

knowledge of urban forest planning should be an essential prerequisite for those responsible for the management of the urban forest. Planning expertise, however, is already available to all local authorities through the qualified planners in their Planning Departments. Tree Officers need to draw on this expertise if they do not have it themselves. Just as Tree Officers can help planners in the management of the publicly owned urban forest, so planners can be of considerable help in developing a planned approach to the local authority's own urban forestry operations.

### **Systematic management**

The extent to which a local authority's tree maintenance activities are conducted on a systematic, regularly scheduled cycle will always vary to some degree because of the unpredictable nature of many of the major influences on the urban forest. Strong winds, drought conditions, outbreaks of pests and disease, and 'waves' of vandalism are just a few of these factors which may occasionally place unexpectedly heavy demands on the urban forestry programme. Despite this, it should be possible under normal circumstances to systematically schedule the majority of tree maintenance work in advance. It was disappointing that most of the local authorities were not able to do this, indicating they were operating under predominantly 'crisis management' conditions. Operating an essentially reactive service where work priorities are continually changing, often in response to requests and complaints from the public at many different localities throughout the district, is not a cost-effective way of managing the urban forest. However, it was encouraging that a substantial number of authorities had significantly improved their levels of systematic maintenance over the past five years. While it cannot be established that there is any direct link, it is interesting that a similar number of local authorities had significantly increased their total spending on trees over the same period. Much of this improvement may also be due to the impact of CCT legislation that requires contracts of scheduled work to be prepared in advance of tendering. The recent introduction of computerised management systems among many local authorities may also have had some influence on this. However, the limited number of different categories of trees where these systems were used to formulate systematic work programmes suggests that many may be seriously under-utilised.

One area of systematic management where the local authorities were performing particularly well was the utilisation and recycling of tree debris. There had also been a considerable improvement in their performance over the previous five years, indicating this had now become a major priority for local authorities in their urban forestry operations. The attention given to this is probably a reflection of the greater emphasis given to all aspects of recycling and sustainable environmental management by central government and the public. There was, however, still scope for continued progress towards achieving a near total utilisation of the timber and other raw materials that can be obtained from the urban forest. Further substantial progress in the near future may be discouraged by the costs involved in investing in some of the more advanced technology to facilitate this. These costs, however, could be reduced if neighbouring authorities agreed to share facilities and equipment.

While the maintenance of mature trees can sometimes be delayed for a year or two without putting their health at risk, newly planted trees require much closer attention. A rigorous programme of systematic post-planting maintenance is usually essential to ensure their survival in urban conditions. It was encouraging that most local authorities were performing quite well in this respect, ensuring that their initial investment in the trees was adequately

## **A SURVEY OF URBAN FORESTRY IN BRITAIN**

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### **AIMS AND METHOD OF SURVEY**

In late May 1997, a survey questionnaire on urban tree management was sent out to 187 local authorities in Britain. The aim of the survey was to measure the extent to which modern methods of urban tree management were being developed and practised. Such a detailed survey had not previously been undertaken and it was conducted as part of a wider study into the development of urban forestry in Britain and Ireland.

A detailed description of the aims and method of research for the survey has been published in the *Arboricultural Journal* (Johnston and Rushton, 1998). The reader is advised to consult this paper for a more detailed account of the methodology used. In essence, social science research methods were employed whereby an operational definition of urban forestry was established involving the components of planned, systematic and integrated management which could then be measured through the selection of indicators or variables. On the basis of the local authority's performance against these indicators, an assessment could then be made of the extent to which they were able, individually and collectively, to exercise sustainable urban forest management.

The questionnaire was produced in consultation with several individuals with specialist expertise in urban tree management and questionnaire design. A copy, together with explanatory notes, was then sent to the Chief Executive of each local authority with a request that it be completed by the officer most directly responsible for the day-to-day management of the authority's publicly owned trees. The status of the local authorities targeted in the survey included District Councils, Borough Councils, City Councils, Metropolitan Borough Councils, London Boroughs and New Unitary Authorities. There were no County Councils involved in the survey.

### **FORMAT OF THE QUESTIONNAIRE AND PRESENTATION OF THE RESULTS**

The questionnaire was divided into four sections. The first dealt with a wide range of general questions, mainly about the officer responding, their local authority and its 'tree budget'. The remaining three sections dealt respectively with various aspects of planned, systematic and integrated management. This paper follows the format of the questionnaire, taking each section and its questions in sequence.

The majority of the questions were presented in a closed form where the respondent was asked to indicate their response in one or a number of given categories. In many of the questions, an 'Other' category was also included to ensure that appropriate responses that were not covered in the given categories were also recorded. In most cases, the responses in this category could be classified under one of the given categories. The remaining questions were presented in an open-ended form. Some questions in a closed form also included an open-ended supplement to the question where the respondent was able to give a written explanation for a particular variable. The response rate to these supplementary questions was very low and these have been excluded from the analysis.

Where appropriate, statistical analyses have been carried out on the data. These were mainly t-tests to evaluate differences and correlations to evaluate relationships. In the case of t-test analysis, none of the comparisons proved to be significantly different at the 5% level of probability. However, several were significant at between the 5% and 10% level of probability and these have been highlighted in discussion.

In the results presented here, percentage frequency has been calculated. It should be noted that for any one question these might not always sum to exactly 100% due to rounding errors. The categories in the results are in the same order as they were listed in the questionnaire and have not generally been re-ordered according to their respective level of response. The only exception to this is where categories have been grouped in view of the results. The response rate to the questions is 100% unless stated otherwise.

## SECTION A: THE OFFICER, THE LOCAL AUTHORITY AND ITS TREE BUDGET

The first section of the questionnaire aimed to identify a number of variables that were not specifically grouped in terms of planned, systematic and integrated management, but which might have a bearing on these components. These would also provide valuable background information that would help place some of the other responses in context.

### 1. The name of the local authority (LA)

The data from this question were for administrative purposes only. The respondents were given an assurance that all replies would be treated in confidence and when the results of the survey were publicised, individual LAs would not be identified. The data from this question enabled a comparison of the level of response from LAs in England, Scotland and Wales with the level of those in the total number of LAs targeted in the survey. A good balance was achieved in the response.

Total LAs targeted: 187

England	171	(91.44%)
Wales	4	(2.14%)
Scotland	12	(6.42%)

Total LAs responding: 138

England	127	(92.0%)	from	171	(74%)
Wales	4	(2.9%)	from	4	(100%)
Scotland	7	(5.1%)	from	12	(58%)

### 2. The title of the relevant department

The respondents were asked to state the name of their LA department or directorate. The titles were then classified into broad groups.

57%	Leisure/Recreation/Parks/Horticulture
12%	Environmental Services
11%	Planning/Development
9%	Community Services
11%	Others

The use of computerised inventories to facilitate the efficient storage and retrieval of data on individual trees is now widespread among local authorities. However, considering the number of authorities that are still not using this technology, and the slow rate at which it is being acquired by authorities, the situation cannot yet be regarded as satisfactory. There needs to be a vigorous promotion of the value of these computerised inventories so that their use becomes standard practice among all local authorities over the next few years.

Once the urban forest has been surveyed, the next two stages in the development of planned management become possible. When local authorities know the nature and extent of the existing resource, they can make considered judgements about what they want to achieve through their urban forestry programme, and how they intend to realise that. This is the basis of any meaningful urban forestry strategy, rather than just a vague document that contains some fine words about the need to plant and protect trees. It was disappointing that the majority of local authorities did not have any existing strategy document that was relevant to trees and woodland, although not surprising given the lack of data that were available to help formulate this. Some encouragement can be taken from the large number of authorities that are currently engaged in developing a relevant strategy. This may well be a reflection of the prominence given to these strategies over the past few years by bodies such as the DETR and some professional organisations. It is hoped that part of the development of these new strategies will involve some extensive surveys of the existing tree resource, and the information collected will be used to improve standards in planned management.

A detailed examination of the scope of the local authorities' existing strategies exposed some of their limitations. The most significant of these was the fact that the majority did not embrace any of the various categories of trees and woodland throughout the district. A strategy that embraces the entire urban forest, encompassing both publicly and privately owned trees and woodland, is an essential prerequisite for planned urban forest management. The absence of these district-wide strategies, however, was understandable given that most authorities did not have any overview of the urban forest in their district. If standards in planned urban forest management in Britain are to be significantly improved, all local authorities need to recognise they should have a strategy document that is relevant to the entire urban forest and includes some detailed management plans and specific performance targets for the management of the trees and woodland. This should also be produced following a consultation exercise on its content, not only within the local authority itself, but also with relevant outside organisations and the public. Provision must also be made for the regular revision of the strategy to ensure it remains relevant. While it is encouraging that local authorities seem more aware of the need for some form of tree strategy, the importance of ensuring these are truly comprehensive strategies needs far greater emphasis.

Of the three components of the urban forestry approach, the local authorities' performance in planned management was the least satisfactory. A major factor in this might be the inability or reluctance of many authorities to commit the level of resources required to conduct the initial surveys, the necessary first stage in developing a relevant and meaningful strategy. This is particularly likely if they are considering ground surveys of individual trees rather than initially obtaining some overview of the entire urban forest through far less expensive survey methods. Another factor in this might be a lack of awareness on the part of some Tree Officers of the importance of developing a planned approach to their work. Very few of the officers responding to this survey were qualified to a sufficient level in disciplines where planning concepts and practice would be likely to have formed a significant part of their studies. Some

that a substantial number of authorities had not gained any additional funding for either tree planting or management over the past five years. One way of encouraging an improvement in their performance would be through the production of an annual publication detailing the current sources of external funding available, together with practical advice on how to obtain it. This could be produced by one of the relevant government or national organisations and issued free every year to all local authorities.

The level of internal and external funding for a local authority's urban forestry programme is invariably a reflection of its political and public profile. Any activities that help raise this profile in a positive light can make an important contribution to protecting and expanding the existing level of funding. The development of a major tree project that captures the attention of the public and the media is perhaps the best way of achieving this, enabling a wide range of positive activities to be embraced by the project. However, the existence of these projects among the local authorities was very limited, and a substantial number of authorities had a low media profile for their urban forestry programmes.

