and native sycamores are in the top group as well. However, it is disappointing to note that there is a predominance of short-lived, small (when mature) species in the top 11 list.

Bradford and other pear cultivars, were very high in the preferred list. All species were broad-leafed and mostly deciduous. Given the dominant selection criteria of space and maintenance cost, it is sadly not surprising that these smaller species were preferred over trees like oaks and ashes.

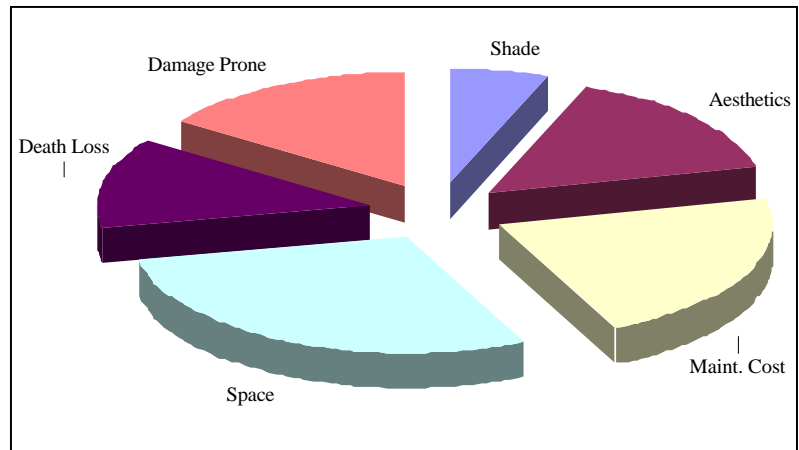


Figure 8. Most Important Consideration in Street Tree Selection, 1997

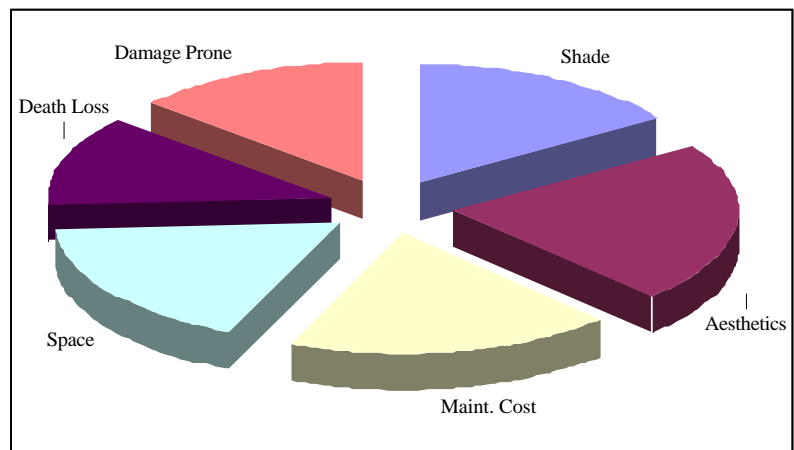


Figure 9. Most Important Consideration in Selecting Park Trees, 1997

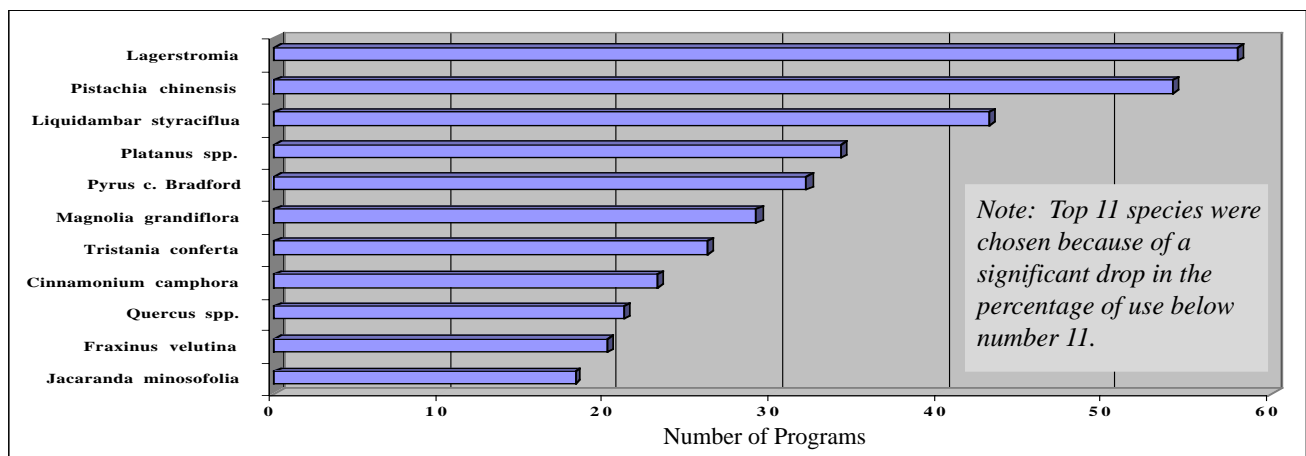


Figure 10. Eleven Most Commonly Planted Street Trees in 1997

Trends in Species Selection

Figures 11 and 12 illustrate the trends in species selection over the last 10 years. Figure 11 depicts this trend by using the top 10 species planted in 1997 (Figure 10) and tracking their frequency of use back in the 1992 and 1988 surveys. One notices that the dominance of small, short-lived species in a program's planting list has grown since 1988 (e.g., Bradford pear, Crape Myrtle, Chinese pistache, and Liquidambar). To further amplify this trend toward smaller trees, Figure 12 illustrates the frequency of use in 1992 and 1997 of the top 10 species planted in 1988. From this perspective, the trend is even more obvious since larger, longer-lived species dominated the list in 1988.

The near disappearance of elms and ashes bears this out. Comparing trends for a given species (e.g., Liquidambar) is complicated because the distribution of the 10 species by percentage is altered with different species weighting between 1988 and 1997 base periods. Eucalyptus and ash species have essentially disappeared from the top 10 list. In the case of Eucalyptus, there may be sound ecological or economic reasons for reducing their use (e.g., allelopathic effects, habitat replacement, climate sensitivity). We have already seen that the trend toward smaller species is driven by cost concerns rather than their potential benefits (e.g., shade, energy conservation, air quality improvement, flood control).

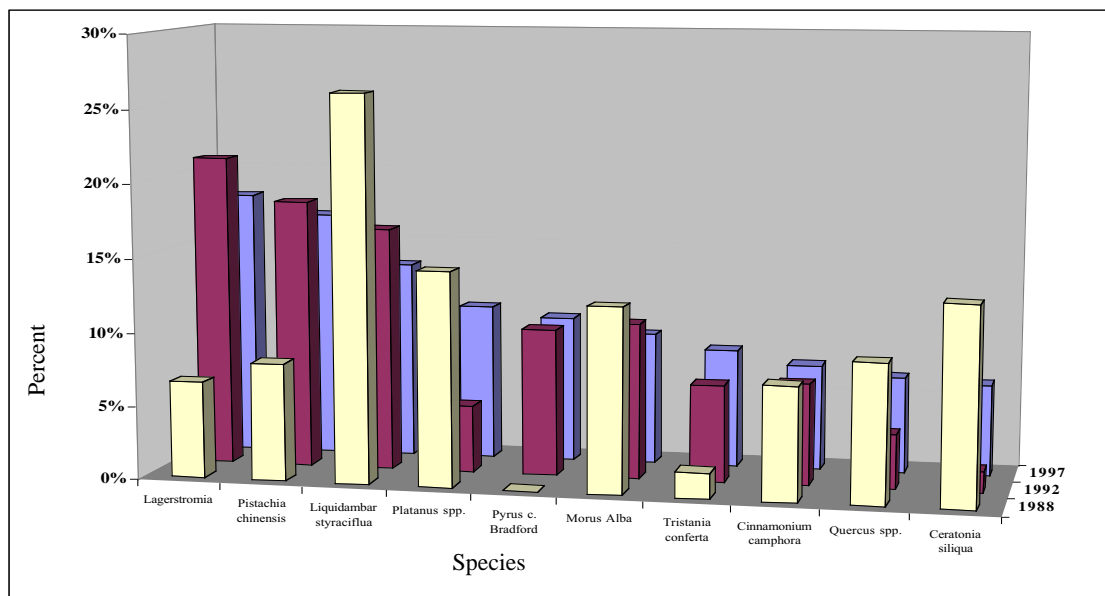


Figure 11. Frequency of Planting in 1992 and 1988 for the 10 Most Commonly Planted Trees in 1997.

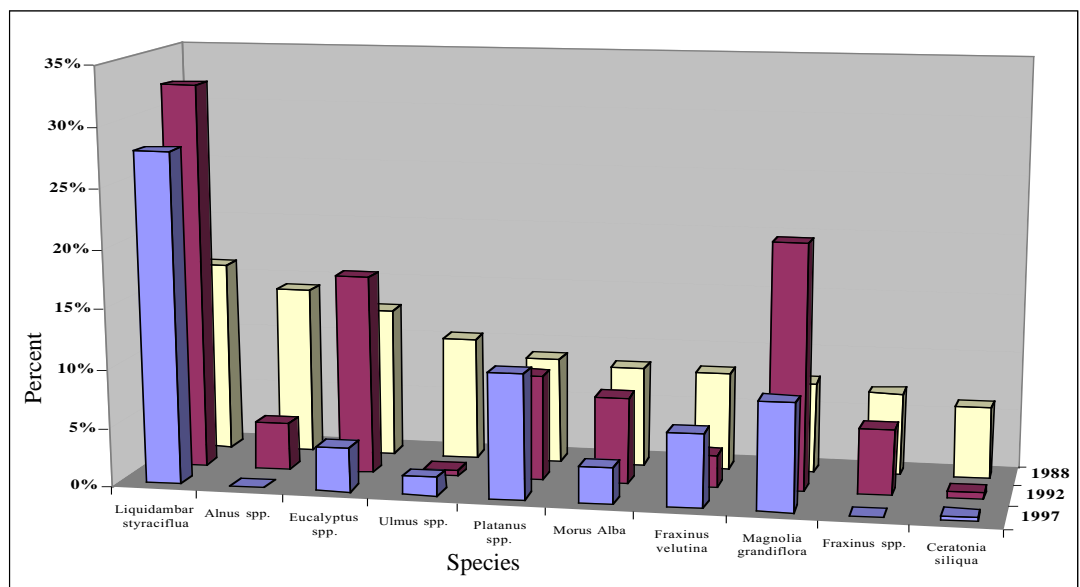
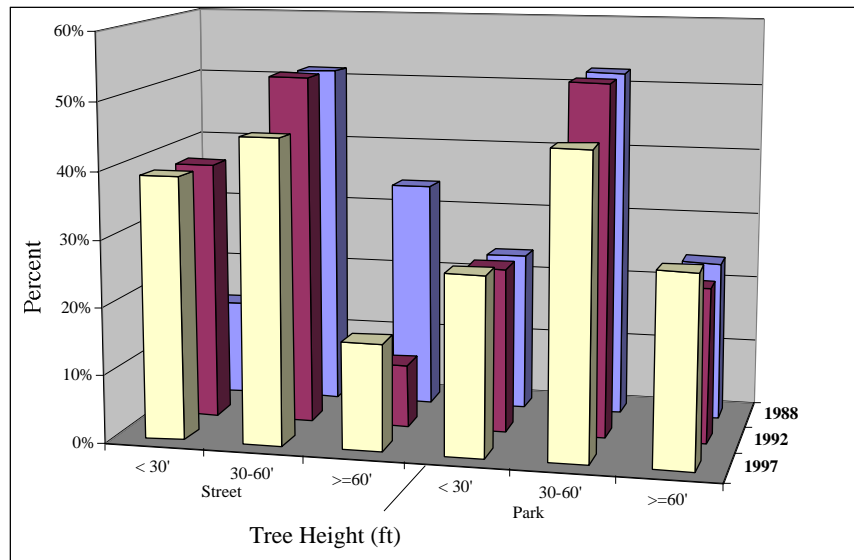


Figure 12. Frequency of Planting in 1992 and 1997 for the 10 Most Commonly Planted Trees in 1988.

Trends in Species Selection (continued)

Decisions to plant smaller trees are further supported by the information in Figure 13 which summarizes respondent's predictions of mature sizes of planting decisions. Clearly, respondents recognized the implication of their decisions by predicting significantly smaller tree heights for street trees since 1988. Little change in park trees is anticipated from planting decisions which is consistent with the information on planting considerations for park trees illustrated in Figure 9.

Is this the kind of community forest society prefers? Is your community letting public utility conflicts force a future forest structure that falls short of community expectations? Community foresters must strengthen efforts to design methods of mitigating utility interference with a desirable set of tree species, ones that provide the benefits that respondents cited in the section on "Benefits and Needs" and from a large volume of research (McPherson 1991, Kolin 1991). The decisions we make today will affect many generations to come.



Implemented revised street tree plan which requires specific tree species for site conditions, i.e., well-size, overhead wires, sewer line location, etc. *Oakland.*

Have had some trouble getting "low" maintenance trees added to our approved tree list due to them not providing shade and/or oxygen. *Cypress*

Figure 13. Predicted Tree Height at Maturity in 1988, 1992, 1997.

Beneficial Size



Size Restricted Effect



Nursery Stock

Establishment and improvement of the urban forest begins with quality nursery stock. Failures in the nursery cannot be overcome later. The scientific knowledge on growing urban tree nursery stock continues to develop. It shows that some traditional methods, like staking (picture below), are not working and are even detrimental to tree growth (see International Society of Arboriculture website, Appendix 1).

Figures 14 and 15 indicate which sizes of nursery stock, described by container size, are most popular and/or effective. For both street and park use, programs tend to be moving toward larger trees to plant, but, as we have seen, they likely will be short trees when mature. The use of 5 gallon container stock have dropped and 24 gallon sizes have increased, especially so for trees destined for park settings. Still the 15 gallon container size seems to have become the preferred size. This size apparently strikes a balance between cost and survivability.

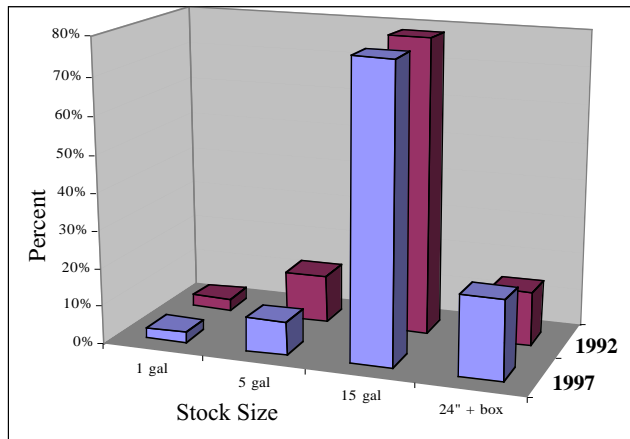


Figure 14. Most Commonly Used Nursery Stock Size for Street Trees

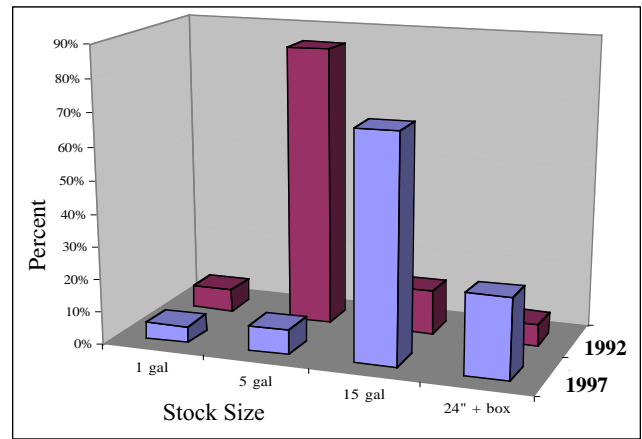


Figure 15. Most Commonly Used Nursery Stock Size for Park Trees

“Nurseries need to rethink their methods of raising trees destined for municipalities. Lower growth should be left on trees, pruning methods should be improved and stakes should be used only when absolutely necessary.” *Fontana*



Managing the Urban Forest

Management Responsibilities by Sector

Respondents revealed that developers pay for and plant the vast majority of trees in the urban sector as part of the development permits, increasing from about 75 percent in 1988 to nearly 90 percent in 1997. This lifts a large burden from city and county government. But the evidence presented in Figure 16 suggests that government is still paying

most of the bill (53 percent) for maintaining the trees bought and planted by developers. Though developers' share of the maintenance costs have increased slightly, homeowners are taking less responsibility for purchasing, planting and maintaining trees. One group that is not directly represented in Figure 16 is volunteers who, through many non-governmental organizations (NGOs), certainly play an increasing role in establishing the urban forest.

The maintenance role of U&CF programs is generally increasing in geographic area, as illustrated in Figure 17. U&CF programs are now responsible for trees on about one-third of private property, and over

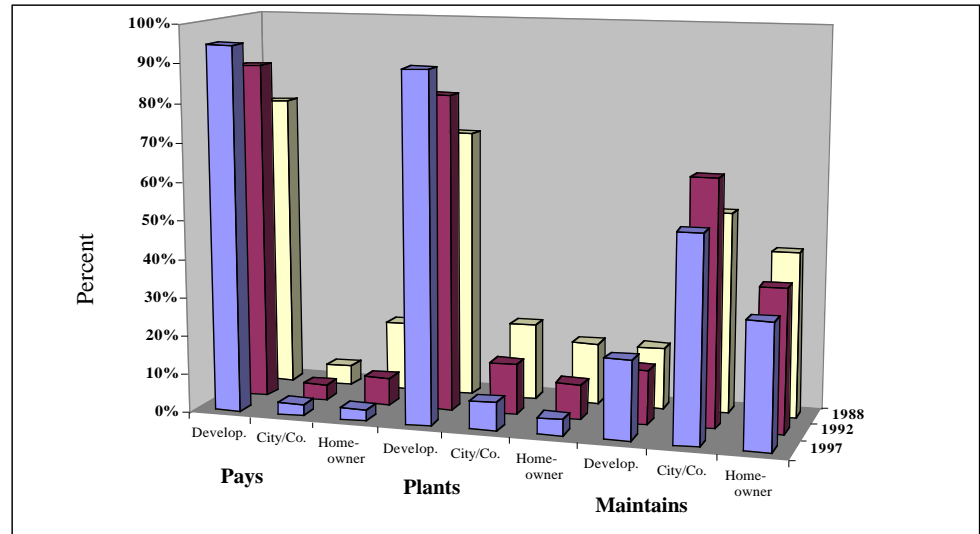


Figure 16. Who Pays for, Plants, and Maintains Trees in New Residential Subdivisions

40 percent of the “open space” in cities and counties. These declines in planting and maintenance ultimately force city and county government to do the work. Urban foresters must respond by prescribing removal of hazardous trees on private property in order to maintain sufficient utility clearance. It appears that this problem is growing, especially on residential properties.

