

REPLACEMENT OF TREES UNDER UTILITY WIRES IMPACTS ATTITUDES AND COMMUNITY TREE PROGRAMS

by Dana E. Flowers¹ and Henry D. Gerhold²

Abstract. Opinions of people in 54 Pennsylvania municipalities who received trees through the Municipal Tree Restoration Program (MTRP) were surveyed, and progress in their tree programs also was evaluated. All municipal tree program components, such as ordinances, tree commissions, inventories, and management plans, were stimulated by the MTRP to varying extents in one or more ways in 91% of the municipalities. Responses from residents showed high approval for removal of large trees that interfered with utility wires, though some did miss them, and for replacement with smaller-growing cultivars of *Amelanchier*, *Crataegus*, *Malus*, *Pyrus*, and *Syringa*. Responses across all genera indicated that 82% liked the planted trees, 77% thought they improved the neighborhood, and 69% favored removal of the large trees when they were replaced by smaller trees. Only 8% greatly regretted the removals and 3% offered negative comments about the removal of large trees or replacement with smaller species. Comments about likes and dislikes were mainly about tree characteristics and varied among genera. The most common complaints were about messy fruit, and the best-liked qualities were flowers and other aesthetic traits. There was little variation in attitudes among communities, three of which differed from the others in their opinions about *Malus* cultivars, which seemed to relate mainly to the nature of the trees and their fruit.

Key Words. Municipal tree programs; street trees; utilities; attitudes; *Amelanchier*; *Crataegus*; *Malus*; *Pyrus calleryana*; *Syringa reticulata*; cultivars.

The conflict between street trees and utility lines, and the dilemma over how to resolve it, have been evident in most communities from the time the first utility poles were raised. Utility companies must keep the electrical lines clear of interference by tree branches in order to provide safe and continuous electrical power to their customers, as required by law. This goal is achieved mainly through pruning or removal of problem trees, often leading to discord with the municipalities and their residents (Ulrich 1987).

Trees have a strong impact on how people judge the aesthetic quality of a street (Schroeder and Cannon 1987; Schroeder and Ruffolo 1996). The dissension

among residents comes from emotional ties to their big, old trees and dislike of the unnatural appearance of the pruned trees, as well as practical concerns about shade, privacy, and environmental conditions. Their resentment of losing these "old friends" is directed most frequently at utility companies.

One solution to this problem is through the efforts of the Municipal Tree Restoration Program. The MTRP is a partnership among utility companies, arboriculture firms, Pennsylvania Bureau of Forestry employees, and Penn State University. The voluntary program is designed, in part, to assist municipalities in selection of species and cultivars that are better suited for planting under electric lines (Gerhold 1987). Most Pennsylvania communities had no municipal tree program when MTRP started (Reeder and Gerhold 1993).

Since 1987, the MTRP has provided free utility-compatible trees to municipalities as an incentive to remove and replace large trees that interfere with electric distribution lines, and also to stimulate the improvement of municipal tree programs. Service foresters and extension foresters informed communities about MTRP through direct contacts and workshops. To become eligible, each municipality was required to sign an agreement pledging continuing efforts to develop its tree care system, including adequate financing and knowledgeable people with defined responsibilities.

Urban forestry experts helped communities select the most appropriate species for planting sites under wires, and plant the trees properly. In a typical project, a utility forester approves the planting plan and arranges to remove about half the number of trees to be planted. The removals usually were large trees, perhaps deteriorating, that required frequent trimming for line clearance. The planted trees, paid for by utility companies, served as demonstrations of the "right tree—right place" concept, and also for research on evaluating cultivars of smaller types of species (Gerhold et al. 1994; Gerhold and McElroy 1994; Gerhold 1999a, 1999b; Gerhold 2000a, 2000b). "To

make the most of the benefits trees provide, we need to make sure we put the right ones in the right places for the right reasons. And then we need to take care of them" (Gangloff 1999).

This two-part study was conducted to determine how MTRP projects affected municipal tree programs and the attitudes of those community residents who experienced tree removals and replacements most directly. Questions included how much residents like or dislike the removals and replacements, the effect of the project on the neighborhood, how this program affected their attitudes towards their utility company, and whether MTRP stimulated various aspects of their tree programs.

The survey responses were analyzed for three main purposes, in addition to evaluating the MTRP. First, the results are intended to help the utility companies understand how their customers view removals and replacements. Second, we hope to help community leaders understand how their communities can better cope with line clearance problems. Finally, this study can help urban forestry advisors of community tree programs understand community attitudes toward the line clearance issue.