The survey involved local authority districts whose populations varied in size from small towns of less than 50,000 people through to major cities with nearly one million people. It was evident from the statistical analyses, however, that the population size of the local authority was not a significant factor in many of the results. While it may have been expected that the larger local authorities would have performed better, this was not usually the case. In most instances, the percentage tree cover of the district also seemed to have little impact on their performance.

### **Planned management**

The development of a truly planned approach to urban forest management is only possible once the extent and nature of the trees and woodland has been surveyed. Although no authority had conducted a full survey of its entire urban forest, given the considerable resources required to undertake this at ground level, it could be argued that for many local authorities this would not be a cost-effective way to proceed. However, a sample survey of the whole forest is essential to gain some basic understanding of the overall resource, and to make vital resource allocation decisions. Very few local authorities had conducted such a survey, and very few had even conducted a full or sample survey of all their own trees and woodland, something which is vital in determining policy and resource decisions about their own urban forestry operations. The absence of this type of overview of the urban forest among most of the local authorities was also highlighted by the very small number that had an accurate record of the percentage tree cover of their district, and the proportion of this that was publicly and privately owned.

The extent to which the local authorities had information on their individual trees was also disappointing. Considering the high proportion of local authority tree work that is now undertaken by contractors, the lack of basic information on these trees raises questions about the standards of specifications in many of the authorities' contract documents. There was some discrepancy between the extent to which the local authorities claimed they had conducted surveys of various categories of trees and woodland, and the lesser extent to which they were able to state they had an accurate knowledge of the number of trees in each category. This could indicate that many of these surveys may have been conducted some time ago and there is now a need to re-survey to update their records.

### *Conclusions:*

The results confirm the accepted view that arboricultural and urban forestry operations are now predominantly located in LA departments that are focused on parks, recreation and leisure activities. While 30 years ago, many LAs may have placed their urban tree management under technical and engineering departments, particularly their street tree management, as the profession of arboriculture has developed it has found its place alongside other aspects of LA amenity management. The titles of LA departments may often follow popular fashion in the use of appropriate terms and perhaps this explains the significant number of 'Environmental Services' and 'Community Services' as the relevant departmental title. The significant number of 'Planning' and 'Development' departments, usually associated with work on private rather than publicly owned trees, may be due to the increasing emphasis now being given to the strategic aspects of urban forestry.

### **3. Job title of the relevant officer**

The respondents were asked to state their job title. All the titles were then classified into broad groups.

52%	Arboricultural
17%	Tree Officer, non-arboricultural
31%	Other

### *Conclusions:*

Since the appointment of Britain's first full-time Arboricultural Officer in 1953, officers in these posts have frequently remarked that most people have never heard of the term 'arboriculture' and have no idea what it means! It was, however, still the most common descriptive term for these posts, used by 52% of the LAs. Other tree-specific titles that did not include the word arboriculture, such as Tree Officer, Woodlands Officer or Urban Forester, accounted for a further 17% of the LAs. This gave a total of 69% of LAs that identified the specialist nature of the post in its title. The remaining 31% consisted of general titles such as Parks, Horticultural or Landscape Officer, or titles such as Client Officer that reflected the role of the post in relation to the LA's contact services. Six of these general titles did include some reference to trees in a sub-title, for example, Horticultural Officer (Trees and Woodland).

### **3a. The gender of the respondent**

Although not included as a question in the questionnaire, the gender of the respondents was determined from their first name. In a few instances where this was unclear from the questionnaire, the respondents were contacted by telephone for clarification.

93%	Male
7%	Female
3%	Female with arboricultural background (% of all respondents)

### *Conclusions:*

With 93% of officers being male, there is clearly a large gender imbalance in this area of LA work. Since these posts do not require the officer to undertake any demanding physical work, this imbalance is difficult to explain. As the majority of post-holders came from an arboricultural background (see Question 12 in this Section), this raises questions about

whether the profession is unattractive to women or whether they may be actively or passively discriminated against when applying for these posts. Of the 7% of officers that were female, the majority did not come from an arboricultural background.

#### 4. Number of staff for whom the officer was responsible

The respondents were asked to specify the number of officer and manual staff, expressed as full-time equivalents, for whom they were responsible.

Officers:

- 1.2 Average number of officers
- 1.9 Standard deviation
- 0-12 Range
- 46% Had no officer staff

Manual:

- 1.6 Average number of manual staff
- 6.7 Standard deviation
- 0-65 Range
- 14% Had no manual staff

*Conclusions:*

46% of the officers were not responsible for any other officer staff, indicating that a significant number did not have a specialist 'Tree Section' comprising more than one officer. However, 86% still had some manual staff despite the impact of Compulsory Competitive Tendering (CCT) within LA services in recent years.

#### 5. Job title of immediate supervisor

The data from this question were only required for administrative purposes and were not used in the analysis.

#### 6. Responsibilities for LA trees and woodland

The respondents were asked to specify which categories of tree management, planting and planting design of their LA's trees their job description covered. Where they only had partial responsibility, they were asked to respond positively if the majority of work came under their control.

Using the data from this question, a points scoring system was devised to give some measure of the degree of integrated management which the officers were able to exercise in regard to LA trees and woodland. In each of the seven categories: highway trees, park trees, open space trees, LA housing stock, schools, cemeteries and woodland, the officers may be responsible for management, planting or design. Each of these three areas of responsibility was given an index value of 1. The total number of points for all officers for management, planting and design in each of the seven categories was then calculated. These values were then converted into percentages of the maximum possible number of points (21 points). The 'Other' category was excluded as most of the replies given were classified into one of the above categories. Some referred to other types of highway trees apart from 'Street trees', the title of the

effective. There seemed to be considerable variation in the priority given to urban forestry among the local authorities, evidenced by the very wide range in their level of spending on trees per head of the population. There was, however, a surprisingly large number of local authorities achieving the level of funding required to qualify for Tree City USA status, the only available international comparison of adequate funding per head of population on urban forestry work. The establishment of a similar British standard for this would be of considerable benefit in encouraging increased levels of spending, enabling the standard to be quoted by those officers working within authorities whose level of spending was substantially below the standard.

While the local authorities usually employed a number of specialist Tree Officers, most spent the majority of their existing tree budget on employing contractors or consultants. The survey highlights the considerable impact that CCT has had in recent years on local authority urban forestry operations. This has also taken place at a time when there has been no major growth in the local authorities' total budgets for tree related work, despite an increase in public concern for trees and the quality of the urban environment. Although there were more local authorities that had experienced a decrease in their total tree budget over the previous five years than those that had achieved an increase, this did not necessarily indicate a corresponding decrease in their level of performance. Indeed, the trends in their performance over the past five years in various aspect of urban forestry were mostly encouraging and tended to indicate the reverse. It is hoped that in many of those instances where there had been a decrease in spending, this was largely the result of financial saving that had accrued from CCT, a major aim of the legislation.

Most of the local authorities had secured some external funding for their urban forestry programme over the past five years. In most instances this was for tree planting, usually under one of the government's grant aid or award schemes. The amount of this funding among the local authorities indicates that it was often a major component of the total tree budget and probably frequently represented the majority of their spending on tree planting. That their tree planting programmes were usually extensive was evident from the significant increase reported by most local authorities in the numbers of their individual trees and area of woodland over the past five years. External funding for tree management, however, was being obtained at a reduced level. The majority of this was for tree work undertaken on an agency basis, usually for County Councils, and was received regularly as part of an ongoing management agreement. The fact that none of the local authorities had obtained any funding for tree management from the private and voluntary/community sectors over the previous five years was very disappointing. This is generally regarded as more difficult to attract, partly because it may be viewed by these organisations and the public as something that the authority itself should be funding. A number of local authorities had succeeded in securing funding for tree planting from the private and voluntary/community sector, usually a more attractive and acceptable way for these to support the urban forestry programme. However, the total amount of funding for tree planting obtained from these sources was still very small. Local authorities need to be far more aware of the potential availability of these sources of funding, for both tree planting and management. It often involves far more work than just completing and returning an appropriate application form, usually requiring some investment in a sustained and imaginative marketing initiative. However, the financial rewards can be considerable.

Considering the enormous range of potential sources of external funding, it seems remarkable

management was a specialist area of activity that required its own specialist staff with appropriate professional qualifications and background. These officers, the respondents in the survey, usually worked alongside other horticultural and landscape specialists in departments dedicated to parks, recreation and leisure activities. While these Tree Officers came from a variety of relevant disciplines, the predominance of arboriculturists was most apparent, indicating that local authorities usually regarded the discipline as particularly relevant to this type of work. The influence of the arboricultural profession can be clearly seen in many of the results in this section of the survey that gives a valuable insight into the professional background of the Tree Officers. It was noticeable that the officers invariably had a reduced level of responsibility for the design aspects of urban forestry, something that is not usually regarded as a speciality of arboriculturists. While most of the officers had positions of considerable responsibility and were managing substantial budgets, many did not have a correspondingly high level of relevant professional and educational qualifications. This is likely to be a reflection of the standing of arboricultural education, with its emphasis on craft and supervisory level courses. Access to higher level, more management orientated courses has only recently become more readily available. It is hoped that these developments in arboricultural education will also have an impact soon in redressing the remarkable gender imbalance in this aspect of local authority services.

The most significant division of responsibility for urban trees within the local authorities related to the separation in management between the town or city's publicly and privately owned tree resource. This situation has its origins in the common practice of grouping all the authority's planning functions into one distinct Planning Department. While it is not particularly significant that the administration of these functions in relation to privately owned trees are not located alongside the management of publicly owned trees, it is important that there is a good degree of co-ordination and liaison between these two aspects of urban forest management. It was encouraging that the officer most directly concerned with the management of the local authority's trees was usually involved or consulted in these planning matters. Where this did not occur, it is hoped that the authority had an officer dealing with these matters who had specialist expertise in trees. Even if this was the case, there still needs to be a close working relationship between the officers. One of the fundamental principles of urban forestry is that it requires management to take a strategic overview of the whole urban forest, so that the publicly and privately owned tree resource are not treated as two separate entities.