“Pleasanton has funding but little support for a residential tree maintenance program.”
Pleasanton.

“Older businesses in districts are becoming very aware that trees make an area much more pedestrian friendly and promote good community relations. They are also very willing to provide maintenance in almost all cases.” **San Diego.**

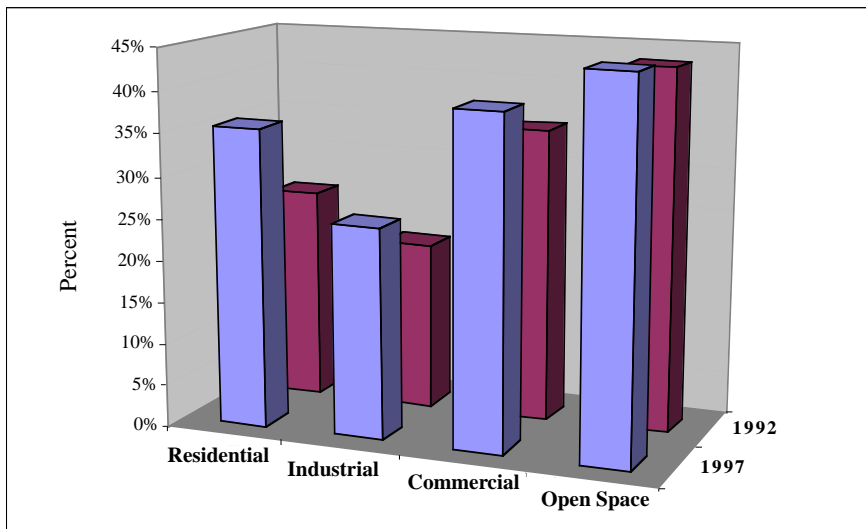


Figure 17. Percent of areas for which U&CF program is responsible

Funding Sources

Funding is the dominant issue in the establishment phase of any new program like urban and community forestry. Figure 18 illustrates the trend in the average percentage of funds from various sources. There appears to be growth in alternative funding sources, such as assessment districts, and from recent increases in California gas taxes. Nevertheless, urban forestry is still heavily dependent upon taxpayer support via the city's or county's general fund (still around 70 percent), though slightly less than in 1988.

"I feel that assessments to the public to fund tree programs is the most equitable arrangement. However, with the implementation of Prop. 218 in California, the future of each assessment is in question." *Glendora*

If urban forestry is to be sustainable, then the benefits that an urban forest provides must be "translated" into tangible funds, thereby reducing dependence upon the politically uncertain general fund. The essence of urban forestry asks communities to invest major capital into building the green infrastructure, but the returns are intangible, realized only by the residents and businesses through an improved environment. Efforts to assess private sector fees of all sorts are part of the solution in tapping these returns. However, the urban forest itself generates resources values that are potentially marketable such as raw wood material from trimmings and removals. Traditionally, these wood residues have been considered waste, euphemistically called "greenwaste."

New laws such as AB 939 have forced communities to seriously reduce dumping these useful materials in landfills. More on the subject of current, and much larger potential, revenues generated from utilizing these residues is presented in the section, "Utilization of Greenwaste Resources," page 19.

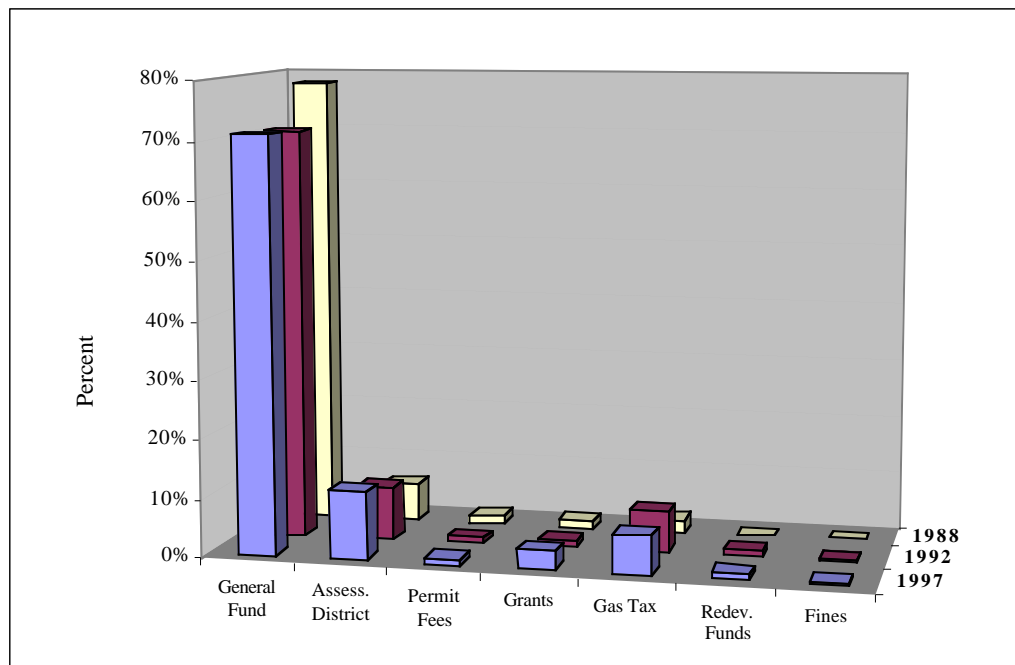
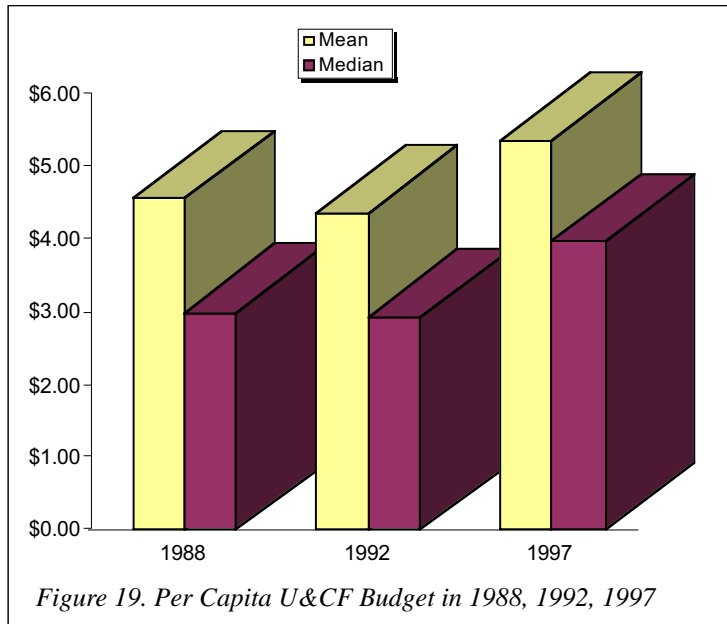


Figure 18. Change in U&CF Funding Sources - Average Percentages by Source

Budgets

Since funding is still primarily driven by taxpayer support, it is appropriate to evaluate U&CF budgets on a dollar per capita basis (see Figure 19). Since the first survey in 1988, average budgets per capita have increased from about \$4.50 per resident to \$5.35 in 1997. Figure 20 reveals that respondents agreed with this conclusion by indicating a far greater proportion of budget increases over 1992 than decreases. Due to the skewed distribution of funding and population, the median is probably a more appropriate expression of per capita spending, nearly \$4 in 1997. With budgets dipping in 1992, the low point of California's economic troubles, it is clear that being tied to the general fund will always result in cyclical and uncertain funding. However, a population-wide average only provides the initial look at the expenditures story.



“This City’s budget is extremely limited in personnel, equipment and therefore, we are forced to practice arbor care on demand.” *San Carlos.*

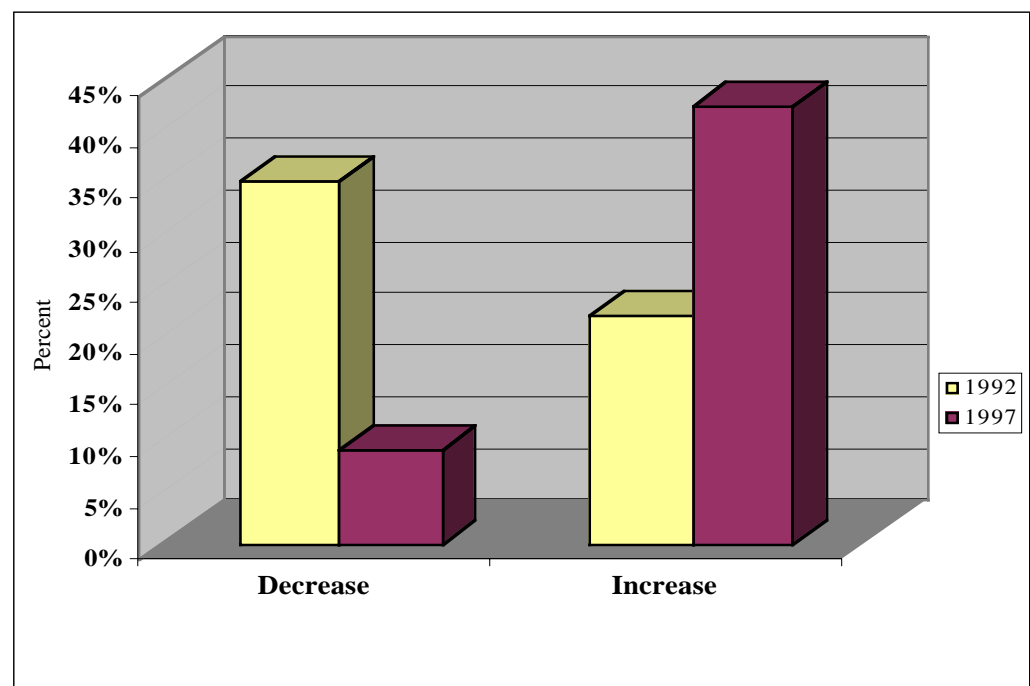
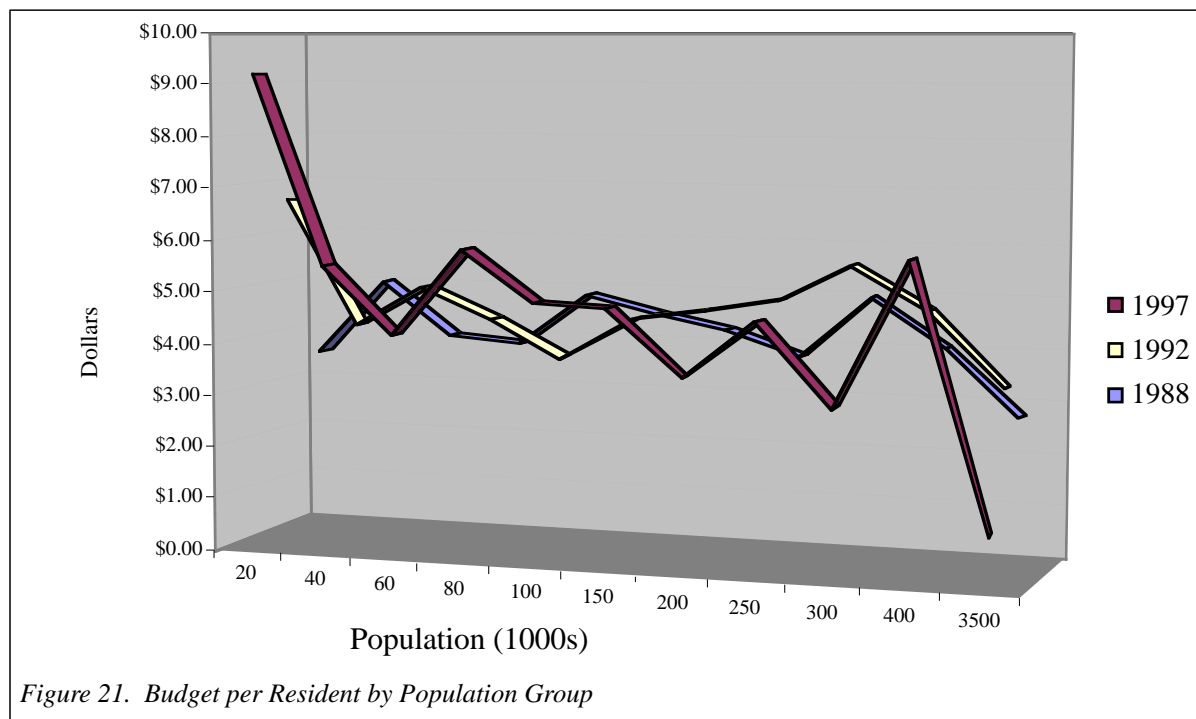


Figure 20. Changes in U&CF Budgets comparing 1992 and 1997

Budgets (continued)

Average expenditures were further categorized by city size, displayed in Figure 21. In the earlier surveys, cities with populations over 100,000 received the highest per capita funding, especially in 1992. Now, it appears that the gains in average per capita expenditures have shifted to the medium-sized cities (40,000 to 80,000). Averages for very small cities can vary greatly given that relatively small budget changes can result in large per capita savings. Averages in very large cities can vary greater as well because of their smaller number (i.e., one city responding or not can change the average greatly). With over one-fourth of the respondents from medium-sized cities, their expenditure rates have a heavy influence on the overall average in Figure 19.

Another perspective on the efficacy of funding (budgets) is the total expenditures per tree in-place. This should not be confused with the cost of nursery stock or even the cost of an established tree. Using comparisons of cities that responded to all three surveys, the average expenditures for trees managed was \$19 in 1997, compared to \$18 in 1992, and surprisingly \$35 in 1988. The high \$ per tree figure in 1988 could be a result of cities beginning their tree programs but with far fewer trees to manage than in 1992 or 1997.



Program Organization

Almost without question, one of the most critical issues is the city/county organizational position of the U&CF program. It is difficult for new government programs, like U&CF, to break into the highest echelons of city government in order to have its needs recognized in policy and funding decisions. Only political pressures and high-profile issues can surmount the barriers to obtaining departmental status. The principle of “span of authority” for city managers limits the number of subordinate department heads he/she can handle (around 8 to 10 subordinates). Therefore, it is important to position the U&CF program in the department that is most likely to represent its needs.

From Figure 22, it appears the two most likely departments for “housing” a city’s urban forestry program is either Parks & Recreation or Public Works. Increasingly, U&CF programs seem to be aligning with Parks & Recreation departments and in-turn separating from Public Works. In 1992,

Bernhardt and Swiecki found a higher representation by Public Works. Positions within Planning and General Administration have declined to near zero since 1992.

There are, of course, pros and cons to this trend depending upon the philosophies, traditions, and personalities within each city or county department. Clearly, Public Works receives the lions share of the general fund. It would seem that being aligned with Public Works would therefore offer the greatest opportunity for expanding budgets, but traditionally, heads of these departments are engineers who perceive trees as hazards rather than assets. This drives U&CF managers to more like-minded departments such as Parks and Recreation, though generally a department low on funding priority. It may not be wise to align a U&CF program with a department that has no line authority (staff role), such as Planning. Figure 22 indicates that U&CF program managers may have realized this.

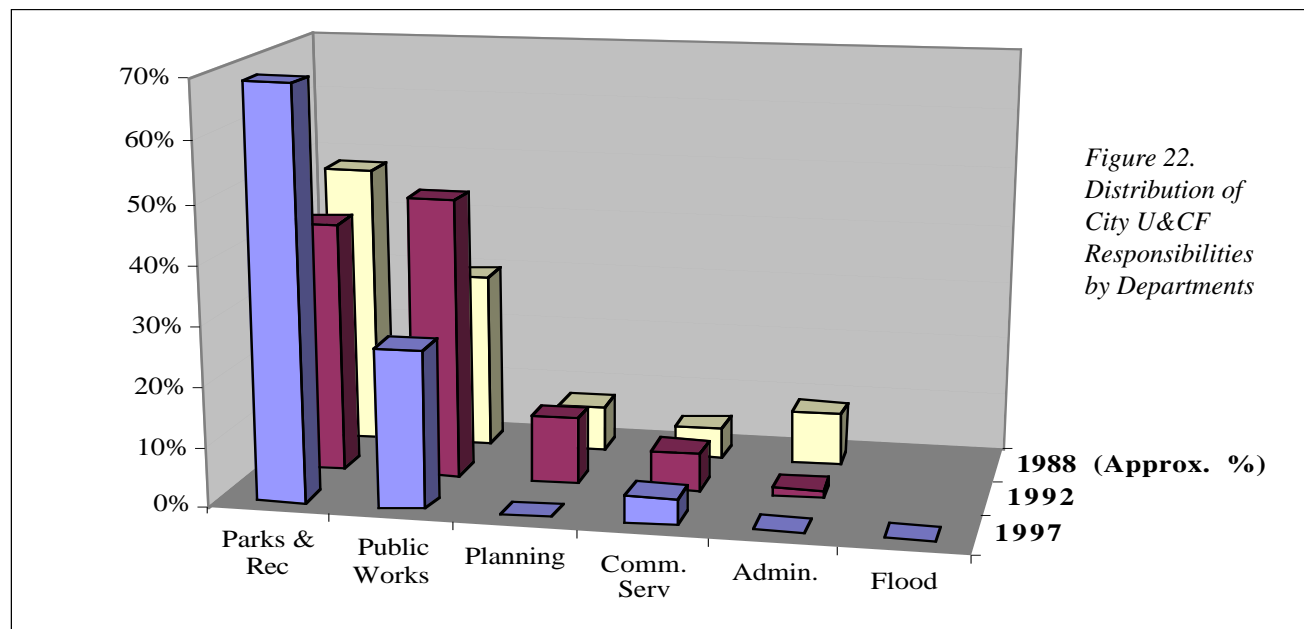


Figure 22.
Distribution of
City U&CF
Responsibilities
by Departments

“The Public Works Division is the primary department that is in charge of the trees -- short trees, median island, etc., also the larger park trees and trees around city buildings.” **Glendale**

“We recently combined all field maintenance crews together in one department. No more Public Works or Parks & Recreation. Now it’s operations and maintenance with some of the same divisions. Ours is currently named Urban Forestry, Green Waste and Sidewalks. We have everything from flowline of the gutter back, leaf pickup and green waste removal. It’s been a great marriage, no duplication of work and no cross-departmental cooperation/communication problems.” **Modesto**

Staffing

Recognizing that general statements tend toward hyperbole, it is fairly safe to say that human resource issues are at the core of nearly every management decision. In general employment terms, Figure 23 indicates that staffing levels are stabilizing -- no major hiring or down-sizing movements. But what type of appointments are these staff positions?