METHODOLOGY

Fifty-four communities across Pennsylvania, United States, that have experienced MTRP removal and replacement projects were selected for this survey. So that the results would reflect longer-term attitudes rather than initial reactions toward tree removal and replacement, communities whose projects had been planted only one or two years ago were omitted. An unpublished study (Michael Jones, Penn Power Company) found very high customer satisfaction in 1998—one year after a tree replacement project.

Pairs of cultivars in one or more genera (Table 1) were planted 3 to 12 years ago in all 54 of the municipalities. There were a total of 64 test plantings; each typically consisted of 2 cultivars of the same genus, about 22 to 25 trees of each, or 50 trees altogether. Several plots were located in different parts of each community, to sample a range of site conditions. Some communities received more than one planting of trees, resulting in two or three test plantings each.

Two different sets of questionnaires were distributed during the summer of 1999. One mailed to com-

munity representatives asked about progress in their tree programs. A cover letter briefly described the study, explained that their community residents would be surveyed, and included a disclaimer regarding the voluntary and confidential nature of this survey. Postage-paid return envelopes were enclosed, as well as a copy of the 1998 MTRP *Annual Report* containing programmatic information and data regarding the trees planted in their community.

Representatives were asked to checkmark those listed components of the tree program that the community now has: an active or inactive tree ordinance; an official tree commission, committee, or responsible person; an inventory of street trees; and a written tree management plan. A second question asked if any of these had been stimulated at least partly by the MTRP,

Table 1. Cultivars of MTRP trees planted in the communities surveyed.

<i>Amelanchier</i> (serviceberry)	<i>Pyrus calleryana</i> (Callery pear)
'Autumn Brilliance'	Aristocrat™
'Cumulus'	'Autumn Blaze'
'Princess Diana'	'Bradford'
'Robin Hill'	'Capital'
Tradition®	Cleveland Pride®
	'Cleveland Select'
<i>Crataegus</i> (hawthorn)	'Redspire'
Crimson Cloud 'Superba'	Valiant®
'crusgalli-inermis'	'Whitehouse'
'Ohio Pioneer'	
Phaenopyrum	<i>Syringa reticulata</i> (tree lilac)
'Vaughn'	'Ivory Silk'
'Winter King'	'Regent'
	'Summer Snow'
<i>Malus</i> (crabapple)	
'Adams'	
American Masterpiece®	
American Spirit™	
American Triumph™	
Brandywine®	
Centurion®	
'Donald Wyman'	
Harvest Gold®	
Madonna®	
'Prairifire'	
'Red Barron'	
Red Jewel®	
'Sentinel'	
'Snowdrift'	
'Spring Snow'	
Sugar Tyme®	
Velvet Pillar™	
zumi 'Calocarpa'	

and whether tree planting had increased, inspections for hazard trees had been started, the tree budget had been increased, or residents had become more supportive. Two open-ended questions requested comments about any other ways in which MTRP had affected the community and solicited suggestions for improving MTRP. These representatives also received a copy of the questionnaire being used in the residents' attitudes survey and were asked to complete it as well. After 30 of the 54 community representatives responded, a reminder letter to nonrespondents prompted a return of 13 more responses, totaling 43. For all related computations, the assumption was made that the 11 communities that did not respond would have had the same status of tree program components and responsiveness to MTRP as the 13 that responded after the reminder.

The second set of questionnaires, which asked about attitudes, was delivered to the residents and businesses located along each of the 64 cultivar test plantings in the 54 communities. Questionnaires had to be hand-delivered because we had no addresses for residents. Packets containing the questionnaire, a cover letter with explanation and a privacy disclaimer, and a self-addressed, postage-paid return envelope were delivered to each residence or business that received an MTRP tree on or near their properties. The packet was hung on the doorknob or, if the situation allowed, handed directly to the occupant. The goal was to deliver 30 questionnaires at each of the 64 test plantings, but this was not always possible due to a variety of circumstances. Some of the test plots were located away from residential areas in parks, school yards, cemeteries, or along highways. In a few instances, "No soliciting" or "Beware of dog" signs deterred the surveyor.