The level of funding a local authority devotes to its urban forestry programme will always be one of the most significant factors influencing the growth of the urban forest. Without adequate funding, even the most advanced strategies and more progressive policies will have limited effect because they cannot be fully implemented. The officers' satisfaction with the level of funding for their own department, usually comprising the majority of the local authority's total tree budget, was surprisingly low. This would indicate that the officer's expectations of what was required to manage effectively and efficiently the resource were in most instances not being met. While it could be argued that many officers would always state they need more money to do the work required of them, this could be evidence of widespread and quite serious under-funding. There is little doubt that among those local authorities that performed poorly in tree maintenance related activities, many of the officers were probably very conscious of money being wasted through 'crisis management'. In promoting a case for increased funding, officers should not just highlight the volume of additional work that could be undertaken, they should also stress how the existing operations can become more cost-

category in the questionnaire. This has been changed to 'Highway trees' throughout the results to include these responses. After re-classification there remained only 15 officers with some additional responsibilities, mainly for other local authority properties.

Management	Planting	Design	Total	
124 (91%)	116 (85%)	94 (69%)	334 (82%)	Highway trees
124 (91%)	109 (80%)	95 (70%)	328 (80%)	Park trees
130 (96%)	117 (86%)	97 (71%)	344 (84%)	Open space trees
105 (77%)	74 (54%)	53 (39%)	232 (57%)	LA housing stock
57 (42%)	30 (22%)	25 (18%)	112 (27%)	Trees in schools
107 (79%)	85 (62%)	68 (50%)	260 (64%)	Cemeteries
107 (79%)	94 (69%)	80 (59%)	281 (69%)	Woodland

(two did not state)

(The first figure in each column is the number of LAs. The second figure, in brackets, is the percentage of all LAs responding.)

A similar points scoring system was devised to give some measure of the degree of integrated management that each individual officer was able to exercise in regard to local authority trees and woodland. Here, only six categories were used. Schools were not included as the level of responsibility among the officers was much lower than in the other categories (see data above). This is because much of the management of school grounds is now undertaken by independent Trusts or by County Councils, which were not involved in the survey. If the officer were to have full responsibility in all six categories, the maximum possible score would be 18. Each officer was given a score on this basis. The points scale was then converted into a percentage scale and the number of officers in each points category was converted into a percentage of all LAs.

13.1 Average score of officers

4.1 Standard deviation

3-18 Range

Frequency of officers' scores:

Number of points	Number of officers	% of officers
0	0	0
1	0	0
2	0	0
3	4	2.9
4	1	0.8
5	3	2.2
6	6	4.4
7	4	2.9
8	4	2.9
9	5	3.7
10	6	4.4
11	5	3.7
12	14	10.3
13	6	4.4

Number of points	Number of officers	% of officers
14	13	9.6
15	28	20.6
16	8	5.9
17	6	4.4
18	23	16.9

The above data were then grouped into four categories of scores:

0-24%	integrated	-	4% of officers
25-49%	integrated	-	12% of officers
50-74%	integrated	-	27% of officers
75-100%	integrated	-	57% of officers

#### Conclusions:

In terms of the three areas of responsibility, the officers were most likely to be responsible for management, then planting, and, lastly, planting design. This pattern of decreasing levels of responsibility in these areas was found in all the categories. In terms of overall responsibility for different categories of trees, highway trees, park trees and open space trees were the most common, coming under the control of 82%, 80% and 84% of the officers respectively. Overall responsibility for woodlands, at 69%, was less common, probably due to the existence of specialist Countryside or Woodland Officers within the LA. With 57% of individual officers scoring between 75-100% on this scale of integrated management, it is clear that in most LAs there was no major division of responsibilities between different officers in the area of publicly owned trees.

The points score for each officer for integrated management of publicly owned trees was correlated with the population size of the LA districts (see Question 14 in this Section). It might be expected that in the larger LAs the officers' scores would be higher because these might be more specialist posts. However, no significant relationship was established ( $r = 0.0101$ ,  $df = 134$ ,  $p > 0.05$ ).

#### 7. Responsibility for privately owned trees

This open-ended question asked the respondents to state and briefly describe any responsibilities they may have for privately owned trees and woodland, for example, Tree Preservation Orders (TPOs) or trees on development sites. The replies were classified into three categories of involvement in this work. The question was designed to give some measure of the level of integrated management within LAs by identifying the extent to which the officer most concerned with publicly owned trees was also involved in the management of privately owned trees, thus having some degree of influence in the overall management of the urban forest.

37%	Involved
30%	Advisory role
33%	Not involved

#### Conclusions:

With 67% of officers either directly involved or having an advisory role in this work, this

#### 15. Organisations and groups involved in the project

If the answer to the above question was positive, the respondents were asked to specify the type of organisations and groups that were involved in the partnership project.

(% of 13 LAs with partnership projects)

62%	Other local authority
85%	Public agency
100%	Voluntary sector organisation
100%	Community groups
85%	Private companies

#### Conclusions:

As expected, most projects involved a wide range of partner organisations from the public, private and voluntary/community sectors.

Questions 16-22, the remaining questions in the questionnaire, asked for details of the management of these project and their funding. Most respondents did not reply to these questions and no analysis was possible.

#### GENERAL CONCLUSIONS

As well as the conclusions derived from the results of each of the individual questions above, some general conclusions may be drawn regarding the local authorities' overall performance.

#### The structure and funding of local authority urban tree management

The local authorities involved in this survey had wide-ranging responsibilities for the urban forest in their locality, indicating that urban forestry in Britain is essentially a local authority function. The authorities were directly responsible for the planting, maintenance and management of their publicly owned trees and woodland, usually a very substantial proportion of the total urban forest within their district. A small number were also engaged in managing other publicly owned trees in their district on an agency basis for County Councils or the Highways Agency. The authorities also had powers to exert a considerable degree of influence and control over the development of the privately owned urban forest, through the implementation of planning legislation.

Responsibilities for the local authority's own trees and woodland were not generally split to any significant extent between different officers and departments. These invariably came under the direct control of a specialist Tree Officer, usually with the assistance of at least one other specialist officer, working together in a distinct 'Tree Section' within the same department. Where responsibilities for these trees were split within departments, this usually seemed to be the result of a geographical based organisational structure where general parks officers were responsible for specific areas of parks and open spaces which included the management of trees alongside other elements of the landscape. Alternatively, this division was the result of a split between the overall management and practical operational aspects of urban forestry, to facilitate the implementation of CCT.

Giving one officer, or a distinct section of officers, overall responsibility for the management of the entire local authority tree resource is consistent with the urban forestry approach. The survey indicates that most of the local authorities seemed to recognise that urban tree

239,550, mean population size of LA districts with a major tree project that did not = 184,653;  $t = 1.3519$ ,  $df = 44$ ,  $p > 0.1$ ).

## 12. Names of projects

If the answer to the above question was positive, the respondents were asked to give the name of the project. It was thought unlikely that a LA would be involved in more than one major project of this type and the responses confirmed this. To maintain the confidentiality of the LAs, the names of the projects are not given in these results. On the basis of their name and further clarification from the respondents when required, the 16 relevant projects were classified into categories.

No. of LAs	Type of project
7	Community Forest type
5	City-wide tree project
3	Highways project
1	Other type

### Conclusions:

The impact of the Community Forests Initiative in encouraging the development of these types of projects is clear. The other significant influence was the development of city-wide tree projects, four of which were entitled the 'Forest of...', followed by the name of the town or city.

## 13. Categories of trees embraced by the project

The respondents were asked to specify the categories of trees and woodland the project embraced.

(% of 16 LAs with relevant projects)

69% Embraced the entire urban forest

(Of the remainder, three were limited to highway trees, one to woodland, and one did not state.)

### Conclusions:

As expected, the majority of these projects embrace all the trees and woodland in the urban forest.

## 14. Partnership projects

The respondents were asked to specify if this was a partnership project that regularly involved other organisations and groups.

(% of 16 LAs with relevant projects)

81% Partnership project

19% Not a partnership project

### Conclusions:

As expected, the majority of LAs were involved in partnership projects. Those not involved were projects focusing on highway trees.

indicates a good level of integrated management among most of the LAs. However, with 33% of officers stating they were not involved, this does raise questions about their LA's ability to develop and implement an effective level of integrated management across the whole urban forest. While this may occur at a strategic level through the development and implementation of a relevant strategy document, the results could indicate a lack of integration at an operational level in these authorities between the officers responsible for the public and privately owned urban forest.

An analysis of variance was conducted to determine if there was a significant difference between the population size of the LA districts (see Question 14 in this Section) and the degree to which the officers were involved with planning matters regarding privately owned trees.

	Average population size of LA districts
Involved	156,450
Advisory	226,292
Not involved	160,700

Source of variance	df	Sum of squares	Mean square	F - ratio	p
Between LAs	2	133016747491	6650837000	4.6946	1-5%
Within LAs	135	1912556687011	1416708500		
Total	137	2045573434502			

The analysis of variance showed there was a significant difference between the LAs at a level of probability of between 1-5%. Those LAs where the officer was involved at an advisory level were larger than those where the officer was directly involved or not involved at all. There does not seem to be any obvious reason for this.

## 8. Other responsibilities for trees

This open-ended question asked the respondents to state and briefly describe any significant responsibilities for trees they may have that had not been covered in questions above or in further questions below. A high level of response was not expected nor obtained and the data are of little significance.

19% Stated some responsibilities

Most of the responses related to responsibilities covered in later questions. The remaining responses were mainly concerned with giving advice to other LA departments or to outside bodies.

## 9. Percentage of time not spent on trees

If the respondents' job involved other responsibilities not directly related to trees, such as grounds maintenance or parks management, they were asked to estimate the percentage of their time devoted to these other duties.