One of the most important human resource issues is the distribution of full-time vs. part-time staff; as well as the extent of reliance upon contract and volunteer services. Certainly it is true that the trend toward smaller government in recent years has favored the private sector and NGOs (see Figure 25 & 26 on page 16).

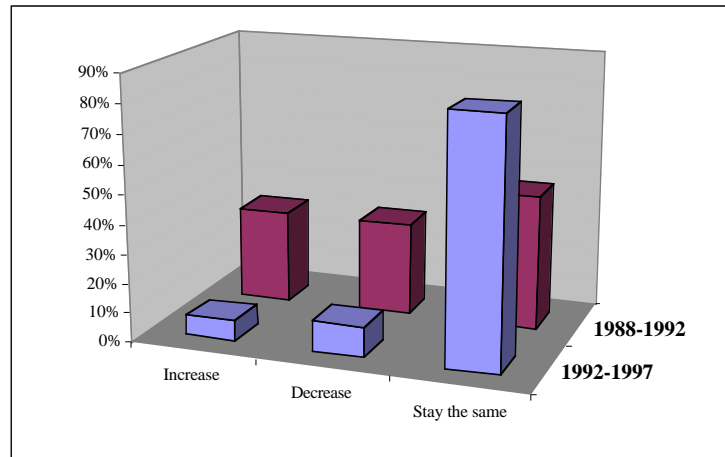


Figure 23. Changes in U&CF Staffing Levels

While part-time staffing has remained virtually constant across respondents; full-time employment has declined from an average of just over 8 persons in 1988 to about 5 in 1997 (see Figure 24). The lost full-time positions have been partially replaced with part-timers, having increased by about one full-time equivalent (FTE), implying more than one part-timer was hired as replacement. This would seem to leave a growing workload to be handled by private contractors or volunteer groups, perhaps possessing greater expertise and skills. Nevertheless, the lack of full-time staff and/or high turnover of personnel potentially degrades the continuity in community relations and management activities.

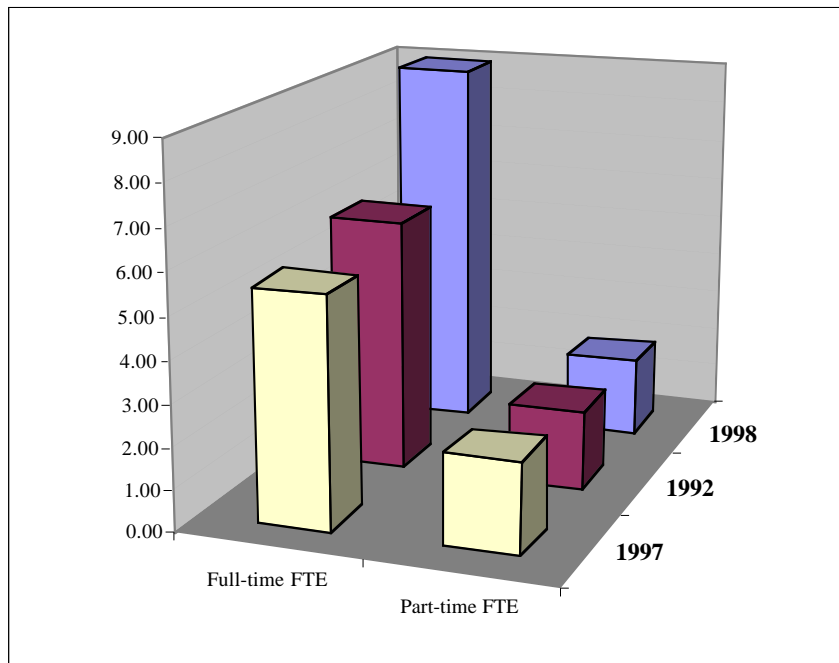


Figure 24. Trend in U&CF Full-time & Part-time Employment

“[We are] utilizing fire crews from the CDF to remove non-native plants from the forest habitat. These same crews then help re-forest and restore these same areas. They also help with fuel reduction and erosion control. The urban tree-forest industry is growing in most communities. Currently there is a tremendous demand for tree workers; arborists and consultants within the Monterey Peninsula area. Please encourage your students to pursue careers in Urban Forestry.”
Monterey

Contract and Volunteer Services

As discussed under the Staffing section, there seems to be an increasing reliance upon private sector organizations in lieu of public sector. In fact, an average of 47 percent of city or county tree budgets was spent on private contractors in 1997, as compared to just over 35 percent in 1992. As seen in Table 1, the increased use of contract services is consistent across city size, with smaller cities naturally needing to rely more upon the private sector.



City Size	1992	1997
Small	55%	70%
Medium	42%	55%
Large	22%	44%

Note: City size is the same as used in Figure 4.

Furthermore, large cities may have greater support from volunteer groups to accomplish much of the needed work, especially tree planting. The quality of pruning work performed by contractors appears to be lagging somewhat behind city and county programs, according to Figure 25.

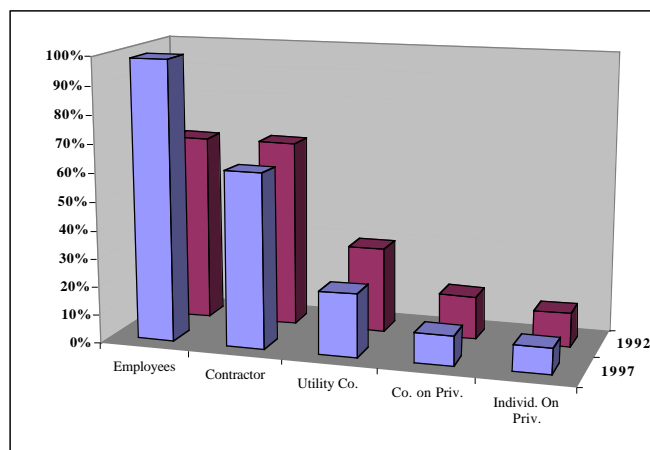


Figure 25. Groups required to follow Pruning Standards

Though the question asked whether pruning standards were required, it may be that this requirement is becoming less of an issue as more contractors become ISA, NAA or ANSI¹ certified. This is supported by the reduced number of trees topped (a practice shunned by professional organizations), as presented later in this report (Figure 33). Tree programs are moving rapidly to take advantage of volunteers, youth groups and correctional institutions to play a significant role in planting and caring for trees (see Figure 26). Use of these volunteers has a side benefit in building community relations.

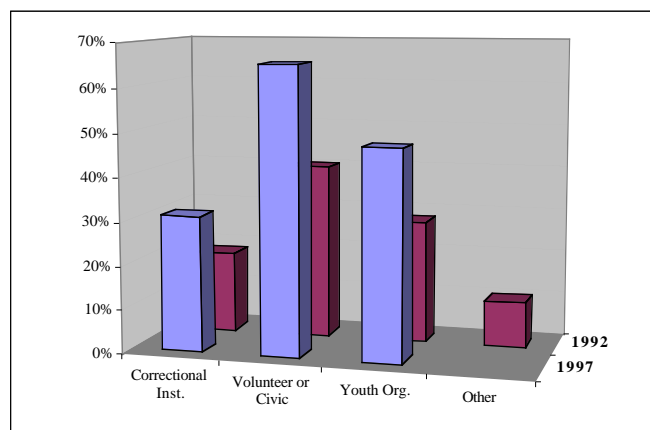


Figure 26. Distribution of Groups that Plant or Care for Urban Trees

¹ ISA: International Society of Arboriculture, NAA: National Arborists Association, ANSI: American National Standards Institute

“City program staff by ISA certified Arborists 100%. Contractors crew leader is an ISA certified Arborist. Proper schedules with adequate funding eliminate potential problems.” *Irvine*

Planning & Inventories

Adequate planning is essential to the success of any program. In urban and community forestry, several scales of planning, i.e., planning intervals, are needed -- from short-term (weekly, monthly, quarterly) for operational activity to intermediate or long-term (yearly or more) for strategic planning of forest-wide programs. Commonly, organizations, both private and public, use 5 to 10 years for their strategic plans, similar to U&CF programs as seen in Figure 27. The average planning interval in 1997 was 6.2 years, up from 5.2 years in both 1988 and 1992. Interestingly, only 31% of the respondents believed cost-efficiency improvements would result from increasing the planning period. In 1995, UFEI's strategic planning workshops identified this deficiency and assisted many U&CF program directors in developing these plans.

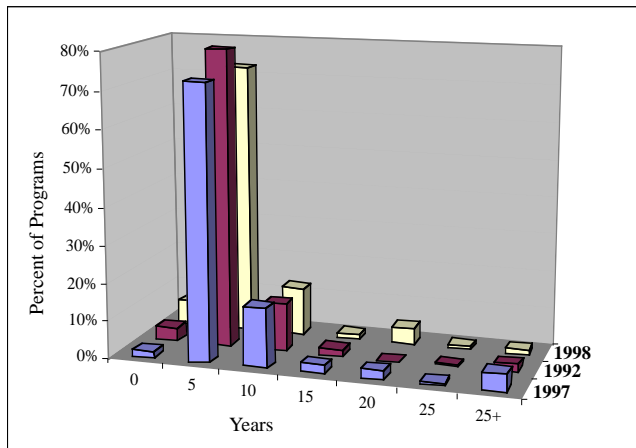


Figure 27. Longest Planning Interval

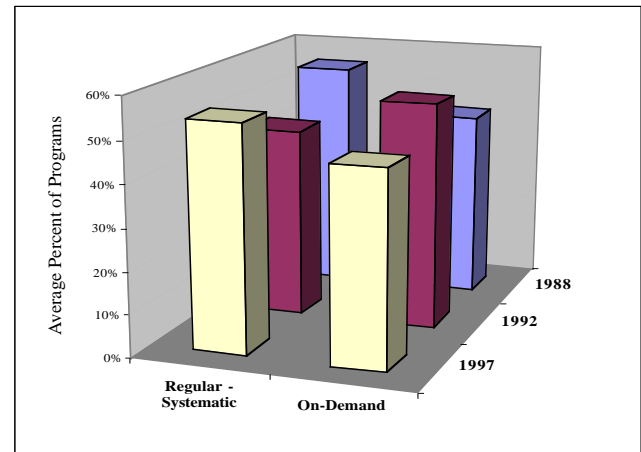


Figure 28. Type of Tree Maintenance

In short-term operational planning, large cost-savings can be realized by undertaking a regular or systematic program of tree maintenance work. As illustrated by Figure 28, U&CF programs seem roughly divided between the use of scheduled and on-demand maintenance. The noticeable drop in scheduled maintenance in 1992 can be explained by the drop in funding in the early 90s, supported by Figure 19. With tight budgets, organizations curtail non-essential expenses like preventive tree maintenance.

In order to make the transition from reactive work to planned work (e.g., tree planting, maintenance, and removal), it is necessary to have a detailed inventory of the urban forest. Figure 29 shows that less than half of the respondents had a tree inventory of some kind. Since 1992, only 3 programs installed an inventory system. About 21% of the programs indicated frequent use of their inventories; with about the same percentage of use indicating rarely to frequently used. In 1997, over 70% of the inventories were computerized, lending them to increasing their specificity and usefulness; an increase from 62% in 1992, and 53% in 1988.

“Just beginning a UFMP [urban forest management plan] integrating public trees with private guidelines.” *Del Mar*

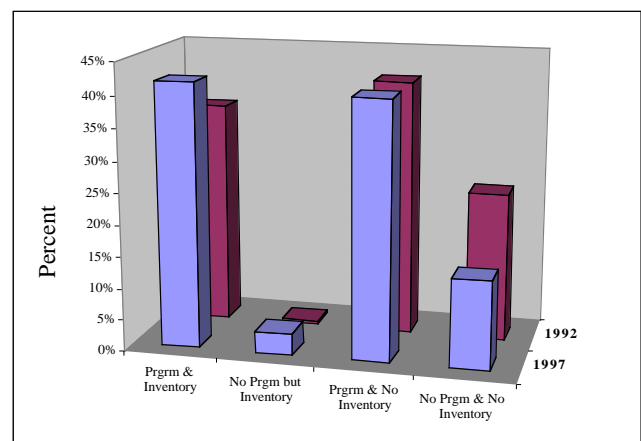


Figure 29. U&CF Programs with Forest Inventories

Hazard Mitigation and Liability

The uniqueness of urban and community forestry, as contrasted with wildland forestry, is clearly established when considering the pervasiveness of the direct interaction between urban trees and people, buildings, and the utility infrastructure. This issue affects all decisions -- species selection, planting location, maintenance, and removal. City and county U&CF programs use a variety of methods to prevent, mitigate and limit the hazards that urban trees can create. It takes little imagination to consider the effect of an injury or even death caused by government's failure to fulfill its tree care responsibilities. Lawsuits arising from such failures can be larger than an city's entire budget.

As already discussed, having a quality forest inventory is probably the most effective tool for identifying potential hazards, planning mitigations and communicating liability assessments. Figure 30 illustrates the extent to which various methods are used to limit or address liabilities resulting from tree hazards.

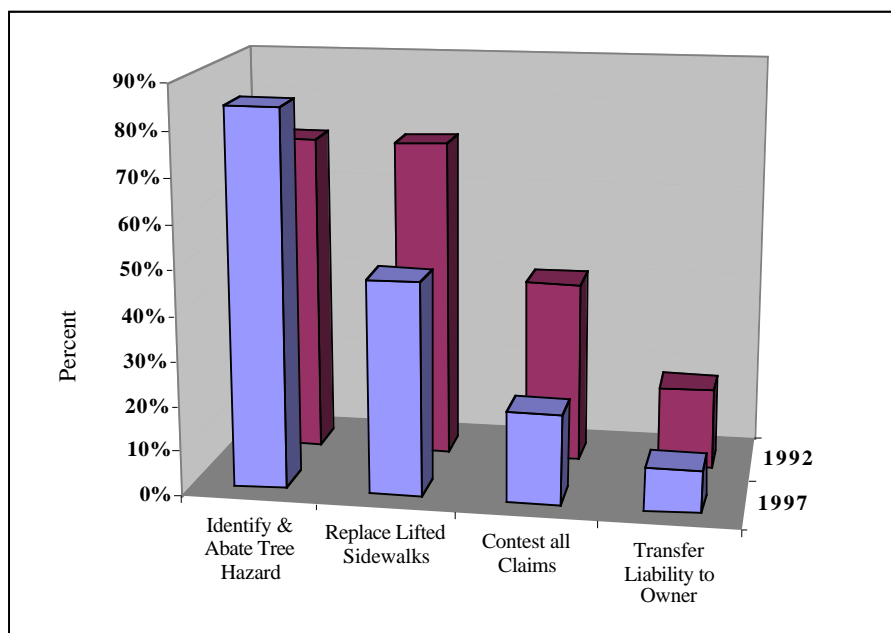


Figure 30. Method Used by Cities/Counties to Limit Tree-Related Liability

“We have begun to install root barriers. Encircling root barriers are killing many trees, we don't use them anymore. Residents demand tree removal because of roots in sewers, broken concrete and mess. . . . Lots of median trees are damaged by cars, rare to recover money. Root pruning increases tree life only ten years before sidewalk lifts again.”
Santee



Hazard Mitigation and Liability (continued)

The trend toward preventive, proactive strategies is clear, compared to the risky strategy of avoidance, reaction or even litigation. Prevention strategies are shown in Figure 31 where proper species selection is seen as the most effective mitigation measure. Still, physical barriers and sidewalk realignment/re-engineering remain popular. While the use of chemicals to control roots has declined given that it's not effective to fight one environmental hazard with another. One popular mitigation method is root pruning of planting stock, but this must be used selectively since many species do not grow well or may die years later, as illustrated in Figure 32. There appears to be a particular problem with liquidambar, and ashes 5 years after planting.