The questionnaire used a five-point Likert scale for four questions, with the possible answers ranging from very positive (= 5), to neutral (= 3), to very negative (= 1) responses. The questions and five responses to each were

1. Do you like or dislike the planted MTRP trees?
 - like them very much
 - like them somewhat
 - indifferent to them
 - dislike them somewhat
 - dislike them very much

2. How do you feel about the trees that were removed to accommodate the MTRP trees?
 - greatly in favor of their removal and replacement
 - somewhat in favor of their removal and replacement
 - indifferent to their removal and replacement
 - somewhat regret their removal and replacement
 - greatly regret their removal and replacement
3. What effect did this removal and replacement project have on your neighborhood?
 - very beneficial to the neighborhood
 - somewhat beneficial to the neighborhood
 - made no difference to the neighborhood
 - somewhat detrimental to the neighborhood
 - very detrimental to the neighborhood
4. How did this planting and removal project affect your attitude toward the utility company?
 - became much more favorable
 - became somewhat more favorable
 - did not change my attitude
 - became somewhat less favorable
 - became much less favorable

Additionally, two open-ended questions were posed to determine specific likes and dislikes of the MTRP projects. The comments elicited by these questions were quantified by placing them into the following categories: removal of older trees; replacement of large trees with small ones; tree placement (e.g., planted near curbs, intersections, or driveways); maintenance concerns such as leaf cleanup and pruning responsibilities of municipalities; utility companies; and tree characteristics, divided into the subcategories fruit, flowers, odor/scent, leaves, aesthetics, size, shade, and suckers. Background information also was requested on gender, age group, and type of property occupied by the respondent (commercial or residential). A one-way analysis of variance (Minitab General Linear Model) was completed for each of the questions, with responses given values of 5, 4, 3, 2, or 1, to examine any differences among communities within each genus.

The survey took approximately 30 days to deliver to all 54 communities. The amount of time spent in a community ranged from one half-hour to four hours,

with an average of two hours in most communities. In each community, the questionnaires were distributed as evenly as possible among all tree plots.

RESULTS

Survey of Progress in Tree Programs

The overall response rate for the survey of municipal representatives was 80%, or 43 of the 54 questionnaires mailed. In the 13 municipalities that required the reminder, the status of three tree program components had lower percentages than indicated by the first 30 respondents. Among the 13, 69% had an active ordinance versus 80% of the first 30 responses; 46% versus 67% had a tree commission, and 38% versus 63% had conducted an inventory. So the assumption that the 11 nonrespondents had the same percentages as the 13 led to more conservative figures than using only the actual responses than using all of the responses.

We estimated that 76% of the communities with MTRP projects currently have active tree ordinances and 9% have inactive ordinances, leaving 15% with no ordinance at all (Table 2). A tree commission, committee, or a designated person has responsibilities for trees in 83% of the municipalities. Only 52% have tree inventories, and 20% have management plans.

The MTRP program in some way stimulated 91% of the communities (39 of 43) that have the MTRP projects (Table 2). There were no known instances of municipalities in which the existing ordinances became inactive due to the implementation of the MTRP

Table 2. Status of tree program components and progress stimulated by MTRP, reported by community representatives.

Program component	Percentage of communities in which the component	
	now exists	was stimulated
Active ordinance	76	35
Inactive ordinance	9	
Tree commission, committee, or person	83	37
Tree inventory	52	35
Tree management plan	20	11
Planting increased		68
Inspections started		30
Tree budget increased		32
Residents more supportive of trees		61
Progress in any of the tree program components		91

program. The greatest impacts were increased tree planting (68% of communities) and more supportive residents (61%). There were increases in 30% to 37% of municipalities in development of a tree commission, committee, or person (equivalent to 69% of those formerly without one); adoption of an ordinance (59% of those formerly without one); development of a tree inventory; inspections of problem trees started; and increases in tree budgets. Only 11% adopted written tree management plans. Four communities (9%) reported no progress in developing their tree programs.

The responses to open-ended questions amplified how the community representatives felt about the MTRP. According to 70% of respondents, the program had additional positive effects by improving tree care and planting practices (21%), by educating the public and youth (16%), by increasing beauty and pride in the community (12%), by removing problem trees (9%), and in unspecified ways (12%). Twenty-five percent either had no response or indicated there was no other effect on the community. One person complained that too many people favored flowering varieties and another complained about unresponsiveness of utility foresters after companies consolidated.

The most common suggestions for improving MTRP were simply "none" or "keep up the good work" (30%), and 28% left a blank after the question. Several suggestions were related to expanding MTRP or instituting a more flexible tree replacement program (30%) that would permit more diverse species choices and more planting sites, removals, and contacts with utilities and urban foresters. Other suggestions (12%) were to increase education of tree committees and youth and to continue the evaluation of varieties with clearer reports to communities.