19.9%	Average percentage of time devoted to other duties
29.5%	Standard deviation
0-97%	Range

% of officers	% of time devoted to other duties
57%	0-9%
12%	10-19%
4%	20-29%
6%	30-39%
2%	40-49%
4%	50-59%
2%	60-69%
3%	70-79%
6%	80-89%
5%	90-100%

*Conclusions:*

These results confirm the specialist nature of the majority of the respondents' posts with 69% of officers spending less than 20% of their time on responsibilities not directly related to trees.

The percentage of time the officers spent on these other duties was correlated with the population size of the LA districts (see Question 14 in this Section). There was a negative correlation ( $r = -0.3420$ ,  $df = 137$ ,  $p < 0.01$ ). It would seem that the relevant officers in the smaller LAs would be likely to be in less specialised posts that embraced other aspects of parks and open space management, apart from just trees.

**10. Relevant qualifications**

The respondents were asked to list their relevant professional and academic qualifications. The replies were then grouped according to various academic levels. An assessment had to be made in regard to the academic level of some professional qualifications. The most common of these were the Institute of Leisure and Amenity Management (ILAM) Diploma and the Royal Forestry Society (RFS) Professional Diploma in Arboriculture, which were classified respectively as degree and Higher National Diploma level. The replies were also classified according to various subject areas, some quite specific such as arboriculture and forestry, and others more broad such as horticulture, parks or landscape management.

Level of highest qualification:

1%	Higher degree
24%	Degree level
22%	Higher National Diploma level
22%	National Diploma level
24%	National Certificate level or below
7%	Did not state any relevant qualifications

Subject of highest qualification at different levels:

(N.B. Totals are more than 100% as some respondents had qualifications in more than one subject at the same level.)

Higher degree:

100%	Forestry (MSc)
------	----------------

Year launched	Number of projects
1974	1
1980	1
1985	1
1988	2
1990	12
1991	4
1992	9
1993	2
1994	9
1995	7
1996	2
1997	5

*Conclusions:*

The most significant feature of these results is that 37% of these existing projects were launched as part of the Community Forests Initiative or are projects based on the community forests model. As projects often have a limited time-span, little can be concluded from the fact that very few of the existing projects were launched in the 1970s and 1980s, apart from the fact that if there were a significant number of projects launched during this period, they no longer exist as on-going projects. There was a major increase in these projects in the first few years of the 1990s, and a slower increase over the past few years.

In respect to major tree projects, the main aim of the survey was to identify those projects which could be described as comprehensive urban forestry initiatives, i.e. those that embraced an entire urban area, were concerned with all trees and woodland, and involved a partnership of organisations. The remaining questions in the questionnaire sought to identify the extent and nature of these projects.

**11. Projects embracing entire urban areas**

The respondents were asked if any of the projects embraced the LA's entire urban area, or an entire town or city that was wholly or partly covered by their LA district, rather than being limited to a particular part of an urban area, the urban fringe or rural areas.

(% of 46 LAs with major tree projects)

35%	Embraced entire urban area
65%	Did not embrace entire urban area

*Conclusions:*

The results reflect the type of projects identified in the previous question. While a few of the Community Forests may meet the specified criteria, most would embrace only part of the LA district. Furthermore, country parks, woodlands and nature reserves are, almost by definition, invariably confined to a limited geographic area within the district.

A t-test indicated that there was no significant difference at either the 5% or 10% level of probability between the population size of the LA districts (see Question 14 in Section A) that had a major tree project which embraced an entire urban area and those that had a major project that did not (mean population size of LA districts with a major tree project that did =



activities. However, with 38% specifying little or no coverage, this would also indicate there is still a substantial number of LAs that were not aware of the value of using the local media to promote their activities, or that their public relations efforts were having little impact. It was encouraging that 42% stated that the coverage was usually portrayed in a positive way, and only 11% stated this was usually negative.

### 9. Major tree projects

The respondents were asked if their LA was involved in any major urban or urban fringe tree planting or management projects that had their own distinct identity.

- 33% Involved in a major tree project
- 67% Not involved in a major tree project

#### Conclusions:

Given the enormous scope for these projects and the very positive publicity in the professional press that some have attracted over recent years, the results were disappointing. It was expected that substantially more than 33% of the LAs would have been involved in at least one initiative of this kind. This may be due to a lack of awareness of the range and scale of benefits these projects can have. However, such projects do not necessarily involve any significant programme of new work but could consist of an effective 'packaging' and promotion of some aspect of the LA's existing urban forestry programme. For example, the community involvement programme could be developed and structured into some on-going tree project with its own distinct identity and this need not involve a significant increase in the LA's own resources. In view of this, the poor response could also be due to a lack of appreciation of the value and opportunities for gaining a public identity or high profile for many different aspects of the LA's existing tree planting and management work.

A t-test indicated that there was a significant difference at the 10% level of probability between the population size of the LA districts (see Question 14 in Section A) that had a major tree project and those that did not (mean population size of LA districts with a major tree project = 203,747, mean population size of LA districts without a major tree project = 166,051;  $t = 1.7206$ ,  $df = 136$ ,  $p = 0.05-0.1$ ). As expected, the larger LAs were more likely to have developed major tree projects.

### 10. Names of projects and year launched

If the answer to the above question was positive, the respondents were asked to give the name of the project or projects and the year they were launched. To maintain the confidentiality of the relevant 46 LAs, the names of the projects are not given in these results. However, all the projects were classified into a number of categories. Of a total of 59 projects, nine LAs had more than one type of project, and three had more than one project of the same type.

#### Type of project:

(% of 59 projects)

- 37% Community Forest type
- 41% Country or regional park, woodland, nature reserve
- 7% Highway trees
- 7% Derelict or vacant land
- 8% City-wide tree project

#### Degree level:

- 0% Arboriculture
- 36% Forestry
- 9% Horticulture, Parks or Landscape Management
- 24% Leisure or Amenity Management
- 15% Environment, Ecology or Conservation
- 21% Other subjects

#### Higher National Diploma level:

- 58% Arboriculture (of these, 72% held the RFS Professional Diploma)
- 6% Forestry
- 29% Horticulture, Parks or Landscape Management
- 0% Leisure or Amenity Management
- 3% Environment, Ecology or Conservation
- 20% Other subjects

#### National Diploma level:

- 67% Arboriculture
- 10% Forestry
- 23% Horticulture, Parks or Landscape Management
- 3% Leisure or Amenity Management
- 0% Environment, Ecology or Conservation
- 3% Other subjects

#### National Certificate level or below:

- 88% Arboriculture
- 15% Forestry
- 33% Horticulture, Parks or Landscape Management
- 6% Leisure or Amenity Management
- 0% Environment, Ecology or Conservation
- 9% Other subjects

- 64% Respondents had some qualification in arboriculture

#### Conclusions:

Tree Officers often complain that they can feel academically challenged when working alongside colleagues in 'graduate' professions! With only 25% of the officers holding degree level qualifications, this is understandable. Of those with degree level qualifications, the most common subject was forestry, indicating its importance as a discipline within urban forestry. Leisure and amenity management was also a common subject, the vast majority of these officers being holders of the ILAM Diploma. This qualification is the main route for officers wishing to progress into parks management from an arboricultural qualification. The fact that not one of the officers had a degree in arboriculture is not surprising since it has only recently been possible to obtain such a qualification. Considering the number of graduates, it is surprising that only one officer had obtained a higher degree, a Masters degree in forestry. The remaining 75% of officers below degree level consisted mainly of people holding Higher National Diploma or National Diploma level qualifications, the majority being qualified in arboriculture. The dominance of arboriculture as the most common subject of the officers' highest level professional or academic qualifications is apparent in the above data, and 64% of

all officers had some arboricultural qualification. These data also confirm the status of the RFS Professional Diploma in Arboriculture as the 'premier qualification' in the subject, although this position could change over the next few years as more students qualify with degrees and Higher National Diplomas in arboriculture. It is significant that 7% did not state any relevant qualifications. These may be older staff who entered the arboricultural profession some years ago when it was possible to progress to management without any formal qualifications. It is surprising that none of the respondents specified landscape architecture as the subject of their highest qualification, considering the importance of design in the urban forest. However, a number did have degrees in landscape management.

### 11. Years' experience of managing trees

The respondents were asked to state the number of years' experience they had of managing trees, excluding manual work and training.

11.4 Average number of years' experience  
 7.2 Standard deviation  
 1-30 Range

(one did not state)

Percentage frequency of number of years' experience:

15% 0-4 years  
 35% 5-9 years  
 18% 10-14 years  
 13% 15-19 years  
 12% 20-24 years  
 4% 25-29 years  
 2% 30+ years

#### Conclusions:

There was considerable management experience among the officers with 50% having ten or more years' experience.

### 12. Main professional background

The respondents were asked to state which subject area best described their main professional background. The profession a person identifies with does not always reflect the subject of their main qualifications.

62% Arboriculture  
 27% Horticulture/landscape or parks management  
 8% Forestry  
 3% Conservation, environment, ecology

(one did not state)

#### Conclusions:

With 62% specifying arboriculture, this highlights its dominance as the main profession associated with urban forestry in Britain. The other major group of respondents consisted of

13% 5 activities  
 14% 6 activities  
 9% 7 activities  
 5% 8 activities  
 2% 9 activities

#### Conclusions:

With 59% of the LAs involved in at least four or more activities, this would indicate that the majority of LAs had quite well developed programmes of community involvement. However, in terms of the number of LAs involved in specific activities, there were some surprising results. At 78%, by far the most common activity was giving advice to residents about privately own trees. This is something which it could be argued should be left to contractors and consultants, particularly when there was a limited amount of resources for the community involvement programme and given that many other activities would be of more benefit to the wider community. It was also expected there would be substantially more than 55% of the LAs involved in community tree planting schemes, as these could be regarded as one of the cornerstones of any involvement programme. With only 39% of the LAs operating a 'sponsor a tree' or similar scheme, it would appear that most LAs had not begun to explore the potential for additional funding for tree planting among the private and voluntary/community sectors. It was also surprising that only 36% of the LAs operated a Tree Warden or similar scheme, given the potential of these schemes to be invaluable vehicles for many different aspects of community involvement.