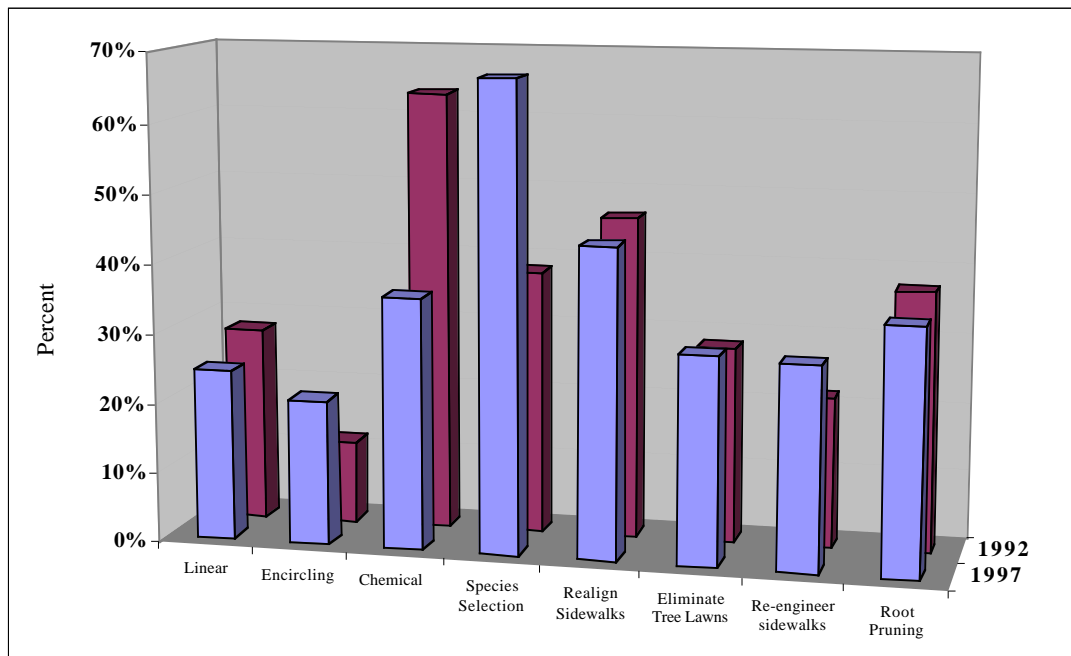


Figure 31. Percent Citing Damage Mitigation Measure as "Effective"

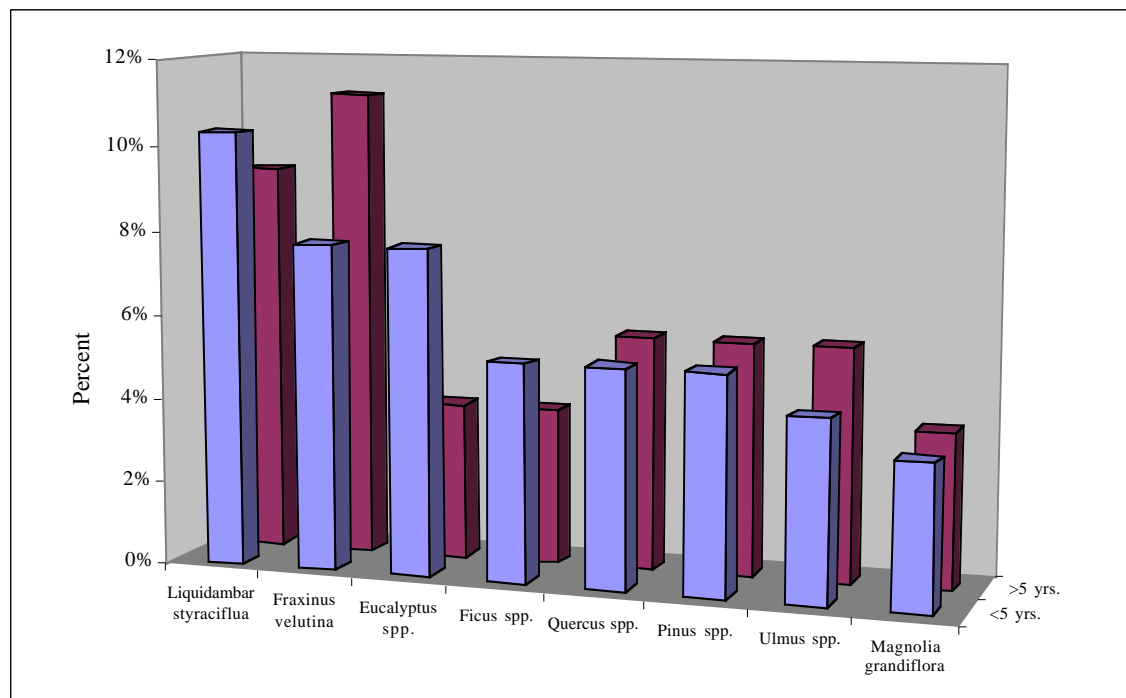


Figure 32. Species Most Frequently Cited for Failure from Root Pruning

Pruning

Pruning, trimming, pollarding, and topping are all terms used and misused to describe that part of arboriculture involving the removal of parts of the tree to achieve some objective. Whether that objective is explicitly stated or even justified is probably at the core of the controversy over this critical step in caring for urban trees.

The term, trimming or trimmings, is probably too generic to convey the activity involved, but it is commonly used when referring to the type of materials produced from pruning. Pruning is defined as “the removal of parts of a plant for size control, health, or appearance” (Rice and Rice 2000).

Rice and Rice define pollarding as “a formal training method applied to deciduous trees whereby the year’s new growth is pruned back to the parent branches each year.” They define topping as “shortening of the central leader of a tree to make the head fuller and keep the tree short (not a recommended pruning practice).” Clearly, topping is not intended to improve the health or appearance of a tree, but it certainly controls its size. Herein lies the problem -- size control is usually the only concern of utility companies or Public Works departments given their mission. Urban forestry’s objectives are at odds with theirs, since its clear purpose is to create a healthy, attractive and sustainable forest that provides the most benefits possible.



Result of ‘topping’



Pruning care

Figure 33 illustrates that pruning of mature trees continues to increase, though as stated earlier, reduced budgets cause scheduled pruning to be curtailed until the tree becomes a hazard. At that point, topping is generally the only option left for Public Works.

It must be clearly stated in this report that certified arborists in government and private firms are not responsible for topping trees. Power companies are increasingly learning from arborists that alternatives to topping are available but require better planning, inventories, and crew training. Nevertheless, any reliance on topping creates tremendous community relations and education problems for U&CF personnel as indicated in the testimonials below.

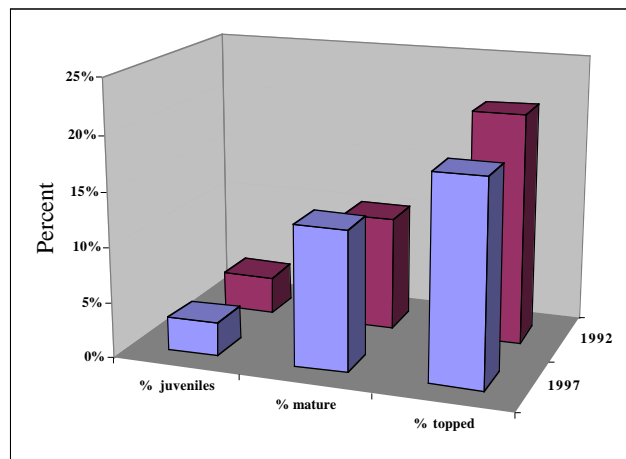


Figure 33. Average of Street and Park Tree Inventory Pruned by Size Class and Average Percent “Topped”

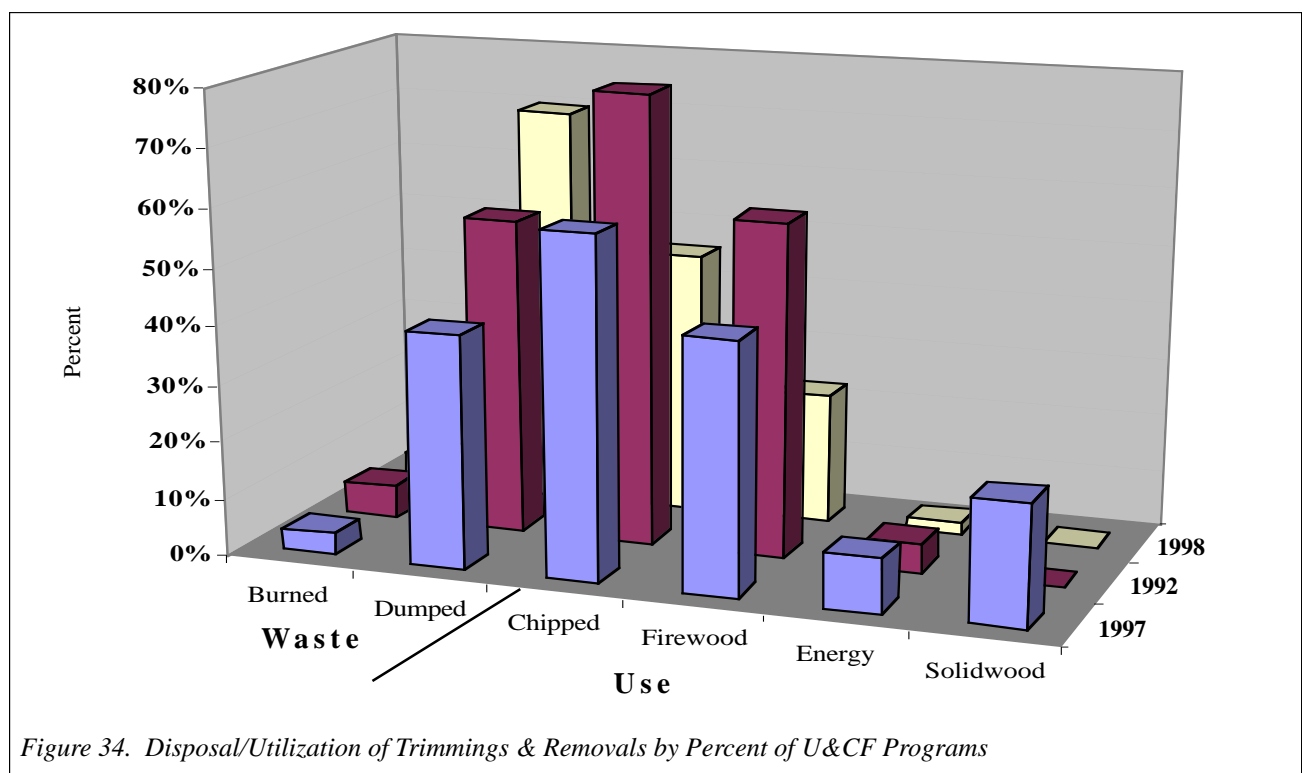
“The urban forest is being destroyed due to utility companies ‘pruning’ [quotes added] techniques. Directional pruning looks bad to the entire public; they have no one to answer to, except the shareholders. Help put a stop to directional pruning, better known as ‘dollar-based’ pruning.” *Novato*

“Educating the public is probably the most important thing we can do. Most residents think topping or pollarding is the right way to trim trees because they see others trimming that way. The public needs to be aware that this is more detrimental to trees and just because a tree is 60 feet or taller doesn’t mean that it’s dangerous.” *Brea*

Utilization of Greenwaste Resources

As the growing inventory of city trees ages, the volume of woody material generated from trimmings and removals also grows (NEOS 1994, Plumb et al. 1999). In 1989, the Integrated Waste Management Bill (AB 939) became law, mandating a 25% reduction in solid waste in landfills, and 50% by 2000, including county-level surveys to determine solidwaste volumes. Prohibiting disposal of half of the woody materials in landfills has created a serious problem for cities but also a growing perception of these materials as a potentially valuable resource.

Figure 34 shows the percent of respondents using various methods of “greenwaste” utilization/disposal. Figure 35 displays the same information as the average percent of use of each utilization/disposal method. The number of programs dumping is in rapid decline, but the average rate of disposal has increased (Figure 35), evidently due to fewer programs disposing more often. Despite this confusion, these figures illustrate significant redistribution of these woody materials since 1988.



Forced by law, disposal through dumping and burning has dropped to 40% of the programs compared to 70% in 1988. Chipping for mulch or energy/firewood grew rapidly between 1988 and 1992 but generally dropped somewhat since 1992, while utilization of woody materials for solidwood products has increased significantly. The Tellus Institute (1991) estimated that about 5% of California’s 50 million tons of solid waste produced in 1990 was wood waste. This translates to over 2 million tons per year; essentially all of it disposed in landfills at that time. However, little information is available on the proportion of this huge volume that is log-size which yields high-value commodity and speciality solidwood products (Plumb et al. 1999)

In 1994, the NEOS Corp. (1994) estimated that commercial tree care companies, representing nearly half of the urban “greenwaste” volume, produced about 1.5 million yd³ of log-sized material (defined herein as unchipped wood greater than 12” small-end diameter with lengths at least 4 feet). Extrapolating this to all producers would result in about 200 million bd. ft. of wood volume, about the consumption of several industrial scale sawmills.

Utilization of Greenwaste Resources (continued)

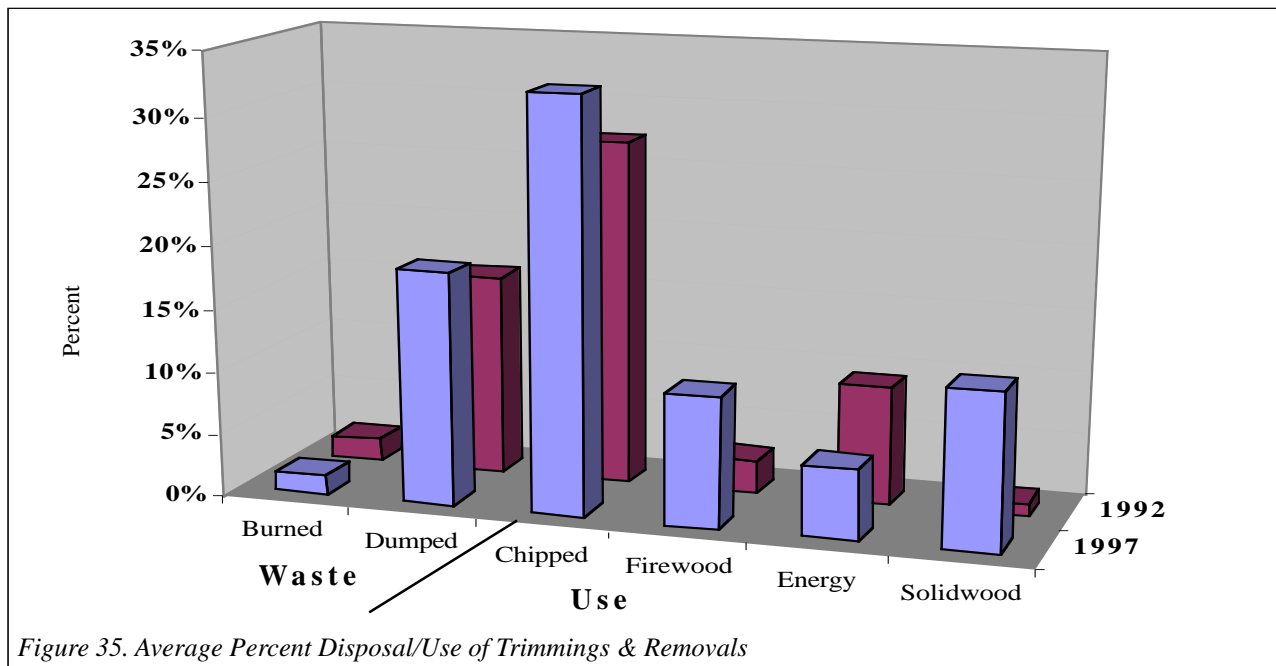


Figure 35. Average Percent Disposal/Use of Trimmings & Removals

The following points summarize the urban solidwood resource supply-side problem:

- “greenwaste” problem in cities and communities could provide economical supplies;
- supplies are potentially large with a wide range of log quality;
- non-traditional sizes and variable quality means that National Hardwood Lumber Association (NHLA) standards should not be used to describe quality;
- no urban infrastructure exists for the distribution of wood supplies.

The demand-side is currently assumed to be robust since these wood species have significant substitutability with commonly used furniture and speciality wood (Plumb *et. al.* 1999).

A project involving UFEI and the UC Forest Products Lab is currently underway to define volume and quality criteria and to develop an “e-trade” website in order to accelerate the development of market values for urban woods.

From Trash to Treasure



Irrigation

Tree programs reported a higher proportion of trees irrigated in 1997 than in 1992, as seen in Figure 36. The proportion of programs with 100% irrigation increased to 27%. Adding in those irrigating 99% (roughly doubling their irrigation rates from 1992), the gains are more apparent. The increase apparently came from those previously irrigating less than 10% of their trees.

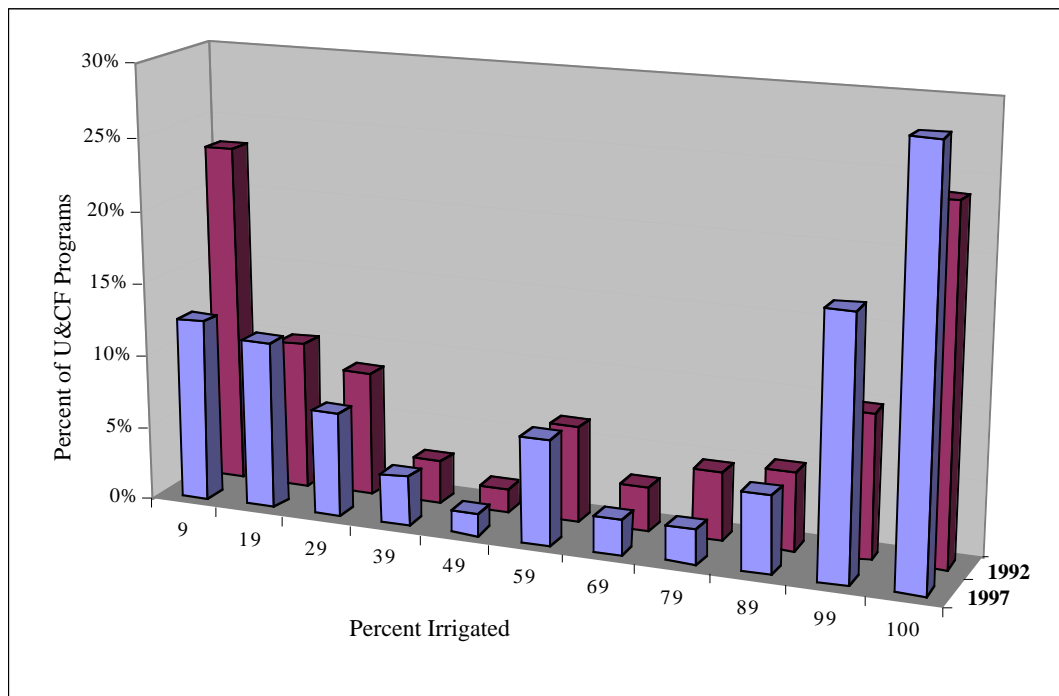
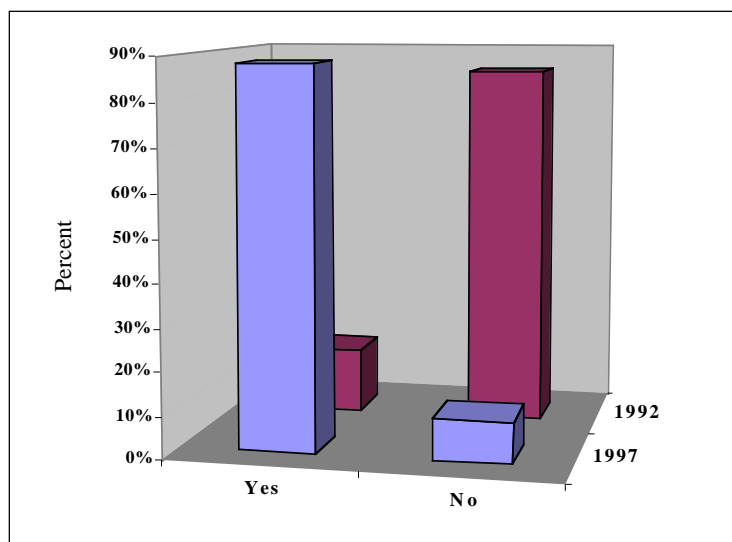
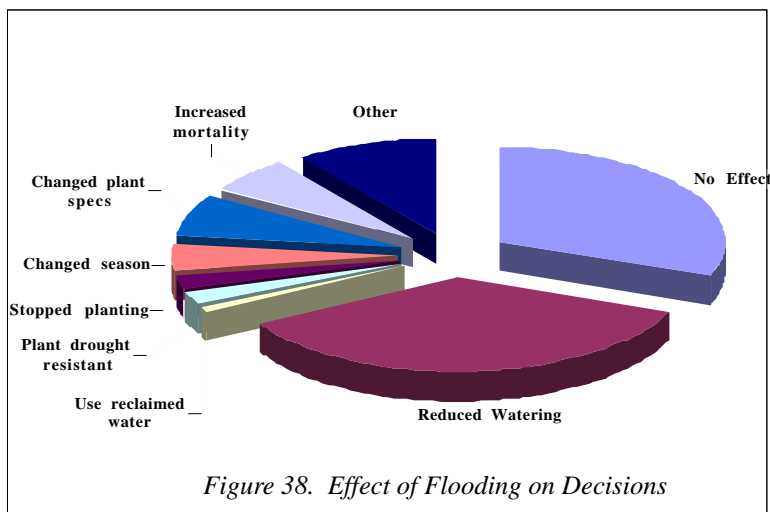
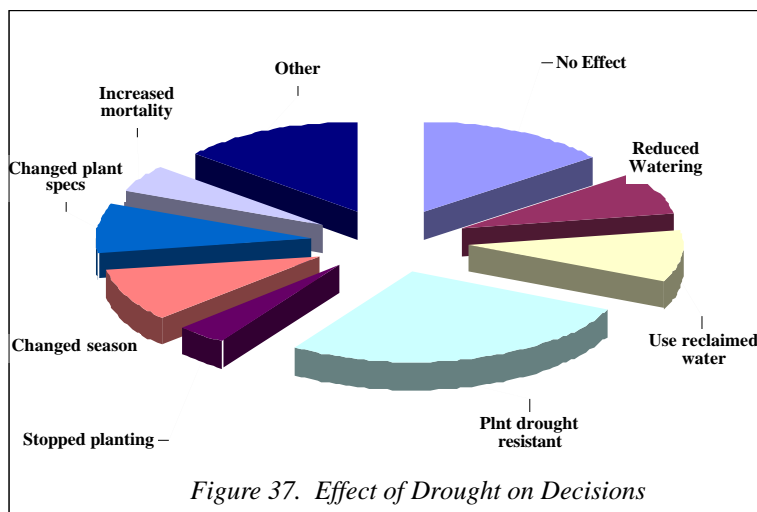