Survey of Attitudes

The overall response rate for the survey of residents was 46%, or 595 of 1,293 questionnaires delivered. Response rates for individual questions ranged from 35% to 45%. The number of questionnaires delivered for each genus varied greatly (Table 3) because of different numbers of trees that had been planted for each genus. The number of responses to the question about removals was lower than others because some respondents noted that they had moved into the neighborhood after the project started.

Table 3. Number of questionnaires delivered to residents, number of responses, and percentage of responses for each question, genus, and response categories 1 (very negative) to 5 (very positive).

Category	No. delivered	No. responses	Percentage response					
			Total	1	2	3	4	5
Total	1,293	595	46					
Question 1	1,293	585	45	7	5	5	24	58
Question 2	1,293	455	35	8	11	11	18	51
Question 3	1,293	522	40	2	6	14	30	47
Question 4	1,293	540	42	4	3	41	23	29
<i>Amelanchier</i>	214	85	40					
<i>Crataegus</i>	81	39	48					
<i>Malus</i>	561	273	49					
<i>Pyrus</i>	259	116	45					
<i>Syringa</i>	178	82	46					

The highest number of responses (69%) came from the 50 to 69 and the 30 to 49 age groups (Table 4). More than 26% came from older residents, and very few of the responses were received from people under 30. Most of the responses (95%) came from residents rather than from business owners or operators, reflecting the makeup of the neighborhoods where trees had been planted. About 57% of the respondents were female.

The numbers collectively show a high approval rating of the MTRP program. The responses for all genera combined (Table 3) showed that 82% of respondents liked the planted trees somewhat or very much (response categories 4 and 5), 77% believed they were beneficial to the neighborhood, and 69% were in favor of removing the large trees. The projects improved attitudes toward the utility of 52% of the respondents, 41% were unchanged, and 7% became less favorable. There are obvious similarities in attitudes across the genera for each of the questions (Table 5). Noticeably higher were the means of the community representatives compared to the residents.

There were some significant differences among communities for all of the questions pertaining to the genus *Malus* and for the question about the effect on neighborhoods for the genus *Syringa*. For *Malus*, there was a greater statistical likelihood of detecting differences among municipalities due to the larger number of questionnaires delivered and returned. There was no relationship in the *Malus* responses between the number of years since trees had been planted and attitudes toward the removals or the replacement trees. The results for *Syringa* may have been distorted be-

cause only one questionnaire was returned from one of the communities, and it was inconsistent with the others.

More questionnaires were returned with positive comments about MTRP projects (84%) than with negative comments (60%) (Tables 6 and 7). Frequencies of comments about various categories were similar across all of the genera, with few exceptions. Most comments were directed at tree characteristics of genera (62% to 89% of questionnaires had positive comments, 26% to 50% had negative comments). Other negative comments were directed mainly at improper placement and lack of maintenance of trees by municipalities.

No more than 6% had comments, either positive or negative, about replacement of larger trees with smaller trees.

In the category "Tree Characteristics," divided into eight subcategories, some of the comments were particular to certain genera (Tables 8 and 9). There were complaints about messy fruits of serviceberry, hawthorn, and crabapple cultivars. Some people thought the planted trees were too small and did not provide enough shade, whereas others noted that the Callery pears were growing into the wires, indicating they should not be considered compatible. Suckers growing from the base of serviceberry and crabapple cultivars were troublesome.

The largest contrasts were found within the genus *Malus*. Twenty-three percent had positive comments about the aesthetics of crabapple cultivars, whereas comments regarding fruit were largely negative (23%).

Table 4. Background information on respondents to the attitudes survey.

Category	No. responses	Percentage response
Age		
Below 30	27	4.6
30-49	193	33.0
50-69	211	36.0
70 or older	155	26.5
Property type		
Residential	544	94.8
Commercial	18	3.1
Both	12	2.1
Gender		
Female	320	56.8
Male	243	43.2

Table 5. Attitudes of residents toward removals, and toward plantings of *Amelanchier* (Am), *Crataegus* (Cr), *Malus* (Ml), *Pyrus* (Py), and *Syringa* (Sy); and of municipal representatives toward their MTRP trees not specific to genus.