The number of different community involvement activities was correlated with the population size of the LA districts (see Question 14 in Section A). No significant relationship was established ( $r = 0.0837$ ,  $df = 136$ ,  $p > 0.05$ ).

### 8. Media coverage and image

The respondents were asked to specify how frequently their LA's tree planting and management activities were featured in the local media and in what image they were usually portrayed.

Media coverage:

10% Frequent media coverage  
 52% Moderate media coverage  
 38% Little or no media coverage

(two did not state)

Media image:

42% Usually positive  
 47% Mixed  
 11% Usually negative

(nine did not state)

#### Conclusions:

With 62% of the officers stating their LA obtained frequent or moderate coverage, this would indicate that the majority had a reasonably high profile for their tree planting and management

selection of species and locations that could cause maintenance problems in the future. While landscape architects and designers have some training in this area, it is always wise to submit the designs in advance to the officer with specialist knowledge of trees and their maintenance requirements.

10% Satisfied  
 44% Moderately satisfied  
 30% Moderately dissatisfied  
 16% Dissatisfied

(38 did not state)

*Conclusions:*

72% of the officers responded to this question, indicating that they were not involved in the design of at least some tree planting schemes that they subsequently managed. This would not be indicative of a good level of integrated management among the LAs in this important area of work. However, where this did occur, it was likely to have been the exception rather than the rule, given the high level of responsibility for design indicated by most officers in Question 6 in Section A. With 46% of officers stating that they were either dissatisfied or moderately dissatisfied with these designs, this highlights the importance of always ensuring their involvement.

**7. Types of community involvement**

The respondents were asked to specify in what aspects of community involvement with trees their LA was routinely involved. They were asked not to specify if these only occurred very rarely or under exceptional circumstances. The benefits of community involvement, both to the public and to the urban forestry programme, are now widely recognised and the extent of this is a key indicator of integrated management.

47% Talks about trees to the public  
 52% Guided walks around parks, gardens or woodland  
 56% Tree related activities with schoolchildren  
 55% Community tree planting schemes  
 36% Tree Warden or similar scheme  
 39% ‘Sponsor a tree’ or similar scheme  
 17% Distribution of free trees  
 78% Technical advice to residents about private trees  
 37% Distribution of in-house information leaflets

(all 138 responded, although two stated no community involvement)

Percentage of LAs with number of different activities:

1% No activities  
 11% 1 activity  
 16% 2 activities  
 12% 3 activities  
 16% 4 activities

people from a horticultural, landscape or parks background. This was to be expected, given that these types of LA departments are the traditional home of tree management. Furthermore, arboriculture is usually a major element in the academic syllabus of students studying these subjects and it seems that many subsequently gain employment in what are essentially arboricultural posts. The results reflect quite well the multi-discipline nature of urban forestry, although the relative balance of the relevant professions included some unexpected findings. Considering the importance of forestry as a key discipline within urban forestry, it was surprising that only 8% of respondents regarded themselves as foresters. In addition, it was surprising that no respondent stated landscape architecture or planning as their main professional background, considering the contribution of these subjects to the planning and design of the urban forest. The absence of any respondents from an engineering background was not surprising. However, before the emergence of arboriculture as a profession in Britain some thirty years ago, this would probably have been quite common.

**13. Membership of professional organisations**

The respondents were asked to state their personal membership of any relevant professional organisations. While some of the LAs may have been corporate members of a few of the relevant organisations, this was not included.

61% Arboricultural Association  
 51% National/Regional Tree Officers Association  
 13% Royal Forestry Society  
 12% Institute of Leisure and Amenity Management  
 7% International Society of Arboriculture  
 6% Institute of Horticulture  
 5% Institute of Chartered Foresters  
  
 17% Not members of any relevant bodies  
 83% Members of at least one relevant body

(N.B. Although the Royal Forestry Society replies did not differentiate between the two Societies based in England and Scotland, none of these respondents were from Scottish LAs. In hindsight, the Tree Officer Association category should have been split into separate National and Regional categories as there is a clear distinction between membership of the National Association of Tree Officers and the more informal membership of one of the regional Tree Officer Groups.)

*Conclusions:*

The Arboricultural Association was the most common professional body, with 61% of the officers as members. Although the preeminence of the Association is now increasingly being challenged since the survey was conducted by the emergence and growth of more recently established organisations, it is likely to still be the principal body representing LA professionals involved in urban tree management. While 51% of officers specified they were members of either a regional Tree Officers Group or the National Association of Tree Officers (NATO), it is likely that the majority of these were members of an informal regional group and were not members of NATO. This is because, at the time the survey was conducted, NATO was only just becoming established as a national organisation. Although the International Society of Arboriculture had only 7% of officers as members, a separate UK/

Ireland Chapter of this organisation was only formally constituted in 1992 and its membership in Britain may have grown significantly since the survey was undertaken. Of the forestry organisations, the Royal Forestry Societies attracted 13% of officers, in contrast to the Institute of Chartered Foresters, which attracted only 5%. Of the two bodies associated with general parks management, the Institute of Leisure and Amenity Management attracted 12% of officers, in contrast to the Institute of Horticulture which attracted only 6%. It was surprising that 17% of officers had no personal membership of any relevant professional organisation, given the value of these organisations in disseminating information about current developments in the field. Some of their LAs, however, may have been members of the Arboricultural Association that has a substantial number of LAs as corporate members.

#### 14. Population of the LA district

The aim of this question was to provide data on the total population of the LA districts for correlation with other data. Because of low level of response to this question and poor quality of some of the replies, the data were obtained from the *Municipal Yearbook 1997* (Clements, 1997).

178,617      Average LA population size  
 122,193      Standard deviation  
 40,865-961,041      Range

Percentage frequency in population classes:

25%    under 100,000  
 44%    100,000-199,999  
 21%    200,000-299,999  
 5%    300,000-399,999  
 2%    400,000-499,999  
 1%    500,000-599,999  
 1%    600,000-699,999  
 0%    700,000-799,999  
 0%    800,000-899,999  
 1%    900,000-999,999

#### 15. Total area of the LA district

The aim of this question was to provide data on another measure of size of the LAs for possible correlation with other data. Because of the relatively low level of response to this question and the poor quality of some replies, the data were obtained from the *Municipal Yearbook 1997* (Clements, 1997).

15,396 ha      Average total area of LA districts  
 23,973 ha      Standard deviation  
 315-241,600 ha      Range

#### 16. Percentage of the LA district that is urban or rural

The respondents were asked to estimate the percentage of the total area of their LA that was either urban or rural. The aim was to gather data that might be useful to correlate with other

have been over stated or that the situation has improved in recent years. Considering the substantial divisions of responsibilities between departments for public and privately owned trees, highlighted by some of the questions in Section A, the level of satisfaction with inter-departmental liaison was surprisingly high.

An analysis of variance between the population size of the LA districts (see Question 14 in Section A) and the officers' degree of satisfaction with inter-departmental liaison showed that there was no significant difference between them at the 5% level of probability.

	Average population size
Satisfactory	156,437
Moderately satisfactory	205,746
Moderately unsatisfactory	162,234
Unsatisfactory	218,499

Source of variance	df	Sum of squares	Mean square	F – ratio	p
Between LAs	3	75381250133	25127083378	1.5804	>0.05
Within LAs	118	1876112013734	15899254354		
Total	121	1951493263867			

#### 5. Liaison with other public bodies

If there was another LA or public body with significant responsibilities for trees within the LA district, the respondents were asked to describe the general level of liaison that exists between them and their LA. A satisfactory level of liaison between the LA and these other public bodies is essential to ensure a good degree of integrated management across the whole spectrum of local and central government in the district.

38%    Satisfactory  
 35%    Moderately satisfactory  
 18%    Moderately unsatisfactory  
 9%    Unsatisfactory

(68 did not state)

*Conclusions:*

With 73% of the officers stating that the level was either satisfactory or moderately satisfactory, there seems to be no significant difficulties in this area. However, it was surprising that 51% of the officers did not respond to this question as it was expected that bodies such as the relevant County Council, Forestry Commission, Countryside Commission and DETR would be regarded as having significant responsibilities for trees in most LA districts.

#### 6. Inherited planting designs

If the respondents or their staff were not directly involved in the design of any tree planting schemes which they subsequently managed, they were asked to describe their general level of satisfaction with these designs. Ensuring that the officer most responsible for tree maintenance and management is involved in the design of tree planting schemes would be an important contribution to integrated management. Otherwise, designs may include the

which is in contrast to the increase in attention that has been given to the aims of Local Agenda 21.

### 3. Status and scope of the 'tree committee'

The respondents were asked to indicate the status and scope of the committee by specifying which of a number of given variables applied.

(% of 34 LAs with relevant committee)

- 68% Organised by your LA
- 32% Organised by another organisation
- 35% Organised as part of a distinct project
- 26% Involves another LA
- 44% Involves a public agency
- 85% Involves the voluntary sector
- 79% Covers your entire LA district
- 21% Limited to part of your LA district
- 26% Covers other LA district
- 76% Concerned with all trees and woodland
  - 9% Only concerned with LA trees
  - 6% Only concerned with woodland
- 41% Purely advisory role
- 21% Has some executive powers

(N.B. 13 LAs did not give a response in either of the last two categories. Therefore, it can only be said that 21% stated the committee had some executive powers.)

#### Conclusions:

These committees were usually organised by the LA itself. While they invariably involved the voluntary sector, the majority did not include relevant public agencies such as the Forestry Commission, Countryside Commission or DETR. The committee's brief usually covered the entire LA district and was concerned with all trees and woodland.

### 4. Inter-departmental liaison

If there was another department(s) in the LA that had some responsibility for trees, the respondents were asked to describe the general level of liaison that existed between this and their own department. A satisfactory level of inter-departmental liaison is essential in ensuring a good degree of integrated management within the LA.