Figure 36. Distribution of Trees Irrigated in 1992 & 1997

Fire, Flood and Drought Effects

The 1992 survey seemed to express the cumulative effect of the 7 year drought (late 80s through early 1990s) with a much higher reporting of tree mortality and reduced tree planting. This experience apparently induced programs to plant more xeric species in 1997, see Figure 37. After the droughts came the floods, and their predictable effects on decisions is shown in Figure 38. Tied to these cyclical climatic phenomena is the regularity of fire in the Mediterranean climates of central and southern California. The disastrous fires in Oakland and the L.A. Basin in the early 1990s forced urban forestry programs to reassess which management practices and species to use (see Figure 39).

These facts illustrate the extreme difficulty of designing a structure and composition of an urban forest in a Mediterranean climate that still provides all the desired benefits. It appears that one positive outcome of these fires was that fire organizations began to recognize the close link between their goals and those of urban and community forestry and to avoid working at cross purposes.



Community Relationships

Public Support

Because the goal of urban forestry is to enrich the lives of people by creating a more liveable environment, it is absolutely essential for there to be a close relationship between the public and U&CF program goals. Urban forestry programs cannot flourish without citizen support, an effect ultimately reflected in government policies and funding decisions. To obtain that support, policies and management objectives must reflect the values of the community, not ours, a hard lesson learned in wildland forestry.

To reveal the sense of support felt by U&CF staff for their program, respondents were asked to rate both public and government support on a 1-5 ordinal scale (1=low, 5=high). Figure 40 illustrates the average percent rating for public support, indicating a fairly even distribution (“normal” appearing) that centers on a neutral rating. It also seems to show a slight slippage in the support since 1988. Figure 41 illustrates the average level of support rating from government. This distribution is clearly more skewed toward higher support than in the citizens’ case, with a noticeable abandonment of mid-ratings.

One would think that for support to be obtained from government, there would have to be support first from the public. But it appears the opposite is true here, relatively. In many cases, the public needs education and involvement for it to become an advocate; whereas government officials have been informed generally on the benefits of urban forestry enabling them to help lead the public. Still, it seems that more education and interaction with the public and community organizations is needed.

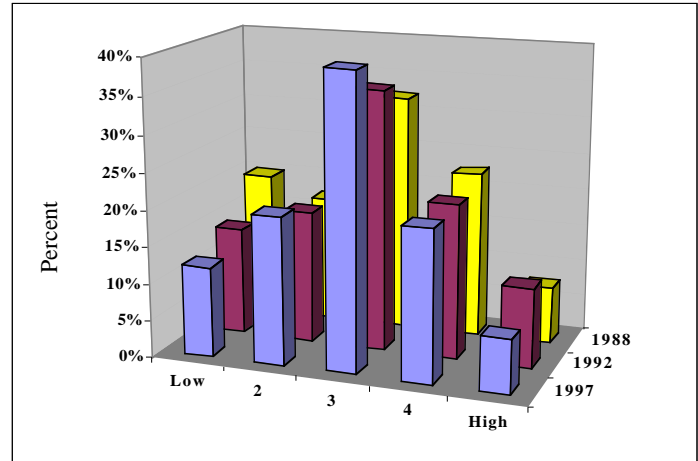


Figure 40. Evaluation of Local Citizen Support, 1988 to 1997

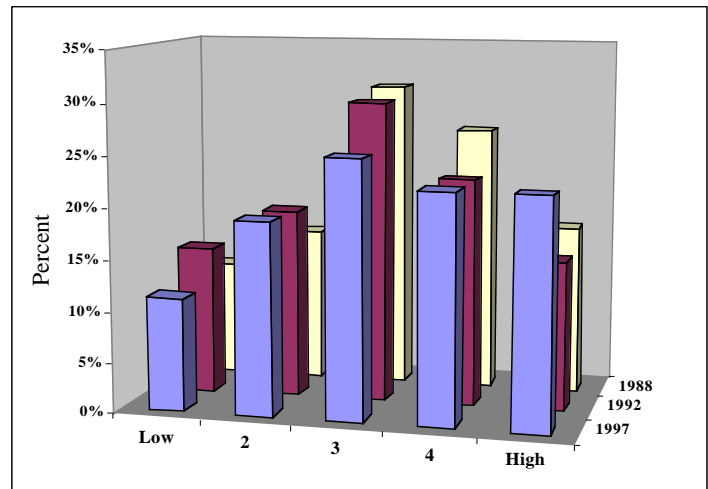


Figure 41. Evaluation of Local Government Support, 1988 to 1997



Work of Community Organizations

There are two basic types of community organizations that play a significant role in policy, education, promotion and program oversight. The first of these are tree boards or commissions which serve as advisory bodies to city government and in turn the U&CF program. The second of these are tree advocacy groups, often formed at the behest of the U&CF program directly.

Table 2. Percent of Programs with Tree Board/Commission

	1988	1992	1997
Group w/ Duties	10%	11%	14%
Group w/ some Duties	17%	39%	36%
No Group/Commission	73%	50%	50%

Table 2 indicates that only half of the respondents had a tree board or commission in 1997 or 1992, down from 73% in 1988. Those with boards having “some duties” specifically related to the tree program dropped slightly from 1992, more than doubling from 1988. These “duties” increasingly appear to be ones of public education and Arbor Day celebrations or special projects, as opposed to activities like policy setting and administration (see Figure 42). Respondents from U&CF programs seem to be satisfied that these boards are providing a beneficial role, according to Figure 43.

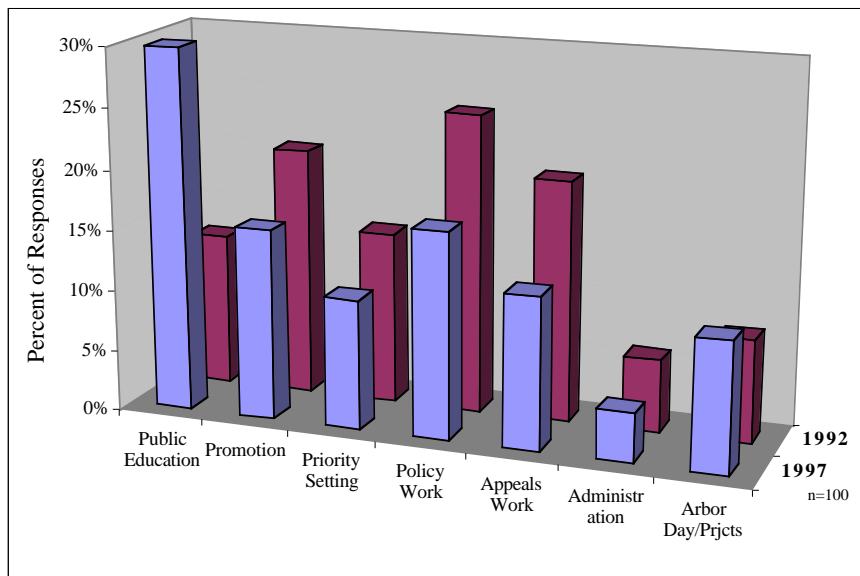
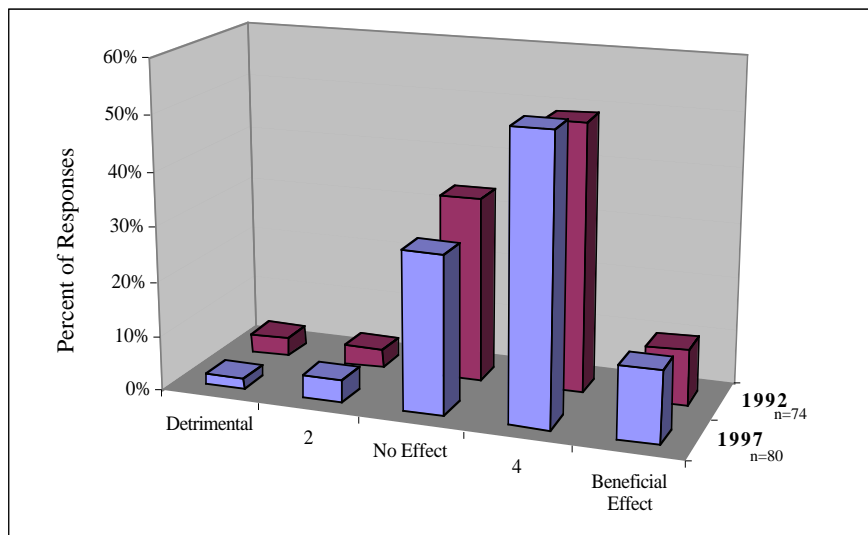


Figure 42. Evaluation of Tree Board's Effect

Figure 43. Evaluation of Tree Advocacy Group's Effect



Work of Community Organizations (continued)

As shown in Figure 41, there is a clear need to improve public support. Certainly, U&CF directors should consider whether their policies and decisions align with the values of the community. But it could be simply a lack of promotion and advocacy. One of the highest priorities of every U&CF program should be to establish a “citizen tree advocacy” group. Table 3 indicates that the number of respondents with a tree advocacy group is barely over 25%, far too few to champion their cause in their community. Again, the slight drop in percentage in 1992 may be due to budget cuts; however, this is one objective that must receive priority. All other objectives depend upon having an effective lobby in the media and government. But it is critical that the tree program and the advocacy group are in agreement. Figure 44 certainly raises doubt as to whether those with such groups are receiving the kind of support they need or want. The heavy weighting toward beneficial advocacy in 1992 was lost in 1997, raising concerns that need to be addressed.

Table 3. Percent of Respondents with a Tree Advocacy Group

	1988	1992	1997
Yes	28%	25%	28%
No	72%	75%	72%

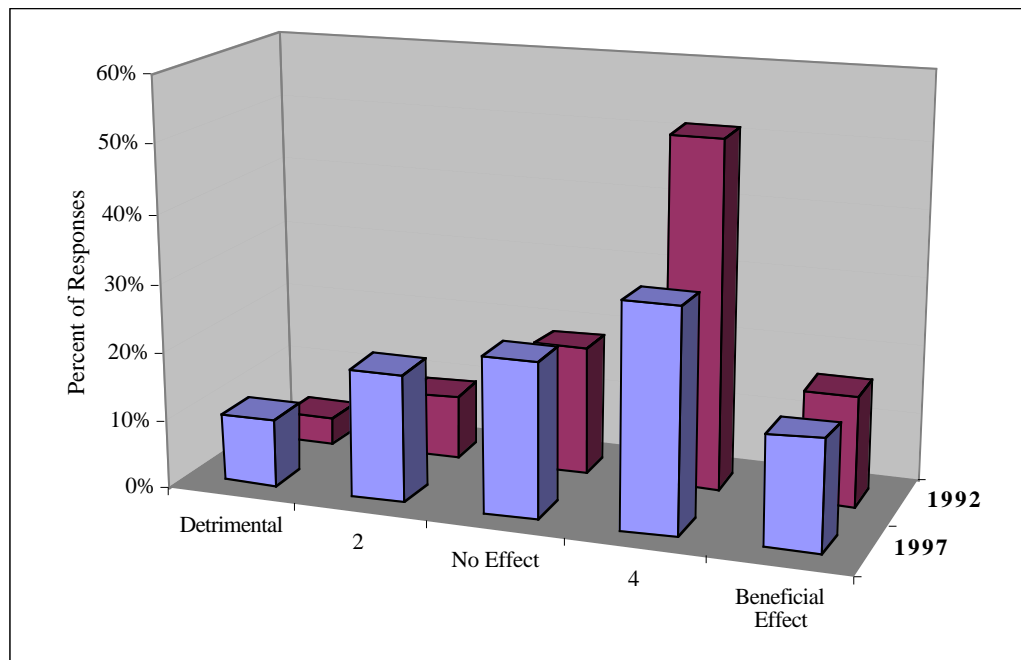
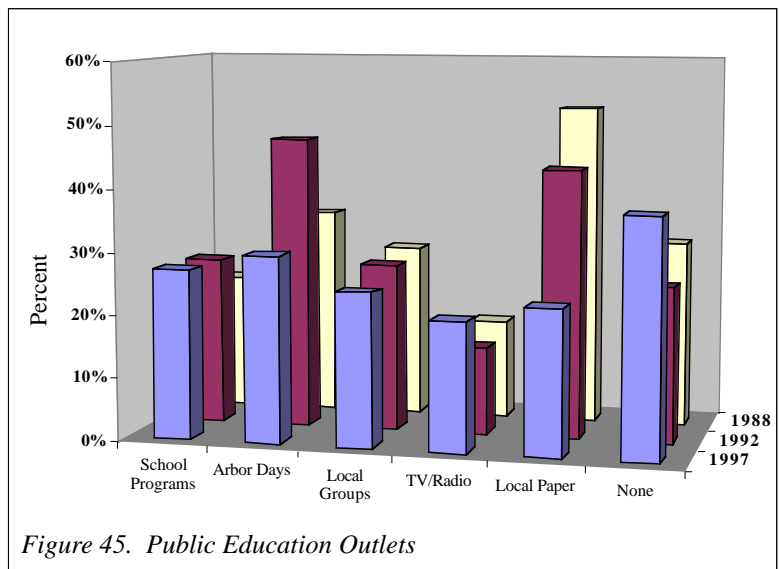


Figure 44. Evaluation of Tree Advocacy Group's Effect

Education and Communication Methods

The evidence on the level of public support indicates a growing, not diminishing, need to communicate the message, values and issues of urban forestry. This partly involves educating the public and active community groups on the benefits and costs of building and caring for the urban forest. There are numerous outlets and methods for communicating information from the media to direct methods like school programs and Arbor Day celebrations. Figure 45 illustrates the trend in use of these alternative communication methods. One obvious trend in significant decline is the use of the local paper. Despite anecdotal evidence to the contrary, survey results show a serious drop in the use of Arbor Day celebrations as a means of communicating and educating the public since 1992, having increased from 1988. Spots on TV and radio appear to have increased somewhat. However, what one would expect to see is a decline in the number of programs that do not have any communication effort. Figure 45 indicates an increase since 1992 and even earlier in 1988.



“Working directly with public schools giving in house presentations has helped reduce vandalism and create awareness of the benefits to urban forestry.”

Manteca

“Arbor Day Tree Giveaway CA Natives In Liners-(2)” are given away to Lodi residents to plant in their private yards-350 with fertilizer, instructions and urban forest values handouts were provided-all were given away and more people asked for trees than we had. It got people involved in Urban Forestry and promoted drought to Grant Natives.” **Lodi**

Tree Ordinances

Many communities see tree ordinances as a means of regulating the behavior of homeowners, farmers and ranchers, and business people to insure that the urban forest is not diminished on private land. Trends in four issues related to tree ordinances are displayed in Figure 46. A steady increase in tree ordinances is indicated, 84% of the respondents in 1997 having one. About 76% of those without an ordinance feel they need one. The need for revising existing ordinances seems to be declining. However, barely half think their ordinances are adequately enforced (56% in 1997), up slightly from 1992.