Question and responses	Am	Cr	Ml	Py	Sy	MTRP
Do you like or dislike planted trees? 4 = like them somewhat 5 = like them very much	4.27	4.21	4.22*	4.38	4.32	4.64
How do you feel about removals? 3 = indifferent 4 = somewhat in favor	4.01	4.06	4.05*	4.22	3.70	4.68
How did the project affect the neighborhood? 4 = somewhat beneficial 5 = very beneficial	4.26	3.95	4.17*	4.22	3.98*	4.63
How did your attitude change toward the utility company? 3 = did not change 4 = became somewhat more favorable	3.57	3.78	3.74*	3.72	3.79	4.32
Number of communities	10	5	27	11	10	43

*Significant at the 95% level among communities that had cultivars of the same genus; some of the *Syringa* figures may have been distorted by a single response from one municipality.

Table 6. Positive comments by residents about MTRP projects, expressed as percentage of the number of questionnaires returned for each genus and all genera.

Category	Am	Cr	Ml	Py	Sy	All
Number of responses	85	39	273	116	82	595
Removal of older trees	1	3	1	1	4	1.9
Replacement of large trees with small	2	5	5	3	6	4.2
Tree placement	1	0	1	0	1	0.7
Maintenance concerns	9	0	2	5	4	4.1
Utility company	1	0	2	2	0	1.0
Tree characteristics	71	62	66	89	72	71.7
All categories	86	69	77	99	87	83.6

Table 7. Negative comments by residents about MTRP projects, expressed as percentage of the number of questionnaires returned for each genus and all genera.

Category	Am	Cr	Ml	Py	Sy	All
Number of responses	85	39	273	116	82	595
Removal of older trees	4	5	3	0	4	3.1
Replacement of large trees with small	2	0	2	2	4	2.6
Tree placement	12	10	7	5	5	7.9
Maintenance concerns	6	8	14	16	0	8.5
Utility company	2	3	<1	1	1	1.5
Tree characteristics	31	33	47	26	50	37.4
All categories	56	59	74	49	63	60.3

Table 8. Positive comments by residents about tree characteristics, expressed as percentage of the number of questionnaires returned for each genus.

Characteristic	Am	Cr	Ml	Py	Sy
Number of responses	85	39	273	116	82
Fruit	2	3	3	0	0
Flowers	21	10	26	20	16
Odor/scent	0	3	<1	0	10
Leaves	4	3	1	3	5
Aesthetics	24	31	23	46	27
Size	13	5	7	3	12
Shade	7	8	5	16	2
Suckers	0	0	<1	0	0

Table 9. Negative comments by residents about tree characteristics, expressed as percentage of the number of questionnaires returned for each genus.

Characteristic	Am	Cr	Ml	Py	Sy
Number of responses	85	39	273	116	82
Fruit	8	13	23	1	0
Flowers	0	0	<1	0	4
Odor/scent	0	0	<1	4	0
Leaves	4	8	1	1	2
Aesthetics	1	5	1	1	5
Size	6	5	8	14	23
Shade	5	3	8	4	16
Suckers	7	0	5	1	0

Also, 5% had negative comments about the suckers that grow from the base. Many people did, however, enjoy the blossoms in the spring (26%), even if they had negative comments regarding the fruit or other aspects of the crabapple trees.

In the *Malus* analyses, three communities stand out as having lower opinions of their crabapple trees than other communities. They have the following pairs of cultivars: Centurion® and Harvest Gold®, Red Jewel® and 'Sentinel', and Brandywine® and Madonna®. Respondents may have complained about one of the cultivars or both, because the cultivars were not identified on the questionnaires.

DISCUSSION

The large sample sizes and high response rates lend credence to the findings. They reflect attitudes mainly of older residents, who are typical of populations in many smaller communities in Pennsylvania. The gradual progress in developing municipal tree programs and low levels of tree care are consistent with

the experience of Pennsylvania's extension urban foresters, who have encountered reluctance blamed on financial and other concerns.

Nevertheless, within 3 to 12 years, 91% of the municipalities have done something positive as a result of the required pledge to devote more resources to their tree programs. In those communities formerly without tree programs, responsibilities for public trees have been assigned to tree commissions or designated people in 69% of the municipalities, and 59% have adopted active ordinances. There have been greater public support and more tree planting. Thirty-two percent of the communities had a budget increase, but apparently much of what has been accomplished has been through volunteer work. Only 20% have a written tree management plan. Nine percent of the communities have not done anything about an ordinance, a tree commission, or other aspects of their tree programs. Thus, there has been progress, but also there are ample opportunities for further progress.

The attitudes about MTRP projects show a high approval rating of the trees and the program. The community representatives gave more positive ratings for questions 1 through 4 than the residents did, and their comments explained various other ways by which MTRP helped their communities. Many of the representatives were the same people who helped their community to qualify for the MTRP project, so they may have displayed some pride of ownership. Their suggestions for improving MTRP in various ways all pointed to the desirability of moving toward a more flexible and individualized tree replacement program, which is currently being implemented.