- 40% Satisfactory
- 40% Moderately satisfactory
- 14% Moderately unsatisfactory
- 6% Unsatisfactory

(16 did not state)

#### Conclusions:

With 80% of the officers stating that the level of liaison was either satisfactory or moderately satisfactory, it could be that the often-quoted problems of 'departmentalism' among LAs may

data. However, it was decided that the percentage tree cover of the district (see Question 6 in Section B) would be more useful in this respect.

- 63.9% Average percentage of LA districts that was urban
- 29.2% Standard deviation

### 17. Major areas of trees managed outside the LA district

A small number of LAs manage major areas of trees and woodland outside the LA district which have their own staff and budgets. If the respondents' LA was one of these, they were asked to give the locations and to estimate the size of the tree resource. They were also asked not to take these areas into account when answering questions about their LA's trees and budgets.

- 6% Stated some major areas

(N.B. The respondents provided insufficient data on numbers of trees or size of areas to allow any analysis.)

#### Conclusions:

Although the respondents were asked to assess subjectively what constituted a 'major area', the replies given indicated a high level of consensus regarding the parameters of this. While the exact extent of these 'outside' management commitments among LAs has never been established, many Tree Officers might believe that these situations exist relatively frequently. It was therefore surprising that only 6% stated they had any major areas. Virtually all the replies could be classified as either country parks, commons or woodlands.

### 18. Major areas of trees managed on an agency basis

Some LAs manage major areas of trees and woodland within their LA district on an agency basis for other bodies. If the respondents' LA was one of these, they were asked to give the name of the bodies and estimate the size of the tree resource. They were also asked to take these areas into account when answering questions about their LA's trees and budgets.

- 12% Stated some major areas

(N.B. The respondents provided insufficient data on numbers of trees and size of area to allow any analysis.)

#### Conclusions:

With only 12% of LAs having any major areas, undertaking work on an agency basis for other bodies was not as common as had been expected. There was only one significant category for this work. Of the 17 replies, 16 stated these were highway trees for another public body, either a County Council or the Highways Agency. The other reply related to a large area of common land.

### 19. Major areas of trees managed by other bodies

If another LA, public agency, voluntary organisation or other body managed major areas of trees or woodland within the LA district, the respondents were asked to give the name of the body and estimate the size of the tree resource.

32% Stated some major areas

(N.B. The wide range of different bodies and the frequent absence of data on size of areas and numbers of trees did not allow any detailed analysis.)

*Conclusions:*

As expected, the majority of areas mentioned were owned by other LAs, public bodies or utility companies. Other major owners of areas of trees included The National Trust, The Woodland Trust, various Wildlife Trusts and private estates.

**20. Number of officers and manual staff in the department**

The respondents were asked to specify the number of officers and manual staff, expressed as full-time equivalents, engaged on tree related work in their entire department. This included their own staff but excluded contractors and consultants.

*Officers:*

2.4 Average number of officers  
2.4 Standard deviation  
10% Had less than one full-time officer

*Manual:*

34% Had some manual staff

Of these, the average number of manual staff was: 7.4

(N.B. The data on manual staff were unreliable due to the confusion surrounding the status of Direct Labour Organisations or Direct Service Organisations (DLOs/DSOs.)

*Conclusions:*

Most LAs would appear to have 'Tree Sections' in their most relevant department consisting of at least one other officer apart from the respondent. However, considering the results from Question 4 in this Section, the officers may often not be working directly to each other in line management. With only 34% of departments having any manual tree staff, this confirms the substantial impact that Compulsory Competitive Tendering legislation has had in recent years.

**21. Other officers in the department**

If there were officers in the department with some responsibilities for trees but who were not the staff of the respondents, the respondents were asked to give their job titles and tree responsibilities. These data are of limited value as only the number of individual officers was requested, not the number of full-time equivalents. Heads of Department were excluded but student placements were included. However, the results do give some indication of the degree of integrated management that exists within the department by identifying where major responsibilities for trees come under other officers who are not responsible to the respondent.

39% Stated there were some officers

154 Total number of officers  
2.9 Average number of officers (of 39% that were relevant)

25% Had a local 'tree committee'  
75% Did not have a local 'tree committee'

*Conclusions:*

Although the benefits of such forums may now be quite widely recognised, particularly in view of the priority given to Local Agenda 21, only 25% of respondents stated their LA had any relevant committee. There is much scope for the further establishment of these committees among LAs.

A t-test indicated that there was no significant difference at either the 5% or 10% level of probability between the population size of the LA districts (see Question 14 in Section A) that had a tree committee and those that did not (mean population size of LA districts with a tree committee = 205,736, mean population size of LA districts without a tree committee = 169,750;  $t = 1.4975$ ,  $df = 136$ ,  $p > 0.1$ ). A second t-test indicated that there was a significant difference at the 10% level of probability between the percentage tree cover of the LA districts (see Question 6 in Section B) that had a tree committee and those that did not (mean percentage tree cover of LA districts with a tree committee = 9.11, percentage tree cover of LA districts without a tree committee = 14.76;  $t = 1.9528$ ,  $df = 96$ ,  $p = 0.05-0.1$ ). While the population size of the LAs had no significant influence on the incidence of these committees, those LAs that were less 'green' were more likely to have established these committees. This may be due to a greater awareness among these LAs of the need to engage the local community in trying to improve the quality of their urban environment.

**2. Name of committee and year established**

If the answer to the above question was positive, the respondents were asked to state the name of the committee and the year it was established. To maintain confidentiality, the name of the committee is not given in the results. However, the name was included in the questionnaire to give some indication that the respondents understood what was meant by this type of committee.

Year established	No. of LAs	Year established	No. of LAs
1974	1	1992	5
1979	1	1993	3
1984	1	1994	3
1985	2	1995	5
1990	5	1996	2
1991	1	1997	1

(four did not state year)

(N.B. Although most of the London Boroughs regularly participate in the London Tree Forum, large regional groups and committees such as this were not included.)

*Conclusions:*

In many cases it was not possible to determine the specific focus of the committee from its name, or the focus was very broad and covered a number of diverse topics. For this reason the responses could not be classified into categories on the basis of their name. While hardly any of the committees were established during the 1970s and 1980s, there was a steady growth through the 1990s. There was, however, some indication of a decrease in very recent years

- 36% Had an inspection system
- 64% Did not have an inspection system

(three did not state)

(N.B. Although these percentages are the same as for the previous question, the LAs varied in their response to the two questions.)

*Conclusions:*

It was disappointing that only 36% of the LAs had any system for regularly monitoring the replacement of trees. With this level of monitoring, it is likely that a significant proportion of trees are not actually replaced.

A t-test indicated that there was no significant difference at either the 5% or 10% level of probability between the population size of the LA districts (see Question 14 in Section A) that regularly monitored this work and those that did not (mean population size of LA districts that regularly monitored = 175,308, mean population size of LA districts that did not regularly monitor = 179,488;  $t = 0.1893$ ,  $df = 133$ ,  $p > 0.1$ ). A second t-test indicated that there was no significant difference at either the 5% or 10% level of probability between the percentage tree cover of the LA districts (see Question 6 in Section B) that regularly monitored this work and those that did not (mean percentage tree cover of LA districts that regularly monitored = 13.21, mean percentage tree cover of LA districts that did not regularly monitor = 13.54;  $t = 0.1219$ ,  $df = 95$ ,  $p > 0.1$ ). It was surprising that those LA districts that were less ‘green’ were not performing significantly better as in these circumstance the replacement of trees could be regarded as more crucial.

**SECTION D: INTEGRATED MANAGEMENT**

This section of the questionnaire aimed to identify the extent of integrated management that existed within the LAs. The principle of integrated management is also central to the concept of urban forestry. Efficient and effective urban forest management requires an overview of the entire forest and its individual elements cannot be considered in isolation from each other or the rest of the urban environment. The principle of integrated management can only be applied practically when the different organisations and groups that have some ownership, responsibility and concern for the urban forest begin to work in partnership. Those involved should not work in isolation or in conflict with each other. This approach is also important within the LAs themselves where responsibilities for trees are often split between different departments and staff. An extensive programme of community involvement is a vital component of any initiative and a high-profile tree project can be an excellent vehicle for this activity.

**1. Existence of a ‘tree committee’**

The respondents were asked if their LA was involved in some form of local ‘tree committee’ made up of representatives of other public and/or voluntary sector organisations that acted as a forum for discussion and action about local trees and woodland. Although it was not expected there would be many LAs with committees devoted solely to trees, this could also include those covering a wide range of topics, such as wildlife, landscape, heritage and urban greening, where issues relating to trees could be discussed.

The data were classified into four categories of officers with different responsibilities:

(% of total of 154 officers)

- 19% Officers dealing with TPOs and planning issues
- 19% Woodland, Conservation and Countryside Officers
- 53% Parks officers, other tree officers and CCT officers
- 9% Landscape architects and designers

*Conclusions:*

In 61% of the LAs, responsibilities for trees and woodlands were not split between the officer responding and other officers in the same department who were not their staff. This would indicate a good level of integrated management in terms of the organisation and structure of the department, giving one officer overall responsibility for its urban forestry operations. Among the 39% of LAs where there was a split, in 53% of these the officers were parks officers, other tree officers or client type officers. The fact that some LA departments had another tree officer working independently of the respondent could indicate a poor degree of integrated management. In many instances where there was another parks officer, this may be due to the department’s geographical based organisational structure where general parks officers were responsible for specific areas of parks and open spaces which included the management of trees alongside other elements of the landscape.

**22. Number of officers and manual staff in all other departments**

The respondents were asked to specify the number of officers and manual staff, expressed as full-time equivalents, engaged on tree related work in all other departments. This did not include contractors or consultants. This question was included to give some measure of the level of integrated management that existed across the entire LA.