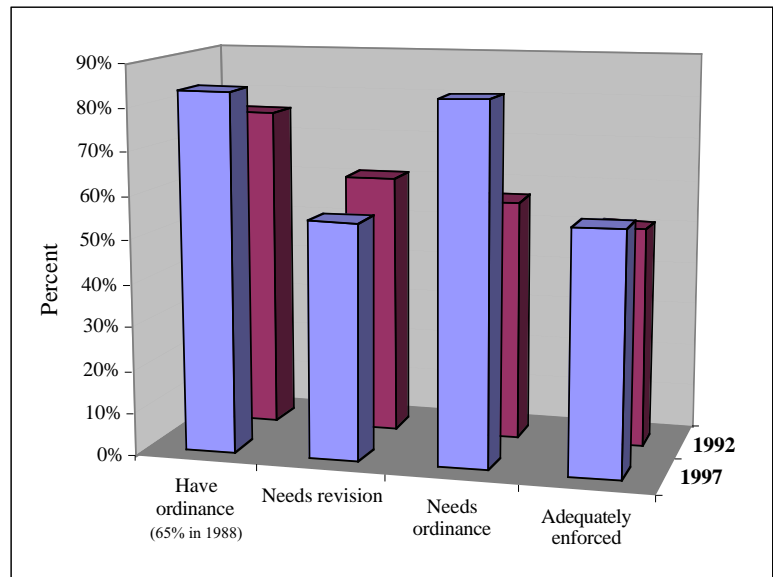


Figure 46. Issues of Tree Ordinances

There are a variety of designs to tree ordinances with varying degrees of specificity and effectiveness. The effectiveness of some of the more common ordinance provisions is presented in Figure 47. Here we see that generally all types are viewed as more effective than not. Because it is relatively easy to make tree planting a condition for development, “requiring tree planting on new commercial and residential” developments is seen as the most effective ordinance. Ordinance types or provisions that appear to be least effective are those aimed at abating tree hazards on private property and protecting trees during development. These evaluations have changed very little since 1992 (See Tree Ordinances websites in Appendix 1).

"Don't Mess With Our Trees" has tree ordinance 4:1 replacement with 24 foot wooden boxed trees. Two square mile town. Ordinance rigidly enforced with high community involvement." *Hidden Hills*

"Need stronger protection of trees during construction of new homes. Need to make it part of planning process rather than after construction begins." *Atherton*

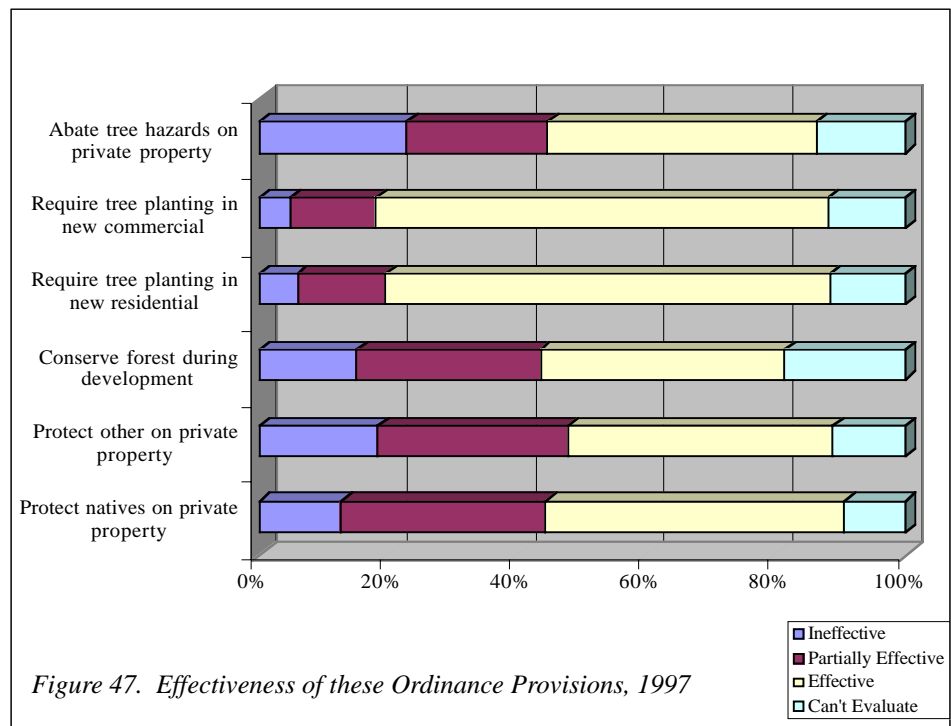


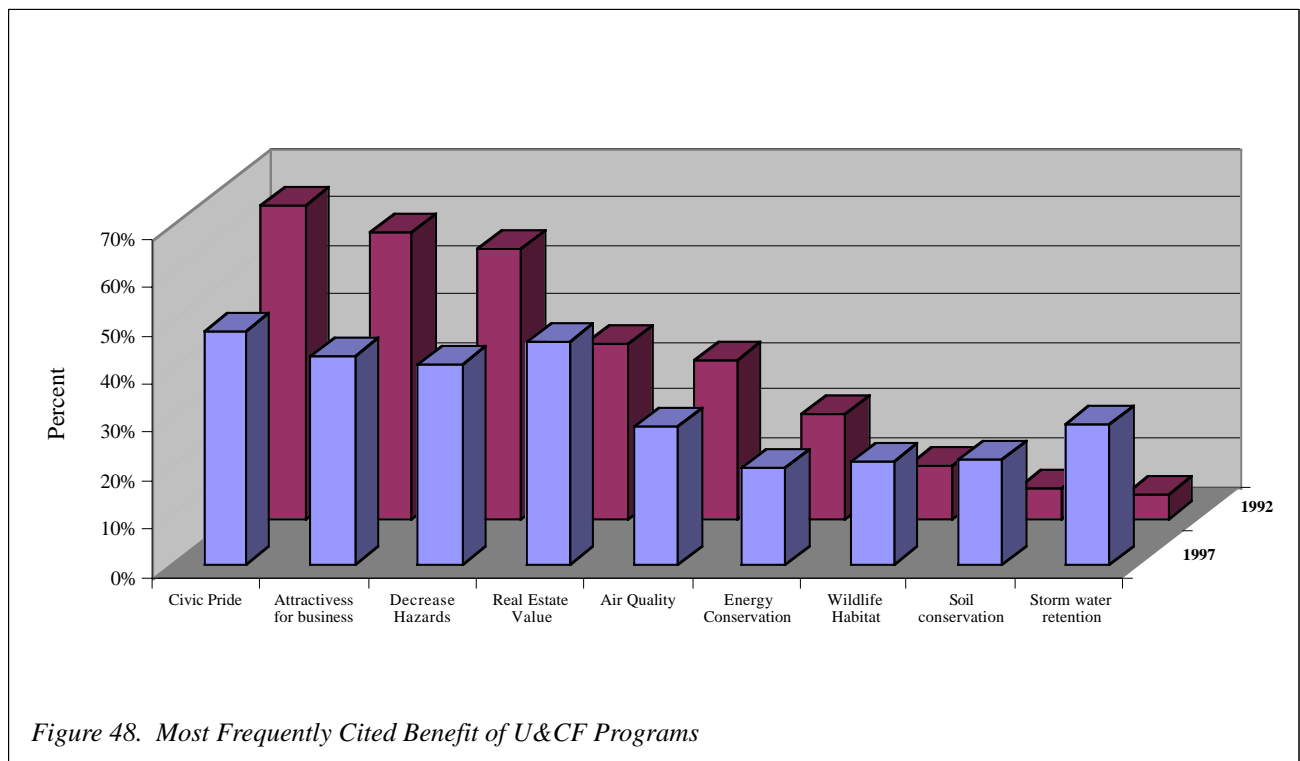
Figure 47. Effectiveness of these Ordinance Provisions, 1997

Urban Forestry Benefits

Many changes, concerns and improvements have been identified in this report on the state and trends of urban and community forestry in California. A mixed message emerges with improved funding, greater reliance on the private sector and volunteers, some improvements in tree care, and more utilization of wood resources on the plus side. However, lost momentum in building tree inventories, the trend toward smaller, shorter-lived species, and weakness in public support are some trends that raise concern. Presenting the trend in what the respondents think are urban forestry's greatest benefits and needs may serve to summarize these diverse issues.

The most frequently cited benefits of urban and community forestry are presented in Figure 48. The only highly rated benefit in 1992 that continues to increase is improved real estate values. Environmental benefits like stormwater and soil retention, and improved wildlife habitat that were the least most cited benefit in 1992 have grown in importance in 1997. Whereas, the highly rated benefits of civic pride, attractiveness to business development and tree hazard reduction through better management dropped precipitously between 1992 and 1997.

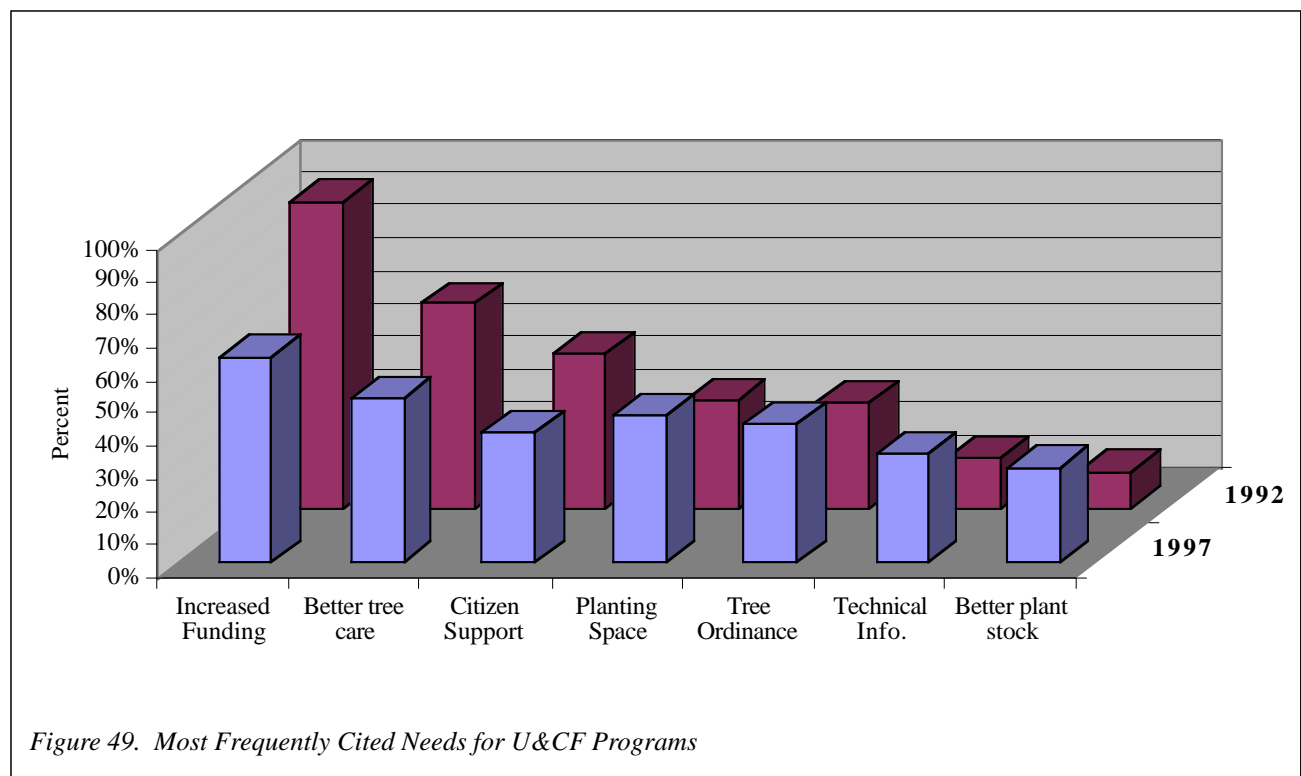
To underscore the growth in the importance of the water, soil and habitat conservation values of sustainable community forestry, new software like CityGreen (developed by American Forests) possess capabilities to quantify these benefits.



Program Needs

To realize all the benefits that a healthy, sustainable urban forest can provide requires re-investment, management and community involvement. Although still highly rated in 1997, these three basic requirements had dropped in importance compared to 1992 (see Figure 49), especially citizen support. This seems to be an unwise evaluation since without community support and groups to advocate U&CF goals, funding will not be forthcoming and conflicts will be resolved in ways that likely will not promote a healthy urban forest. The more practical concerns of more technical information, better planting stock and even the need for tree ordinances grew in importance between 1992 and 1997. Still the number one issue is funding, and will probably always be so as long as tree programs rely on general city funds that fluctuate according to the strength of the state and local economies.

“We are just beginning to address urban tree needs. We are sponsoring an Arbor Day event and planting 285 trees. Within our largest park we have removed Ponderosa Pine which has paid for the cost share for a proposition 70 grant. Our tree committee has been very supportive.” *Trinity County*



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Appendix 1. Internet References by Topic

General

Urban Forestry Bibliography

<http://www-stp.lib.umn.edu/for/bib/urban.html>

1982 - present

Indexes publications relating to the history of urban forestry; urban forest legislation; the benefits of urban forests; selection and planting of trees; maintenance of the urban forest; planning and management; and urban forestry programs.

Urban Forest Ecosystems Institute

<http://www.ufe.calpoly.edu/>

Contains links to numerous resources, private, governmental and professional links.

Western Center for Urban Forest Research and Education

<http://wcufre.ucdavis.edu/>

Urban Forestry Initiative: Trees for the Millenium

<http://ceres.ca.gov/cra/trees/how.html>

Allocated funds will be disbursed by CDF's Urban Forestry Program in the form of matching grants. Grants will be given to cities and counties; and to non-profit citizen groups such as California Releaf (operating under the aegis of the Trust for Public Land). It is advisable that CDF consult with such organizations as the California Urban Forestry Advisory Council who will survey its constituent regional caucuses as to local needs and requirements.

USDA Forest Service, State & Private Forestry

<http://www.r8web.com/spf/Related%20links%20page0.htm>

Contains a listing of numerous urban and community forestry links with a brief description and key words.

- ◆ Providing advice, assistance, information, and referrals
- ◆ Publishing California Trees
- ◆ Coordinating the California ReLeaf Network
- ◆ Administering grant programs on behalf of the state of California
- ◆ Developing cooperative programs with the nursery, landscaping, and tree-care industries monitoring state and federal legislative action

The National Arbor Day Foundation

<http://www.arborday.org/>

Tree Musketeers

<http://treemusketeers.org/>

TREE MUSKETEERS was the nation's first known nonprofit actually administered by kids with support of adults partners. The mission is to empower young people to lead environmental improvement in Earth's communities through innovative action and education programs that motivate others to become partners in a united youth movement. While its program serve millions of kids and adults partners worldwide, TREE MUSKETEERS is non-membership and headquartered in the Los Angeles area.

Tree Ordinances

Urban Tree Ordinances

http://www.r8web.com/spf/ordinance_index/1101urb_ord.htm

Contains a description of various tree ordinances in-place in the Southern U.S.

Guidelines for Developing and Evaluating Tree Ordinances

<http://www.isa-arbor.com/tree-ord/ordintro.htm>

This site, developed by USDA Forest Service, NUCFAC, ISA and ESRI (with support of numerous other organizations and firms), provides a variety of tools and resources for citizens and local governments interested in developing, revising, or evaluating local tree ordinances. The site includes annotated examples of effective tree ordinance provisions used throughout the country. We also provide detailed descriptions of practical methods used to monitor community tree resources, tree management activities, and community attitudes.

Species Selection and Care

SelecTree

<http://selectree.calpoly.edu/>

Maintained by UFEI, SelecTree contains over 3,900 photos for 857 trees. Photos will be updated as they

Appendix 1. Internet References by Topic (continued)

become available. The trees listed in this resource are meant to create an awareness of the great variety of trees that will grow in California, and to encourage people to think about planting a greater variety of trees. Users should be aware that some trees listed are not readily available and may actually be difficult to find. Information may be available by contacting your local nurseries, arboretums, universities, or city tree group or garden club.

International Society of Arboriculture

<http://wwwz.champion.isa-arbor.com/consumer/consumer.html>

Community Relations and Support Development

Treelink

<http://www.treelink.org/>

This site was created to provide information, research, and networking for people working in urban and community forestry. For the researcher, the arborist, the community group leader, the volunteer—our purpose is to inform, educate, and inspire. For example, here you'll find:

California ReLeaf

<http://www.tpl.org/cal/>

California ReLeaf is a statewide campaign to expand, enhance, and preserve urban and community forests — making our cities and communities more livable, improving the global environment, and connecting people to the land and to each other. Founded in 1989, California ReLeaf is the urban forestry division of the Trust for Public Land, Western Region

California ReLeaf offers a variety of programs and services, including:

- ◆ Educational materials
- ◆ How-to guides
- ◆ A research database
- ◆ Discussion forums
- ◆ A quarterly web-zine
- ◆ A comprehensive link list of national and local resources
- ◆ Late-breaking news
- ◆ Interactive tools for tree identification and selection

Appendix 2. 1998 California Community and Forestry Survey

The California Department of Forestry and Fire Protection Urban Forestry Program first surveyed urban and community tree programs of California cities and counties in 1988. The survey results were presented in a report which helped local tree managers develop and maintain programs to care for trees. The past several years have brought many changes to our state. This follow-up survey, covering 1998, will allow us to document trends in urban forest management that have occurred since the last survey. The results of the new survey will be presented in a report that will be sent to all survey participants. The report will aid you in planning for and maintaining your community's trees.

Please respond with answers appropriate to your jurisdiction whether city or county.
Read "city/county" as appropriate to your situation, either city or county.

We are a _____ City _____ County(check one).

If you have any questions or comments about the survey please contact Jim Ahern (805) 756- 5030 or Rich Thompson at Urban Forest Ecosystem Institute-Cal Poly (805) 756-2898. Phytosphere Research developed the original survey for the California Department of Forestry & Fire Protection - contract (Eric Oldar).

Please return this questionnaire to Rich Thompson, Urban Forest Ecosystem Institute, NRM Dept., Cal Poly, San Luis Obispo CA 93407.

1 Does your community currently use any public funds to carry out tree planting or tree care activities within its boundary?

_____ YES _____ NO (if NO, please skip to question I1, page 11)

2 If yes, please complete the survey, answering all of the questions which are applicable to your community. Some of the questions will ask for information from 1998. Please indicate whether your responses will be based on a fiscal year identical to the calendar year 1998 or to a fiscal year covering parts of 1991 and 1998.

_____ FISCAL YEAR SAME AS CALENDAR YEAR 1998
_____ FISCAL YEAR STARTING _____, 1997

----- A. TREE PROGRAM BUDGETS -----

A1 Do you feel your tree planting and maintenance budget is adequately funded?