Most residents (69%) indicated they were somewhat to greatly in favor of the removal of the older trees in their neighborhood. Their attitudes toward removals apparently were not influenced by their opinions of the genus of replacement trees. The comments reflected that many understood the need to remove the large trees. A typical comment was that "[the older trees] needed to go because of [their] age." Others expressed general opposition against removal of any tree due to the harm it causes that tree and the disruption to wildlife, but opined that in this situation it was not a bad idea because many of the big, old trees were becoming problems.

People generally liked the planted trees (82%) even more than they approved of the removals. Most

comments reflected how well the MTRP trees improved the aesthetics of the streets and neighborhoods. Many expressed thanks for the opportunity to be a part of the MTRP program. There were a few, however, who thought the large, old trees looked much better and provided more shade, despite the topping of the old trees through utility pruning. These respondents felt that the old trees made the communities much homier rather than looking like a "new condo community."

Most of the residents (77%) had positive attitudes about the impact of the MTRP project on their neighborhood, which is consistent with their answers to the previous two questions. They felt that it improved the continuity of their streets and neighborhoods and could "quite possibly generate more business in the community and attract more people to move there."

The attitudes of about half of the residents toward the utility companies were improved at least somewhat. Comments show that many people did not realize that the utility companies had anything to do with the MTRP project; this fact had not been publicized in some cases. Only 7% deemed their view of the utility company was less favorable because they were upset by the removal of the old, large trees. Many of those with negative views of the utility companies also expressed an adverse opinion toward the removal of the old trees. Other negative comments referred to the "butchering" of the trees in the pruning process, or wishes that the utility companies could adopt a more "tree-friendly" pruning method. Some of those who had an unchanged attitude explained that they already held their utility company in high regard. This project proved to solidify their positive opinion. Those that did report an improved attitude stated that they were "pleasantly surprised that the utility company would involve themselves in such a project."

The only genus for which differences among communities were revealed in all four questions was *Malus*. In at least three communities that received crabapple trees, there were noticeable concerns expressed in comments. One concern was about the removal of the old trees. Emotions seemed to be strong in these communities, based on statements regarding how much they miss their big trees (generally maple) and that the old trees provided plenty of shade whereas the new ones do not. Those people who did not like the size of the planted tree also responded

negatively to the removal of the larger trees. One respondent commented that even though the tree was too small and provided no shade, it was beautiful in the springtime because of the blossoms. The comments in the aesthetics category were related most directly to the uniform look the trees created even if the respondents stated that they did not like the crabapples in particular.

There were also many negative comments regarding the messy fruit of the crabapple trees, and less frequently about serviceberries. Brandywine® in particular has large fruit that drops early, and some of the other crabapples may drop their fruit in the fall rather than winter or spring. Fruit becomes messy when it is stepped on and tracked into homes and businesses, and it also can be slippery underfoot. One respondent stated, "The fruit is a danger for those that are elderly or not sure-footed. Falls can happen easily." Several others expressed similar views. Other respondents stated that children throw the fruit at each other, at houses, and at passing vehicles. The Brandywine variety also was rated low in other studies, because the large fruits were a nuisance to residences and used as projectiles by children (Gerhold et al. 1994; Gerhold 2000). One community also appears to have bee problems associated with these trees.

Other major concerns in some of these communities are the lack of tree maintenance by the municipalities and lack of communication between the municipalities and the residents from the beginning of the project. The respondents showed concern about the lack of pruning branches for clearance of pedestrians and vehicles, and removal of suckers at the base of the trees. They stated that the crabapples needed to be pruned to develop a pleasing shape and the pear trees needed pruning to keep them from becoming too tall, leading to interference with the electrical wires.

CONCLUSIONS

The general attitudes of the respondents toward the trees indicated that they liked them and that the MTRP has been effective in its efforts. The respondents seem to have a reasonable understanding of the need to replace older, deteriorating trees with smaller, more electrical-line-friendly types of trees. They also appear to recognize the need for the utility companies to solve the conflict between the trees and the electric wires, though many people did not realize that the

utility companies were involved with this project. So a publicized, more versatile tree replacement program presents a good opportunity for utility companies to create favorable public relations with customers.