Officers:

- 79% Stated there were some officers
- 1.8 Average number of officers (of 79% that were relevant)
- 1.9 Standard deviation
- 14% Had less than one full-time officer

Manual:

These data could not be used due to the confusion surrounding the status of DLO/DSOs.

*Conclusions:*

As expected, a large majority of the LAs, 79%, had some other officer staff and in only 14% of LAs was this less than one full-time equivalent. This indicates that in 86% of the LAs there was at least one other full-time equivalent working on trees in another department. Some Tree Officers complain about the problems of ‘departmentalism’ with LA departments and its negative effect on integrated management. These data confirm a significant split between departments of relevant officer staff but conclusions cannot be drawn from this regarding the level of liaison that exists between these officers (see Question 4 in Section D).

**23. Responsibilities of officers in other departments**

If there were officers in other departments engaged on tree related work, the respondents were

asked to give their job title and tree responsibilities (see Question 21 in this Section). As in Question 21, these data are of limited value because the question asked for numbers of individual officers and not the number of full-time equivalents. The same criteria and categories were used.

(% of total of 252 officers)

- 54% Officers dealing with TPOs and planning issues
- 10% Woodland, Conservation and Countryside Officers
- 31% Parks officers, other tree officers and CCT officers
- 5% Landscape architects and designers

*Conclusions:*

As expected, the most significant split of responsibilities between the respondent's department and other departments related to the management of the privately owned urban forest.

### 23a. Total number of tree officers in the LA

Taking the data from Question 20 and Question 22 in this Section, the total number of officer staff engaged on tree related work for each LA was calculated. This was expressed as full-time equivalents.

- 3.9 Average total number of tree officers in the LA
- 3.6 Standard deviation
- 0.1-34 Range

*Conclusions:*

With the impact of CCT in recent years, these data were of limited use since many LAs now rely heavily on consultants and contractors to undertake work which may previously have been undertaken by officers (see Question 28 in this Section).

### 24. Department's total tree budget

The respondents were asked to give their entire department's total budget for all tree-related work for the 1996/97 financial year.

- £206,737 Average of departments' total tree budget
- £325,850 Standard deviation
- £7,000 - £1,795,546 Range

(16 did not state)

*Conclusions:*

These data were of limited use considering the extent of split responsibilities for trees and woodland across LA departments. The more significant statistic in terms of this survey is the LA's total tree budget, given in Question 26 in this Section. However, a comparison between these two sets of data indicates that the officer's departmental tree budget usually accounted for the majority of the LA's total spending on trees.

### 25. Satisfaction with department's tree budget

The respondents were asked to specify their degree of satisfaction with the level of their

trees or clearly stating there were no systematic inspections, it is difficult to draw any firm conclusions about the extent of this work. However, it does seem likely that a complete absence of any systematic tree inspections may be quite common among the LAs. This may explain why a substantial number are unable to operate any significant level of systematic maintenance work. Of the officers that stated their LAs carried out some systematic inspections, it was disappointing that only 29% of these undertook these inspections on all their trees, excluding woodland. That 81% undertook these inspections on their highway trees reflects the much greater safety implications of these trees in comparison to other categories.

### 13. Inspection of protected trees on development sites

The respondents were asked if their LA had an inspection system whereby works that may affect protected trees on development sites were systematically monitored. While it is important that valuable trees are protected legally, this may be of little benefit if the LA does not have some means of regularly checking that the works comply with the legal provisions.

- 36% Had an inspection system
- 64% Did not have an inspection system

(three did not state)

*Conclusions:*

It was disappointing that only 36% of the LAs had a system for regularly checking that development site works were not adversely affecting protected trees. Over the past twenty years, a considerable amount of research has gone into developing standards and codes of practice to protect trees on development sites and while a LA may stipulate these conditions when granting planning permission, a lack of any regular inspections gives no guarantee that there is a satisfactory level of compliance.

A t-test indicated that there was a significant difference at the 10% level of probability between the population size of the LAs (see Question 14 in Section A) that systematically monitored these works and those that did not (mean population size of LA districts that systematically monitored = 203,962, mean population size of LA districts that did not systematically monitor = 164,357;  $t = 1.8154$ ,  $df = 133$ ,  $p = 0.05-0.1$ ). A second t-test indicated that there was no significant difference at either the 5% or 10% level of probability between the percentage tree cover of the LA districts (see Question 6 in Section B) that systematically monitored these works and those that did not (mean percentage tree cover of LA districts that routinely notified = 12.94, mean percentage tree cover of LA districts that did not routinely notify = 13.83;  $t = 0.3274$ ,  $df = 94$ ,  $p > 0.1$ ). Although those LAs with larger populations were monitoring this work more closely, those LAs whose districts were less 'green' were not giving significantly greater attention to these trees, despite the fact that in these circumstances their protection could be regarded as more crucial.

### 14. Inspection of TPO/planning condition replacement trees

The respondents were asked if their LA had an inspection system whereby the replacement of trees as part of a TPO/planning condition was systematically monitored. While LAs may use these legal provisions to specify the replacement of trees, it is important to systematically monitor this to ensure that the replacements are actually planted, thus justifying the time and effort put into establishing the provisions.



probability between the population size of the LA districts (see Question 14 in Section A) that routinely undertook this notification and those that did not (mean population size of LA districts that routinely notified = 200,310, mean population size of LA districts that did not routinely notify = 167,140;  $t = 1.5177$ ,  $df = 135$ ,  $p > 0.1$ ).

## 12. Systematic inspection of LA trees

The respondents were asked to specify the categories of trees where their LA carried out systematic tree inspections of individual trees, and to specify the average length of time between inspections. Systematic tree inspections should form the basis of any programme of planned management, particularly regularly scheduled maintenance work. There can be serious legal implications if this has not been undertaken on a tree which later causes damage or injury.

(% of all 138 LAs)

- 64% Stated some systematic inspections
- 14% Clearly stated no systematic inspections
- 22% Did not specify any systematic inspections

(N.B. Of the 22% of respondents that did not reply to this direct question by specifying any categories of trees, it cannot be assumed that their LAs did not actually undertake any systematic inspections. However, this was a much greater lack of response than in many of the other questions in this survey. This may be due to their concern at the possible legal implications of making a reply, even though an assurance was given that individual LAs would not be identified in the results. Five of these were later selected at random and contacted by telephone to give an 'off the record' response. All stated that their LA undertook no systematic inspections.)

Categories of trees inspected:

(% of 89 LAs that stated they undertook some systematic inspections)

- 28% All local authority trees, excluding woodland
- 81% Highway trees
- 45% Park trees
- 37% Open space trees
- 25% Local authority housing stock

Length of time between inspections:

No accurate analysis of these data was possible because of the low level of response and very broad estimates of length of time. Again, this may be due to the legal implications. However, where a precise response was given, highway trees varied between six months and five years, most commonly annually. Other trees were also between six months and five years, most commonly every three years.

*Conclusions:*

It is of concern that only 64% of all the officers were prepared to state that their LAs undertook any systematic inspections of its trees. Furthermore, 14% clearly stated their LA undertook no systematic inspection, despite their legal obligations to undertake this work. Because the remaining 22% did not respond to this question by specifying any categories of

department's tree budget in terms of meeting its current responsibilities for tree related work. The respondents were not asked a similar question about the LA's total tree budget because, with the expected major divisions of responsibilities across departments, it was believed that many would not be in a position to give a realistic evaluation of this.

- 14% Satisfactory
- 27% Moderately satisfactory
- 25% Moderately unsatisfactory
- 34% Unsatisfactory

(six did not state)

*Conclusions:*

Considering the respondent's departmental spending usually accounts for the majority of the LA's total tree budget, the results do give some indication of how satisfied the respondent was with the LA's overall urban forestry operations. It is of concern that 59% felt their own department's budget was either unsatisfactory or moderately unsatisfactory. Clearly, most do not believe their department is receiving sufficient resources to deliver a satisfactory level of service.

An analysis of variance between the population size of the LA districts (see Question 14 in this Section) and the officers' degree of satisfaction with their department's tree budget showed that there was no significant difference between them at the 5% level of probability. However, generally officers expressing satisfaction were from LAs with larger populations.

	Average population size of LA districts
Satisfactory	197,301
Moderately satisfactory	195,402
Moderately unsatisfactory	157,490
Unsatisfactory	167,656

Source of variance	df	Sum of squares	Mean square	F - ratio	p
Between LAs	3	36163584760	12054528253	0.81914	>5%
Within LAs	128	1730889976132	13522577938		
Total	131	1767053560892			

## 26. Local authority's total tree budget

The respondents were asked to estimate their LA's total budget for tree related work in all departments for the 1996/97 financial year.

£242,708	Average of LAs' total tree budget
£288,825	Standard deviation
£25,000 - £1,845,546	Range

(19 did not state)

*Conclusions:*

With a total spending of £28,882,308 for the 119 LAs responding, this gives some indication of the scale of urban forestry operations among the major urban LAs in Britain.

## 26a. Spending on trees per head of population

Using the data from Question 14 and Question 26 in this Section, it was possible to calculate the spending on trees per head of population for each LA.

£1.20	Average spending on trees per head of population
£0.73	Standard deviation
£0.20 - £4.08	Range

(19 did not state in Question 26)

Percentage frequency in different spending classes:

8%	£0.00 - £0.49
41%	£0.50 - £0.99
27%	£1.00 - £1.49
12%	£1.50 - £1.99
5%	£2.00 - £2.49
4%	£2.50 - £2.99
3%	£3.00 - £3.49
0%	£3.50 - £3.99
1%	£4.00 - £4.50

### Conclusions:

The range was extremely wide, indicating considerable variation in the priority given to trees in the LAs' budgets. These data can be compared with one of the standards used in qualification for Tree City USA status, promoted by the National Arbor Day Foundation (1998). This is the only standard available to make any comparison and it requires a level of spending of at least \$2.00 per head of population. There are, however, no data available on the percentage of the total number of local authorities in the USA that are currently achieving this standard. This is because not all those that may be achieving this level of spending apply for Tree City status and an unknown number of those that do apply fail because they do not meet other qualification standards. It is, however, useful to compare the performance of British local authorities against this standard since it is a measure of what is regarded as an adequate level of spending in the USA, a country which is internationally recognised as a leader in the field of urban forestry. Using the rate of exchange at the time of the closing date for responses (\$1.5880 = £1.00) (Ulster Bank, 1999), the number of LAs in the survey which met this standard could be calculated. It was encouraging that 39% of the LAs were achieving this standard.