_____ YES _____ NO _____ NOT SURE

A2 Compared to 1997, did your tree budget in 1998 (choose one):

_____ INCREASE (Please estimate percent _____% increase)
_____ DECREASE (Please estimate percent _____% decrease)
_____ REMAINED THE SAME

A3 What was your tree program's total budget in 1998? (Please estimate if not known exactly. Write "UE" if unable to estimate.)

\$ _____

A4 What percent of your tree budget is spent on private contractors? (Please estimate if not known exactly. Write "UE" if unable to estimate.)

_____ %

A5 What percent of the tree budget comes from the following sources? (Please estimate if not known exactly. Write "UE" if unable to estimate.)

_____ % GENERAL FUND
_____ % ASSESSMENT DISTRICTS
_____ % PERMIT FEES
_____ % GRANTS
_____ % GAS TAX MONEY
_____ % REDEVELOPMENT FUNDS
_____ % FINES
100%

A6 In your community, do you think that assessment fees could be used to fund most or all city tree care activities in new developments?

_____ YES _____ NO _____ NOT SURE

A7 In your community, do you think that assessment fees could be used to fund most or all city/county tree care activities in existing developments that do not now have such assessment districts?

_____ YES _____ NO _____ NOT SURE

----- B. PERSONNEL -----

B1 Compared to the previous year, did staffing levels for the tree program in 1998 (choose one):

_____ INCREASE (Please estimate percent _____% increase)
 _____ DECREASE (Please estimate percent _____% decrease)
 _____ REMAIN THE SAME

B2 How many people did your tree program employ in 1998?

_____ NUMBER FULL TIME
 _____ NUMBER SEASONAL/PART TIME. For seasonal/part time please estimate the total number of full time equivalents: _____ FTE

B3 For what purposes do you use private contractors, and how satisfied are you with the results?

Private contractors used for: (Please list # firms & circle all categories that apply)

#Firms	#Certified		Partially		Very
	Firms	Unsatisfied	Satisfied	Satisfied	Satisfied
___ Arborist/tree reports	_____	0	1	2	3
___ Emergency work	_____	0	1	2	3
___ Pest control	_____	0	1	2	3
___ Planting	_____	0	1	2	3
___ Routine pruning	_____	0	1	2	3
___ Lack specialized equipment	_____	0	1	2	3

----- C. TREE PLANTING AND NURSERY STOCK -----

C1 Please rank from 1 to 4 within each column (1=most important) the following for their importance to you in choosing trees for street and park plantings.

	STREETS	PARKS
AMOUNT OF SHADE TREE WILL CAST	_____	_____
AESTHETICS OF TREE	_____	_____
COST OF FUTURE MAINTENANCE	_____	_____
SPACE AVAILABLE FOR GROWTH	_____	_____
DEATH LOSS	_____	_____
DISEASE/FLOOD,WIND FALL	_____	_____

C2 How many trees did your program plant or contract for in 1998? (Please estimate if not known exactly. Write "UE" if Unable to Estimate.)

_____ STREET TREES (include trees along streets and in parking lots) _____ PARK TREES (include trees in cemeteries, golf courses, public buildings, etc., but not wildland or open space trees)
 _____ OPEN SPACE/WILDLAND TREES

C3 How many new city/county trees were planted by people outside your program in 1998? (Include only trees that your program will care for in the future. Write "UE" if unable to estimate.)

_____ TOTAL _____ by contractor _____ BY PRIVATE VOLUNTEERS

C4 Please list the 5 tree species most commonly planted by your program along streets in 1998.

% OF TOTAL

STREET TREE SPECIES OR COMMON NAME	PLANTED
1. _____	_____ %
2. _____	_____ %
3. _____	_____ %
4. _____	_____ %
5. _____	_____ %

C5 Please list the 5 tree species most commonly planted by your program in parks in 1998.

% OF TOTAL

PARK TREE SPECIES OR COMMON NAME	PLANTED
1. _____	_____ %
2. _____	_____ %
3. _____	_____ %
4. _____	_____ %
5. _____	_____ %

C6 Please estimate the percent of street trees your program planted in 1998 that will be:

LESS THAN 30 FT TALL AT MATURITY	_____ %
30-60 FT TALL AT MATURITY	_____ %
60 FT OR TALLER AT MATURITY	_____ %

C7 Please estimate the percent of park trees your program planted in 1998 that will be:

LESS THAN 30 FT TALL AT MATURITY	_____ %
30-60 FT TALL AT MATURITY	_____ %
60 FT OR TALLER AT MATURITY	_____ %

C8 Please rank from 1 to 4 within each column (1=most common) the sizes of tree nursery stock your program uses in street and park plantings. (Please write 0 for any size class not used.)

	STREETS	PARKS
1 GAL OR SMALLER	_____	_____
5 GAL	_____	_____
15 GAL	_____	_____
24 INCH BOX OR LARGER	_____	_____

C9 In the past year, which of the following nursery stock factors have affected your tree planting program? (Please check all that apply.)

- _____ DESIRED TREES AVAILABLE BUT TOO EXPENSIVE
- _____ DESIRED TREE SPECIES OR CULTIVARS NOT AVAILABLE
- _____ DESIRED SIZES OF TREE NURSERY STOCK NOT AVAILABLE
- _____ TREE NURSERY STOCK OF ACCEPTABLE QUALITY NOT AVAILABLE

C10 How often have you encountered the following quality problems in tree planting stock?

	Never			Always
		(Please circle your answer.)		
Poor root structure (example-girdled roots)	1	2	3	4 5
Poor stem taper	1	2	3	4 5
Poor top structure (example-leader headed)	1	2	3	4 5
Insects or diseases	1	2	3	4 5

C11 When tree planting is required in new residential subdivisions, who is required to: (Please circle all that apply.)

PAY FOR TREES:	DEVELOPER	CITY/COUNTY	HOMEOWNER
PLANT TREES:	DEVELOPER	CITY/COUNTY	HOMEOWNER
MAINTAIN TREES:	DEVELOPER	CITY/COUNTY	HOMEOWNER

----- D. TREE CARE -----

D1 Please indicate which local government departments or offices have responsibility for tree care or community tree management in your city/county?

- _____ PARKS AND RECREATION
- _____ PUBLIC WORKS
- _____ PLANNING
- _____ COMMUNITY SERVICES
- _____ ADMINISTRATION
- _____ FLOOD

D2 How has California's extended drought/floods affected your tree program?

In Drought

In Flood

<= (Please check all that apply) =>

- | | | |
|-------|------------------------------------------------------------|-------|
| _____ | NO EFFECT | _____ |
| _____ | WE'VE REDUCED WATERING OF TREES | _____ |
| _____ | INCREASED USE OF RECLAIMED (FLOOD) WASTEWATER IRRIGATION | _____ |
| _____ | WE'RE PLANTING MORE DROUGHT RESISTANT TREES | _____ |
| _____ | WE'VE STOPPED PLANTING TREES ALTOGETHER | _____ |
| _____ | WE'RE STILL PLANTING TREES, BUT WE'RE PLANTING FEWER TREES | _____ |
| _____ | WE'VE CHANGED SEASON OF PLANTING | _____ |
| _____ | WE'VE CHANGED PLANTING SPECIFICATIONS | _____ |
| _____ | WE'VE HAD INCREASED TREE MORTALITY | _____ |
| _____ | PLANTING DISEASE RESISTENT TREES | _____ |

D3 What percentage of the trees your program cares for were irrigated in 1998?

_____ %

D4 Have concerns about fire prevention affected the tree program in any way?

_____ NO _____ YES (Please specify how) _____

D5 How many trees is your program responsible for?

_____ STREET TREES (include trees cared for along streets & in parking lots)

_____ PARK TREES (include trees cared for in cemeteries, golf courses, public buildings, etc., but not wildland nor open space trees)

_____ OPEN SPACE/WILDLAND

D6 Considering all trees in the city/county (including all of the trees in private yards, school yards, cemeteries, and so on), what percent does the program care for in each of the following areas? (Please enter NA for land uses your city/county does not have. Write UE if unable to estimate.)

The city/county cares for approximately:

- _____ % OF ALL TREES IN RESIDENTIAL AREAS
- _____ % OF ALL TREES IN INDUSTRIAL AREAS
- _____ % OF ALL TREES IN COMMERCIAL AREAS
- _____ % OF ALL TREES IN OPEN SPACE AREAS

D7 Considering all trees in the city/county, what percent does your program care for overall? (Write UE if unable to estimate.) The program cares for approximately:

D8 For the tree maintenance that your program performs, please indicate the percentage that falls into each of the following categories:

_____ % IS PERFORMED ON A SYSTEMATIC, REGULARLY SCHEDULED CYCLE

_____ % IS PERFORMED ON DEMAND, IN RESPONSE TO UNANTICIPATED PROBLEMS

D9 What is the longest planning interval for your tree program?

_____ YEAR(S)

D10 Do you think your program would be more cost-efficient if you could increase your planning interval?

_____ YES _____ NO _____ NOT SURE

----- E. PRUNING AND REMOVAL -----

E1 How many trees does your program prune per year? (Please estimate if not known exactly. Write "UE" if unable to estimate.)

_____ JUVENILE TREES BEING TRAINED

_____ ESTABLISHED TREES

E2 Including all public and private trees in your community, what percent would you estimate have been topped?

_____ %

E3 How does your program dispose of trimmings and removals? (Please estimate the percent in each category.)

_____ % BURNED

_____ % DUMPED

_____ % CHIPPED FOR MULCH AND USED BY THE CITY

_____ % CUT FOR FIREWOOD AND SOLD OR GIVEN AWAY

_____ % USE FOR BIOFUEL ENERGY GENERATION

_____ % USED FOR SOLID WOOD RECYCLING

Several different organizations have developed pruning standards. Please use the abbreviations shown below to answer the next two questions.

NAA (National Arborist Association) ISA (International Society of Arboriculture)

ANSI (American National Standards Institute) CDPR (California Department of Parks and Recreation)

E4 Please list any pruning standards that city/county tree workers follow. (Please specify the type if other than the standards listed above. Write "NONE" if no pruning standards are followed.)

E5 Does your city/county require any of the groups listed below to follow any pruning standards? (Please specify the type if other than the standards listed above. Write "NONE" if no pruning standards are required.)

Pruning work done by:

Pruning standards required:

CONTRACTORS DOING WORK FOR CITY/COUNTY

UTILITY COMPANIES

COMPANIES DOING WORK ON PRIVATE TREES

INDIVIDUALS DOING WORK ON PRIVATE TREES

E6 How many trees did your program remove in 1997(last fiscal year)?

_____ TREES

----- F. TREE INVENTORIES -----

F1 Does your city/county have a tree inventory?

_____ YES

_____ NO (Please skip to question G1)

F2 How often is the tree inventory used as a tool for decision making? (Please circle the appropriate number.)

RARELY
FREQUENTLY
 1 2 3 4 5

F3 Is the tree inventory computerized?

YES NO

----- G. LIABILITY AND HARDSCAPE DAMAGE -----

G1 Which of the following methods does your community use to limit tree-related liability claims? (Please check all that apply.)

- PROGRAM TO IDENTIFY AND ABATE HAZARDOUS TREES AND BRANCHES
- PROGRAM TO IDENTIFY AND REPLACE SIDEWALKS DISPLACED BY TREE ROOTS
- ALL FILED CLAIMS ARE STRONGLY CONTESTED BY CITY
- TRANSFER RESPONSIBILITY FOR CITY TREES TO PRIVATE LANDOWNERS

G2 Please check any of the following types of root barriers your city/county uses to reduce damage caused by tree roots to sidewalks and curbs. Also, for barriers in place at least 5 years, please rate the overall effectiveness in preventing damage.

Methods used (Please check all uses applicable)	<u>Ineffective</u>	<u>Partially Effective</u>	<u>Effective</u>	<u>Not Sure</u>
	(Circle your evaluation of effectiveness for barriers in place at least 5 years)			
<input type="checkbox"/> Linear barriers	0	1	2	NS
<input type="checkbox"/> Encircling barriers (example-root boxes)	0	1	2	NS
<input type="checkbox"/> Chemical impregnated barriers	0	1	2	NS

G3 Which of the following additional methods has your city/county used to reduce damage caused by tree roots to sidewalks and curbs? Also, for methods used at least 5 years, please rate overall effectiveness in preventing damage.

Methods used (Please check all uses applicable)	<u>Ineffective</u>	<u>Partially Effective</u>	<u>Effective</u>	<u>Not Sure</u>
	(circle your evaluation of effectiveness for methods in use at least 5 years)			
<input type="checkbox"/> Species selection	0	1	2	NS
<input type="checkbox"/> Realigning sidewalks around existing trees	0	1	2	NS
<input type="checkbox"/> Eliminating tree lawns between sidewalk and curbs	0	1	2	NS
<input type="checkbox"/> Re-engineering sidewalks to avoid damage by roots	0	1	2	NS
<input type="checkbox"/> Pruning roots of trees that are damaging sidewalks	0	1	2	NS

G4 Please list any species that in your experience become hazardous or are prone to failure after root pruning. Please list by the time frames shown below.

SPECIES WITHIN 5 YEARS OF ROOT PRUNING: _____

SPECIES MORE THAN 5 YEARS AFTER ROOT PRUNING: _____

H1 Do people from any of the following groups plant or care for city/county street, park, or open space trees? (Please check all that apply.)

- CORRECTIONAL INSTITUTIONS OR PROGRAMS
- ADULT VOLUNTEERS OR CIVIC ORGANIZATIONS (specify _____)
- YOUTH ORGANIZATIONS/PROGRAMS (specify _____)

H2 What outlets or events do you use for public education? (Please check all that apply)

- SCHOOL PROGRAMS
- ARBOR DAY CELEBRATION
- SPEAK TO LOCAL GROUPS
- LOCAL TV/RADIO
- LOCAL PAPER
- NONE

H3 Please rate the level of support you believe your program has in each category listed below (please circle your answer).

	<u>Low</u>				<u>High</u>
LOCAL GOVERNMENT SUPPORT	1	2	3	4	5
LOCAL CITIZEN SUPPORT	1	2	3	4	5

H4 What type of relationship is there between the tree program and citizen boards or commissions in your city/county? (Please check one choice)

- A CITIZEN TREE BOARD/TREE COMMISSION WITH DUTIES RELATED ONLY TO THE TREE PROGRAM.
- A CITIZEN BOARD/COMMISSION WITH SOME DUTIES RELATED TO THE TREE PROGRAM.
- NO CITY CITIZEN BOARDS/COMMISSIONS INTERACT WITH THE TREE PROGRAM.
(Please skip to H7, page 10)

H5 What functions does the citizen board or commission perform related to the tree program? (Please check all that apply)

- PUBLIC EDUCATION ABOUT THE TREE PROGRAM
- PROMOTING TREE PROGRAM TO CITY COUNCIL
- SETTING PRIORITIES FOR THE TREE PROGRAM
- ESTABLISHING POLICY RELATED TO TREES
- HEARING APPEALS RELATED TO THE TREE ORDINANCE
- ADMINISTERING THE TREE PROGRAM
- ARBOR DAY AND SPECIAL PLANTING PROJECTS

H6 Please rate the effect the citizen board or commission has on the tree program. (Please circle your answer.)

DETRIMENTAL <u>EFFECT</u>		<u>NO EFFECT</u>		<u>BENEFICIAL EFFECT</u>
1	2	3	4	5

H7 Do you have a citizen "tree advocacy" group in your city/county? (Do not include city boards or commissions.)

NO YES GROUP NAME _____

H8 If yes, please rate the effect the citizen "tree advocacy" group has on the tree program. (Please circle your answer.)

DETRIMENTAL <u>EFFECT</u>		<u>NO EFFECT</u>		<u>BENEFICIAL EFFECT</u>
1	2	3	4	5

H9 In your opinion, what are the three greatest needs of your city/county's tree program? (Rank from 1 to 3, where 1=most important.)

- Increased funding
- Better quality planting stock
- Improved tree maintenance
- Increased citizen support
- More technical information about trees and tree care
- Adequate space for trees
- New or improved tree ordinance

H10 In your opinion, what are the three most important benefits the tree program can provide to your city/county? (Rank from 1 to 3, where 1=most important.)

- Decrease the prevalence of hazards associated with trees.
- Improve attractiveness of our community for business development.
- Improve civic pride and sense of community among city residents.
- Help the community conserve energy.
- Provide wildlife habitat.
- Decrease soil erosion.
- Decrease runoff during storms.
- Decrease local air pollution.
- Increase real estate values & hence the tax base of our community.

H11 Many tree managers are interested in how other communities are approaching problems in urban forest management. Do you have a "success story," an example of an innovative solution to a community forest management problem which you would be willing to share with other tree programs? If so, please describe briefly below or on the back of the survey. We would like to feature a number of these "success stories" in the report that describes the findings of this survey.

----- I. ORDINANCES -----

11 Are you aware of the 1991 California Department of Forestry and Fire Protection publication *Guidelines for Developing and Evaluating Tree Ordinances*?

- YES NO

12 Has this publication been used in your community in any of the following ways? (Please check all that apply.)

- USED TO HELP WRITE NEW ORDINANCE
- USED TO HELP REVISE EXISTING ORDINANCE
- USED EVALUATION METHODS TO EVALUATE EXISTING ORDINANCE EFFECTIVENESS
- USED TO HELP ESTABLISH AN OVERALL COMMUNITY FOREST MANAGEMENT STRATEGY

13 Does your community have a tree ordinance and/or sections of municipal code pertaining to trees?

- YES NO

14 If yes, do you feel that your current tree ordinance or code needs to be revised?

- YES
 NO

14b If no, do you feel that your community needs a tree ordinance?

- YES (please skip to 17, pg. 12)
 NO (please skip to 17, pg. 12)

15 Please check which of the following points are included in your tree ordinance, and indicate how effective each is in accomplishing the purpose for which it was intended.