Most communities also realized benefits to their municipal tree programs, beyond those of the MTRP trees themselves. The pledge to improve their tree programs became manifest mainly by assigning responsibilities for public trees to a person or a tree commission and by adopting ordinances. Other benefits included increased budgets and public support, and the writing of tree management plans in a few cases.

Comments made for each genus and species need to be considered and applied to the choice, locations, and maintenance of trees in communities. The size and messiness of certain trees, for example, need to be evaluated carefully. When planting trees along heavily traveled walkways, trees bearing large messy fruit, such as Brandywine crabapple, would not be a proper choice. Where there are low power lines, a taller-growing species, such as some of the Callery pears, would be inappropriate. Some communities did not appear to follow-up the tree planting with maintenance programs to limb up the trees or trim suckers, and this led to numerous complaints. Therefore, in tree planting decisions, the maintenance program of a community should be taken into account. Those with inadequate pruning programs should stay away from higher-maintenance trees.

Overall, the results indicate that a tree removal and replacement program sponsored by utilities and implemented with independent, professional advice has been effective toward its goals. Most people expressed favorable attitudes toward the removals and replacement trees. Probably the involvement of professional advisors with local community leaders was instrumental in addressing the needs and concerns of the community residents. Removal and replacement programs will not satisfy everyone, but insights gained from this study can improve future projects, and they could be even more successful if they are well explained.

LITERATURE CITED

- Gangloff, D. 1999. Ten years and counting. *Am. For.* 104(4):5.
- Gerhold, H.D. 1987. Restoring trees, rebuilding pride in communities: The Municipal Tree Restoration Program. *Pa. For.* 78(4):2-4.
- Gerhold, H.D. 1999a. Tree lilac cultivars tested as street trees: Initial results. *J. Arboric.* 25(4):185-188.
- Gerhold, H.D. 1999b. Serviceberry cultivars tested as street trees: Initial results. *J. Arboric.* 25(4):189-192.
- Gerhold, H.D. 2000a. Crabapple cultivars tested as street trees: Second report. *J. Arboric.* 26(1):48-54.
- Gerhold, H.D. 2000b. Callery pear cultivars tested as street trees: Second report. *J. Arboric.* 26(1):55-59.
- Gerhold, H.D., and H.L. McElroy. 1994. Callery pear cultivars tested as street trees: Initial results. *J. Arboric.* 20(5):259-261.
- Gerhold, H.D., H.L. McElroy, and H.L.H. Rhodes. 1994. Street tree performance tests of crabapple cultivars: Initial results. *J. Arboric.* 20(2):87-93.
- Reeder, E.C., and H. D. Gerhold. 1993. Municipal tree programs in Pennsylvania. *J. Arboric.* 19(1):12-19.
- Schroeder, H.W., and W.N. Cannon, Jr. 1987. Visual quality of residential streets: Both street and yard trees make a difference. *J. Arboric.* 13(10):236-239.
- Schroeder, H.W., and S.R. Ruffolo. 1996. Householder evaluations of street trees in a Chicago suburb. *J. Arboric.* 22(1):35-43.
- Ulrich, E.S. 1987. Utility line clearance in our urban forests. *J. Arboric.* 13(2):62-64.

Acknowledgments. Financial support for the Municipal Tree Restoration Program was provided by utility companies through the Pennsylvania Electric Energy Research Council and by donations of arboricultural firms: ACRT, Allegheny Power Systems, Asplundh Tree Expert Co., Baltimore Gas & Electric Co., Bartlett Tree Expert Co., Davey Tree Expert Co., Duquesne Light, Environmental Consultants Inc., GPU Energy, Hazlett Tree Service, Penn Power, Pennsylvania Power & Light, and UGI Corporation.

¹Research Assistant
School of Forest Resources
Penn State University
University Park, PA

²*Professor of Forest Genetics
School of Forest Resources
Penn State University
109 Ferguson Building
University Park, PA 16802
(814) 865-3281
email hdg@psu.edu

*Corresponding author

Résumé. L'opinion des gens de 54 municipalités de Pennsylvanie qui ont reçu des arbres via le Programme municipal de restauration des arbres (PMRA) a été recueillie et les progrès dans leur programme d'arbre ont aussi été évalués. Toutes les composantes du programme municipal d'arbres—réglementation, commission de l'arbre, inventaire, plan de gestion—ont été stimulées par le PRMA d'une ou plusieurs façons dans 91% des municipalités. Les réponses des résidents ont montré un fort taux d'approbation envers l'abattage des gros arbres qui interféraient avec le réseau électrique—même si pour certain cela leur manquait—et pour leur remplacement par des cultivars de plus petites dimensions (*Amelanchier*, *Crataegus*, *Malus*, *Pyrus* et *Syringa*). Les réponses ont indiqué que 82% des gens aimaient l'arbre qui avait été planté, 77% pensaient que cela améliorerait leur voisinage et 69% des gens étaient favorables à l'abattage des gros arbres lorsqu'ils étaient remplacés par de plus petits. Seulement 8% des gens regrettaient les arbres abattus et 3% ont exprimé des commentaires négatifs face à l'abattage des gros arbres ou au remplacement par de plus petites espèces. Les commentaires positifs ou négatifs étaient principalement autour des caractéristiques de l'arbre et ils variaient selon le genre impliqué. La majorité des plaintes concernait l'abondance de fruits; les qualités les plus recherchées étaient la floraison et les autres caractéristiques esthétiques. Il y avait peu de variation entre les communautés dans les opinions exprimées, trois d'entre elles différant cependant à propos des cultivars de *Malus* et qui semblaient être reliées principalement à la nature des arbres et à leurs fruits.

Zusammenfassung. Von 54 Gemeinden in Pennsylvania, USA, die durch das kommunale Baum-Erhaltungs-Programm (MTRP) Bäume erhalten haben, wurden Menschen nach ihrer Meinung befragt und die Fortschritte ihres Baumprogramms bewertet. Alle Komponenten des Programms, wie Durchführung, Baumkommissionen,

Inventuren und Managementpläne wurden durch das MTRP in unterschiedlichem Grad beeinflusst, ca. 91 % der Gemeinden erhielten von dort einen solchen Anstoß. Die Antworten der Anwohner zeigten, daß ein Großteil die Entfernung von großen Bäumen unter Hochspannungskabeln befürworteten, obwohl einige sie vermissen würden, und daß die Bäume durch kleinkronige Arten, wie *Amelanchier*, *Crataegus*, *Malus*, *Pyrus* und *Syringa* ersetzt werden sollten. Die Antworten im allgemeinen zeigten, daß 82 % die gepflanzten Bäume mögen, 77 % denken, daß die Nachbarschaft dadurch verbessert würde und 69 % favorisierten die Entfernung von großen Bäumen, wenn sie durch kleinere ersetzt würden. Nur 8 % bedauerten solche Fällungen zutiefst und 3 % gaben negative Kommentare zur Entfernung großer Bäume und deren Ersatz durch kleinere Bäume. Die Kommentare über Mögen und Nichtmögen bezogen sich hauptsächlich auf Baumeigenschaften und variierten zwischen den Baumarten. Die meisten Beschwerden bezogen sich auf Verunreinigungen durch Früchte und die meistgeliebten Qualitäten waren Blüte und andere ästhetische Aspekte. Zwischen den befragten Kommunen gab es kaum Abweichungen, drei jedoch hatten eine deutlich andere Meinung zu *Malus*-Arten, was sich hauptsächlich auf die Früchte und die Natur der Bäume bezog.

Resumen. Se tomaron las opiniones de la gente acerca de los árboles en 54 municipalidades de Pennsylvania, USA, a través de la evaluación del Programa Municipal de Restauración de los Árboles (PMRA). Todos los componentes del programa municipal de los árboles recibieron estímulos, tales como ordenanzas, comisiones de los árboles, inventarios y planes de manejo, en 91% de las municipalidades. Las respuestas de los residentes mostraron alta aprobación para la remoción de grandes árboles que interferían con las líneas de servicios, aunque algunos los echaron de menos, para remplazarlos con especies pequeñas de cultivares de *Amelanchier*, *Crataegus*, *Malus*, *Pyrus* y *Syringa*. Las respuestas en general indicaron que el 82% gustaron de los grandes árboles, 77% pensaban que ellos mejoran el vecindario, y 69% estuvieron de acuerdo con la remoción de los grandes árboles para ser remplazados por más pequeños. Solamente el 8% estuvo en contra de la remoción y el 3% hizo comentarios negativos acerca de la remoción y reemplazo de los grandes árboles. Los comentarios acerca de los gustos fueron principalmente acerca de las características de los árboles, variando entre géneros. Las quejas más comunes fueron acerca de las molestias con las frutas, y las cualidades que más gustaron fueron las flores y otras características estéticas. Hubo poca variación en las actitudes entre las comunidades, tres de las cuales difirieron en sus opiniones acerca de los cultivares de *Malus* con referencia principalmente a los árboles y sus frutos.