Partially Can't

Ordinance provisions (Please check all that apply)	Ineffective	Effective	Effective	Evaluate
	(Circle your evaluation of effectiveness)			
<input type="checkbox"/> Provides for protection of individual native trees on private property	0	1	2	CE
<input type="checkbox"/> Provides protection of other existing trees on private property	0	1	2	CE
<input type="checkbox"/> Provides/ conserves integrity of forests or woodlands during development	0	1	2	CE
<input type="checkbox"/> Requires tree planting in new residential dev.	0	1	2	CE
<input type="checkbox"/> Requires tree planting in new commercial dev	0	1	2	CE
<input type="checkbox"/> Allows city to abate tree hazards and nuisances on private property	0	1	2	CE

16 Overall, are tree-related ordinances adequately enforced in your city/county?

YES NO NOT SURE

17 Please indicate the following:

YOUR NAME: _____
 JOB TITLE OR POSITION: _____
 DEPARTMENT: _____
 MAILING ADDRESS: _____
 CITY: _____ ZIP _____
 PHONE NUMBER: _____
 E-MAIL ADDRESS: _____

Were you the one who filled out the 1992 survey? Yes No

We would appreciate any other comments you have related to community tree programs.

Appendix 3. Survey Respondents

City Respondents

Name	Department	City
Audrey Brown	Parks and Recreation	Agoura Hills
Richard Paiua	Public Works Supervisor	Alameda
Kathie Alves	Treasury-Clerk, City of Alturas	Alturas
Lee Goodin	Mayor, City Council	Amador City
John Joyner	Parks & Commmunity Services	American Canyon
Lawrence Pascoe	Urban Forestry Mgr, Commun.Serv.Dept.	Anaheim
Rich Fesler	Public Works Director	Angels Camp
Frank Palmeri	Parks Supt, Public Works Dept.	Antioch
David C. Thompson	Maintenance Services	Arcadia
James Koski	Parks and Recreation Director	Arroyo Grande
Ted Van Amstel	Building & Planning Dept.	Arvin
William White	Parks Supervisor, Community Services Dept.	Atascadero
Scott Munns	Public Works/Building Dept.	Atherton
Richard Rivera	Park & Recreation, City of Azusa	Azusa
Ed Lazaroti	Parks Dept, Park Supervisor	Bakersfield
David East	Public Works Manager	Bell
Glen Heit	Ass't Street Supt., Public Works	Bellflower
Art Gibney	Superintendent of Public Works	Belvedere
Mike Alvarez	Parks & Community Services Director	Benecia
Bob Chavez	Parks & Urban Forestry Manager	Beverly Hills
James Barnes	Community Services Director	Bishop
Duane Rigge	City Manager	Blue Lake
Eric Johnson	Parks Supervisor, Maintenance Services	Brea
Rudy Cisneros	Public Works	Buena Park
Jeff Zoumbaris	Park & Recreation, Forestry Supvr	Burbank
John Williams	Parks & Recreation Director	Burlingame
Bill Millar	Community Serv.-Lndsp Maint. Mgr.	Calabasas
Ellsworth Meigs	Public Works/City Engineer	Calabasas
Elroy Kiepke	Director Public Works	Calimesa
Robert Westdyke	Director Public Works	Camarillo
Fred Burnell	Parks Supervisor, Dept Public Works	Carlsbad
Gary Kelly	PublicWorks, Beaches, Forestry	Carmel By-The-Sea
Robert Richardson	Facilities & Maintenance Services	Carson
Tony Barton	Parks & Recreation Manager	Cathedral City
James Tackett	Public Works, Parks Division	Ceres
Vince Brar	Director Public Works/City Engineer	Cerritos
Robert Meyer	Park Superintendent	Cerritos
Chris Boca	Urban Forester	Chico
Bruce Hartley	Public Facilities & Operations	Chino Hills
Mark Hodnick	Parks Fac-Urban Forest Mgmt/Comm.Serv	Claremont
David Woodford	Director Public Works	Colfax
Don M. Beck	Public Services Dept, Supv Tree Div	Commerce
Albert Solis	Supt. Streets & Grounds, Pub.Wks	Corcoran
Carl Crain	Public Works	Corning
Shawn Nelson	Parks,Recreation & Community Serv Dept	Corona
David Brazier	Parks Supervisor, Public Services	Coronado
Ian Stewart	Public Works/Parks	Corte Madera
Joe Bogart	Community Services Dept.	Costa Mesa
Marsha Sue Lustig	Planning Dept.	Cotati
Amy Hall-McGrade	Parks & Recreation Director	Covina
Mark Foss	Tree Maintenance-Public Works	Culver City
Bob Rizzo	Service Center Manager, Public Works	Cupertino

Mark	Christoffels	Public Works Director	Cypress
Ron	Denicola	Director Parks & Recreation	Daly City
Jeanie	Hippler	Parks/Community Services Director	Davis
Richard	Andrews	Director Public Works	Del Mar
Thomas	Martin	Public Works, Supervisor	Downey
Ed	Cox	Community Development Director	Duarte
Dean	McDonald	Public Works /Maintenance	Dublin
Carl	Morzenti	Public Works Department	Dunsmuir
Danny	Brammer	Director of Development Services	El Centro
Mori	Struve	Maintenance/Engineer Manager	El Cerrito
Richard	Williams	Superintendent of Parks	El Segundo
Jackie	Lucas	Public Works Department	Emeryville
Mike	Wells	Community Services-Parks Supervisor	Encinitas
Al	Cablay	Public Works Superintendent	Encinitas
Pat	Echols	Public Works Dept.	Fairfax
Cynthia	Powell	Planning Dept.	Fairfax
David	Ladd	Tree Maint. Mgr, Public Works Dept.	Fairfield
Fred V.	Jordan	Community Development Director	Farmersville
Eliseo	Martinez	Public Works Supervisor	Farmersville
David	Wilson	Public Works Director	Firebaugh
Rich	McGill	Park Supervisor	Folsom
Deborah	Day	City Arborist, Public Services	Fontana
David	Goble	Director Public Works	Fort Bragg
Richard	Heffern	Parks Department	Foster City
David	Hallan	City of Fresno, Parks -Forestry Supv.	Fresno
Dan	Sereno	Maintenance Services	Fullerton
Wm.Riley	Caudill	Urban Forester-Public Works Dept.	Glendale
Halla	Speaker	Community Services Department	Glendora
John	Donlevy	Asst.City Manager,City of Grand Terrace	Grand Terrace
Rudi	Golnik	City Engineer	Grass Valley
John	Alves	Deputy City Manager/Public Works	Greenfield
Mike	Ford	Public Works Supt.	Grover Beach
Sandy	Bierdzinski	Asst.Director Community Development	Grover City
Samuel	Angulo	Director Public Works	Guadalupe
Gordon	McGowan	Parks Superintendent, Public Works	Hanford
Norman	Todd	City of Hawthorne - Parks & Recreation	Hawthorne
Michael	Santos	Landscape Maintenance Div.	Hayward
Jim	Craig	Public Services Manager	Hercules
Bob		City of Hidden Hills, Building & Safety	Hidden Hills
Maureen	Morton	City Manager, Town of Hillsborough	Hillsborough
Karen	Stauffer	City Manager	Holtville
Jeannie	Lenefsky	City Manager	Imperial
Peter	Strachwitz	Public Works-Solid Waste Program Mgr.	Imperial Beach
Henry	Canales	Public Works - Maintenance Suprv	Irvine
Frank	Daniele	Public Works Director	Kingsburg
Fullmer	Chapman	Public Works Director	La Canada Flintridge
Scott	Russell	Parks & Trees	La Habra
Steve	Forster	Enviromental Services Director	La Mirada
Dan	Chadwick	Community Services Director	La Puente
Rebecca	Lee	Adminis.Serv. Director	Lafayette
Wade	Brown	Municipal Services, Parks & Bldg Mgr	Laguna Beach
Jan Thomas	Frainie	Parks Supervisor, Public Works Dept	Laguna Hills
Randy	Trinkaus	Public Works	Laguna Niguel
Lisa	Rapp	Director Public Works	Lakewood
Jeff	Long	Director Public Works	Lancaster

David	Wilkinson	Park & Recreation Director	Larkspur
Kathy	Morris	Assistant Planner, Community Development	Lathrop
Steve	Duran	Public Works Dept., Maintenance Suprv.	Lawndale
Carmen	Wilson	City Clerk's Office	Lindsay
Ed	Murdock	Landscape & Maintenance Supervisor	Livermore
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Jerry	Somers	Park & Recreation Director	Lomita
Cindy	McCall	Parks and Urban Forestry Manager	Lompoc
Terry	Lortz	Gen'l Sup.Parks&Golf,Parks,Rec,&Marine	Long Beach
B.	Fragiao	Public Works Director	Loomis
Dan	Condon	City Arborist	Los Alamitos
Greg J.	Monfette	Public Works, Bur.Street Serv.	Los Angeles
Virginia	Bloom	Deputy City Clerk, City Desk	Malibu
William	Taylor	Community Development Dept.	Mammoth Lakes
Ed	Maze	Oper. Mgr, Parks/Urban Forestry	Manteca
Gary	Cramblett	Public Works Supervisor	Marina
Richard	Pearson	Transportation Project Manager	Martinez
Walter	Fuji	City Arborist - Public Works	Menlo Park
Gordon	Graf	Public Works Manager	Merced
Rick	Misuraca	Parks Dept Supervisor	Mill Valley
Karla	McElroy	Park & Recreation Director	Millbrae
Tom	Levene	Parks & Landscape, Public Works	Mission Viejo
Peter	Cowles	Director of Operations & Maintenance	Modesto
Frank	Hoag	City of Montague, Maintenance Dept.	Montague
Mario	Orioli	Public Works Dept., Supt.	Montclair
Bill	Duvall	Tree Supervisor, Public Works	Montebello
Robert	Reid	Public Works, Parks Div.,City Forester	Monterey
Paul	Tena	Recreation and Parks Superintendent	Monterey Park
Daniel	Bernie	Parks and Public Works	Moraga
Pam	Vasquez	Management Analyst-Public Works Dept	Morgan Hill
Roger	Pelletier	Public Works	Morro Bay
Stephen	Gale	Forestry Manager	Mountain View
Joseph	Riker	City Administrator/Planning Director	Mt. Shasta
Robert	Carlsen	Parks Supt., Community Resources	Napa
Joseph	Schenk	Director Public Works/City Engr	Norco
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Vi	Grinsteiner	Community Development Director	Novato
Jerry D.	Kent	Asst Gen'l Mgr - Parks Operations	Oakland
Steven	Jepsen	Community Services Director	Oceanside
Ken	Myers	Parks Dir., Streets & Parks Dept.	Ontario
Gabe	Jimenez	Public Works Supervisor	Orange Cove
Randy L.	Johnson	City Manager	Orland
Jim	Carpenter	Park & Trees Director	Oroville
Lori	Beltran	Parks Maintenance Super.	Oxnard
Jerry	Clark	Landscape Manager	Palm Desert
Scott	Mikesell	Transportation/Parks-Rec.	Palm Springs
Steve	Williams	Director Public Works	Palmdale
Mike	Willett	Deputy Director Public Works	Patterson
Ed	Anchordoguy	Parks & Recreation, Maint. Supervisor	Petaluma
Martin	Feldkamp	Public Works Dept.	Piedmont
Jeffrey	Hiser	Public Works - Parks Division	Pismo Beach
Ken	Rokosz	Maint.Supv., Parks, Public Works	Placentia
Jeffrey	Crovitz	Director Public Works	Placerville
Ken	De Silva	Parks & Community Services	Pleasanton
Kim	Cuilty	Landscape Supt., Public Works	Port Hueneme

Gil	Meachum	Director, Parks & Leisure Services	Porterville
Dan	Cannon	Operations Mgr, Public Services	Poway
James	Bowersox	Poway City Manager	Poway
J.	Barnes	Parks & Maint. Supr., Engr. Dept	Rancho Cucamonga
Bruce	Harry	Director Public Works/City Engineer	Rancho Mirage
Dan	Cannon	Parks Division	Redding
Ken	Dyer	Recreation & Comm Services,Supt Parks	Redondo Beach
Michael	Lee	Finance Director City of Rio Vista	Rio Vista
Dale	Ramey	City Engineer	Ripon
Terry	Nielsen	Park and Recreation Director	Riverside
William	Stephens	Public Works Manager	Rohnert Park
Don	Sullivan	Parks & Recreation Dept.	Roseville
Chris	Burrows	Planning Dept.	Roseville
Rabi	Elias	Director Public Works	Ross
Martin	Fitch	Neighborhoods,Planning&Dev.Serv/Parks	Sacramento
Denise	Estrada	Recreation/Parks Services	Salinas
Bruce	Sund	Parks & Recreation	San Bruno
Jeff	Bench	Asst. Park Superintendent	San Carlos
Dennis R.	Reed	Beaches & Parks Manager	San Clemente
George	Loveland	Public Works Business Ctr Manger	San Diego
Sally	Duff	Director parks & Recreation	San Dimas
John	Garcia	Public Works Director	San Dimas
Peter	Ehrlich	Dept.of Recreation & Parks	San Francisco
Douglas	Benash	Community Development, Civil Engr	San Gabriel
Leo	Cantu	Public Works Department	San Joaquin
Mark	Beaudoin	City Arborist-Dept.Streets & Traffic	San Jose
Jack	Galovese	Public Works Manager	San Juan Capistrano
Mark	Rodrigues	Park Oper.Supt., Public Works	San Leandro
Virgil	Nichols	Public Works/Park-Street Director	San Marino
Tom	Rothenberger	Park Supt.-Public Works	San Rafael
August	Hioco	Director of Municipal Services	Sanger
Michael V.	Lopez	Parks, Recreation, & Commun.Serv.	Santa Ana
Mary	Gonzales	Public Works - Project Specialist	Santa Ana
Dan	Condon	City Arborist-Parks & Recreation	Santa Barbara
John	Mendoza	CityArborist-Asst Street Supt,Street Dept	Santa Clara
Omar	Davis	City Arborist - Field Services	Santa Clarita
Ray	Sherrod	Parks Division, Field Supervisor	Santa Cruz
Joe	Borges	Parks and Recreation	Santa Maria
William	Warriner	Community Forester	Santa Monica
Lisa W.	Grant	Recreation & Parks Dept.	Santa Rosa
Martha	Hollis	Community Services-OpenSpace Coord.	Santee
James	Walgren	Community Development Director	Santee
Christine	Fischer	Director Public Works	Saratoga
Nancy	Beard	Director Parks/Recreation	Seal Beach
Robert	Beeson	Parks Supervisor, Public Works Dept.	Seaside
Lori	Williamson	Building Dept.	Shafter
Gerald	Cupp	Contruccion Planner/ Electric Dept.	Shasta Lake
Kurt H.	Dahlgren	Supt. Public Works/Maintenance	Simi Valley
Robert	Munoz	Landscape Maintenance Dir-Gen'l Serv	South El Monte
Michael	Williams	Public Works Dept.	South Gate
Dennis	Crossland	Parks Supervisor	South San Francisco
Tim	Gallagher	Director Parks & Recreation	Stockton
Douglas	Mello	Dept. of Public Works-Superintendent	Sunnyvale
Rob	Hill	Community Serv.Director, Park & Recreation	Susanville
Carolyn	Steffan	City Clerk	Tehachapi

John	Hyatt	Public Services Superintendent	Temecula
Hans	Faber	Landscape Supervisor, Public Works	Thousand Oaks
Jim	Raymond	Park & Community Services Director	Tracy
Thomas	Covey	Public Works Director	Truckee
Rob	Hunt	Park & Community Services Director	Tulare
Pat	Madsen	Public Works, Maintenance Dept	Tustin
Jim	Looney	Public Works Dept.	Ukiah
Rollie	Simons	Park Supt., Public Works	Vacaville
Lawrence	Burns	Landscape & Lighting Districts	Vallejo
James	Bean	Public Works,-Parks Supervisor	Visalia
James	Porter	Director Parks and Community Svc	Visalia
Antonio	Karraa	Supt.Parks & Maint., Community Services	Vista
Melvin	Ricketts	Streets Foreman, Streets Dept.	Wasco
Matt	Erickson	Public Works Supervisor	Wasco
Robert	Menzies	Menzies Native Nursery-Indep.Contractors	Weed
Rich	Peters	Maintenance Operations-Public Works	Weed
Warren	Himachi	Maintenance	West Covina
David	Gardner	Community Services	West Hollywood
Irving	Hannum	Park Supervisor	Westminster
David	Madrigal	Public Works Supervisor	Willits
Jon P.	Barker	Parks & Public Works Director	Willows
Dan	Sokolow	Administrative Asst. Public Works	Winters
Ruben	DeLeon	Director Public Works	Woodlake
Bill	Dibble	Senior Tree Trimmer	Woodland
Brian	Waterbury	Landscape Inspector-Public Works-Engr.	Yorba Linda
Steve	Dutra	Public Works Dept.	Yuba City
Carol	Miller	Community Development	Yucca Valley

County Respondents

Name	Department	County
Eric	Willyerd H.A.R.D. - Superintendent of Parks	Alameda County
Gary	Clark Land Use Agency Director	Amador County
Mary	Pitto Deputy Planning Director	Calaveras County
Bob	Walsh Parks Department	Humboldt County
Gerry	Gelock Asst. Director, Parks Dept.	Kern County
Larry	Millar County Public Works Dept.	Lassen County
Larry	McKinney LA County Parks, Tree Farm Unit	Los Angeles County
Sheila	Ortega Publ.Info.Dir., County Parks & Recreation	Los Angeles County
Joe	Swoboda Reg'l Grnds Maint., LACounty Parks	Los Angeles County
Vance	Kimbrell Parks & Grounds Superintendent	Placer County
Paul	Frandsen Parks & Open Space District	Riverside County
Martin	Hughes Transportation Div., Public Works	Sacramento County
Dan	Holsapple Public Works- IWNA Coordinator	San Benito County
Frank T.	Special S.D.Co.Parks & Recreation, Comm.Serv	San Diego County
Peter	Erlich Recr&Parks-Urban Forester	San Francisco County
Denis	Philben County Parks & Recreation	San Luis Obispo County
Chris	Smith Oper.Suprv., Transport & Flood Ctrl	San Bernardino County
Rick	Wheeler Parks Department	Santa Barbara County
Don	Rocha Parks Natural Resource Mgmt Coordinator	Santa Clara County
Gary	Carlson Park Planner, County Redev. Agency	Santa Cruz County
Richard	Barnum Planning Director	Siskiyou County
Harry	Englebright Dept of Environmental Management	Solano County
Mike	Lancaster Planning Dept./Planner & Forester	Trinity County



Andrea E. Tuttle
Director
California Department of Forestry and Fire Protection

Mary D. Nichols
Secretary for Resources
The Resources Agency

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Governor
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