## 27. Trends in the LA's total tree budget

Taking account of inflation, the respondents were asked to estimate the percentage increase or decrease in their LA's total budget for tree related work over the past five years.

35%	Increased LA's total tree budget
44%	Decreased LA's total tree budget
21%	About the same

11%	Average increase,	1-100%	Range of increase
22%	Average decrease,	2-200%	Range of decrease

(23 did not state)

## 10. Notifying residents of felling or maintenance

The respondents were asked if local residents were routinely notified in advance when tree felling or major maintenance programmes were undertaken in or near residential areas. This type of work can cause disquiet among residents if they are not informed in advance of the reasons why it is necessary. The question sought to establish whether the LA had a regular system of notification to residents, rather than an ad-hoc arrangement of occasional notification or none at all.

52% Routinely notified residents of major tree work  
48% Did not routinely notify residents of major tree work

(one did not state)

### Conclusions:

It is surprising that as many as 52% of respondents reported that their LAs routinely undertook this notification, indicating an encouraging level of awareness of the importance of this work. It was particularly encouraging given the relatively low level of systematic maintenance work (See Question 1 in this Section), since routine notification is usually associated with an urban forestry programme that is largely based on scheduled work. While there are no data available to compare with this (e.g. the situation some ten years ago), it seems reasonable to assume it has increased as Tree Officers have become more aware of the value of good public relations, against a background of greater public awareness of the importance of urban trees.

A t-test indicated that there was no significant difference at either the 5% or 10% level of probability between the population size of the LA districts (see Question 14 in Section A) that routinely undertook this notification and those that did not (mean population size of LA districts that routinely notified = 179,129, mean population size of LA districts that did not routinely notify = 178,367;  $t = 0.0362$ ,  $df = 135$ ,  $p > 0.1$ ).

## 11. Notifying residents of tree planting

The respondents were asked if local residents were routinely notified in advance when tree planting programmes were undertaken in or near residential areas. Planting is usually a very positive aspect of any urban forestry programme and giving notification of this can be a useful way of raising the profile of the trees themselves and the LA's urban forestry operations. It can also give the residents an opportunity to object to the planting, thus avoiding potential vandalism to unwanted trees.

35% Routinely notified residents of tree planting  
65% Did not routinely notify residents of tree planting

(one did not state)

### Conclusions:

While it was not expected that the level of this routine notification would be as high as in the previous question, since tree planting is generally much less controversial, the average of 35% among the LAs is encouraging.

A t-test indicated that there was no significant difference at either the 5% or 10% level of

## 8. Mortality of newly planted trees

The respondents were asked to estimate the percentage mortality rate of all their LA's newly planted trees, excluding woodland plantings.

26% Average percentage mortality of newly-planted trees  
 18% Standard deviation  
 0-80% Range

(five did not state)

Percentage frequency of percentage mortality of newly-planted trees:

17%	0-9%
23%	10-19%
18%	20-29%
14%	30-39%
10%	40-49%
11%	50-59%
4%	60-69%
2%	70-79%
2%	80-89%
0%	90-100%

### Conclusions:

At an average level of tree mortality of 26% among the LAs, this may be regarded as an acceptable level of losses given the rigours of the urban environment. It was of concern, however, that 19% of the LAs were experiencing levels of tree mortality of 50% or more which cannot be regarded as acceptable. These LAs should conduct an immediate review of their planting programmes.

The percentage mortality rate of newly planted trees was correlated with the percentage of these trees that received systematic post-planting maintenance (See Question 6 in this Section). This was a negative correlation ( $r = -0.3563$ ,  $df = 126$ ,  $p < 0.01$ ), indicating that as the level of maintenance increased, the level of mortality decreased. This confirms the importance of this work in ensuring the survival of newly planted trees.

## 9. Trends in mortality of newly planted trees

The respondents were asked if the percentage mortality rate had significantly increased, decreased or stayed about the same over the last five years.

24% Increased mortality of newly-planted trees  
 27% Decreased mortality of newly planted trees  
 49% About the same

(eight did not state)

### Conclusions:

It was surprising that 24% of the LAs had experienced a significant increase in the level of mortality, almost as many as the 27% that reported a significant decrease.

### Conclusions:

It is of concern that 44% of the LAs had decreased their spending while only 35% had increased it. At 22%, the average level of decrease was also double the average level of increase. From these results it could be concluded that urban forestry operations in many LAs in Britain are under financial pressure. The situation, however, may be due partly to the impact of CCT where commercial competition may have reduced costs without decreasing the level of service. Many of the officers that did not reply to this question were from New Unitary Authorities (NUAs) where the budget had changed dramatically in recent years due to major boundary changes and no genuine comparison could be made with the situation before and after restructuring.

The percentage increase or decrease in the LAs' total tree budget over the previous five years was correlated with the population size of the LA districts (see Question 14 in this Section). No significant relationship was established ( $r = 0.0268$ ,  $df = 113$ ,  $p > 0.05$ ).

## 28. Percentage of budget for contractors and consultants

The respondents were asked to estimate the percentage of their LA's total budget for tree related work that was currently used to employ contractors or consultants.

63% Average percentage of budget for contractors and consultants  
 41% Standard deviation  
 0-100% Range

(13 did not state)

Percentage frequency of percentage of budget:

% of LAs	% of budget
20%	0-9%
8%	10-19%
2%	20-29%
2%	30-39%
2%	40-49%
2%	50-59%
5%	60-69%
6%	70-79%
10%	80-89%
44%	90-100%

16% stated 0%  
 38% stated 100%

### Conclusions:

These data are not reliable and can only be used as a guide to the true position. Those officers stating their LA devoted 100% of its tree budget to employ contractors or consultants obviously did not exclude staff salaries. The polarisation in the results between those LAs spending a high proportion of their budget on this and those that spent only a small proportion is very apparent. With 54% of LAs spending 80% or more of their budgets on employing contractors and consultants, the impact of CCT in recent years can clearly be seen.

The percentage of the LAs' total budget for tree related work that was currently used to employ contractors or consultants was correlated with the population size of the LA districts (see Question 14 in this Section). No significant relationship was established ( $r = 0.0558$ ,  $df = 123$ ,  $p > 0.05$ ).

### 29. Sources and amount of external funding for tree planting

The respondents were asked to list the sources of any external funding for tree planting received by their LA over the past five years, and to give the approximate total value from each source over that period.

64% Received some external funding for tree planting

£83,802	Average
£100 - £2,300,000	Range
£6,871,774	Total

(six did not state source or amount)

(N.B. One LA had £2,300,000 or 33% of the total, £1,500,000 of which was from the Millennium Fund. Average excluding this LA: £56,442.)

Significant sources:

Forestry Authority:

29% of all LAs obtained this funding	Total amount:	£1,164,358
% of total funding, all sources: 17%		

Countryside Commission:

12% of all LAs obtained this funding	Total amount:	£708,666
% of total funding, all sources: 10%		

Voluntary/community and private sectors (not including compensation or planning gain):

24% of all LAs obtained this funding	Total amount:	£151,250
% of total funding, all sources: 2%		

Other significant sources:

The quality of these data did not allow any precise breakdown into other sources. However, it was apparent that the vast majority of this probably came from a few major sources. These were County Councils and the Highways Agency for work on an agency basis, funding from the National Lottery and funding from various other central government agencies, mainly the DETR.

*Conclusions:*

Considering the range and number of different sources now available to LAs to obtain external funding for tree planting, it is surprising that 36% had not secured any over the past five years. The Forest Authority was a significant source for many LAs while the Countryside Commission contribution was much smaller. Given that voluntary/community and private sector funding is available to all LAs, it was disappointing that only 24% had taken advantage of this, and that funding from this source represented only 2% of the total. While this funding

Percentage frequency of percentage receiving post-planting maintenance:

14%	0-9%
2%	10-19%
7%	20-29%
1%	30-39%
2%	40-49%
7%	50-59%
0%	60-69%
8%	70-79%
10%	80-89%
50%	90-100%
10%	stated 0%
39%	stated 100%

*Conclusions:*

The average level of 69% among the LAs was quite encouraging, indicating that their initial investment in new trees was being moderately well protected. However, it could be argued that anything less than 90% for this work is unacceptable and it was disappointing that only 50% of the officers stated their LAs were achieving this level. Again, there seems to be some degree of polarisation in these results between LAs that were performing well and those that were performing badly. While 68% of the LAs were achieving a level of 70% or more, 23% were achieving less than 30%. The 14% of LAs that were only able to systematically maintain less than 10% of their newly planted trees should undertake an immediate review of their planting programmes.

The percentage of trees receiving systematic post-planting maintenance was correlated with the population size of the LA districts (see Question 14 in Section A). There was a positive correlation ( $r = 0.2247$ ,  $df = 128$ ,  $p < 0.05$ ) between these two variables and this was almost significant at the 1% level of probability. However, there does not seem to be any obvious reason why those LAs with larger populations should be performing better in this type of work.

### 7. Trends in systematic post-planting maintenance

The respondents were asked if their LA's level of systematic post-planting maintenance had significantly increased, decreased or stayed about the same over the last five years.

45%	Increased their systematic post-planting maintenance
7%	Decreased their systematic post-planting maintenance
48%	About the same

(six did not state)

*Conclusions:*

Given the less than spectacular performance for this work indicated in the results in the previous question, it was encouraging that 45% of the officers reported a significant increase in the level of this work over the past five years.

14% stated 0%  
8% stated 100%

*Conclusions:*

It was encouraging that the average level of utilisation or recycling among the LAs was as high as 47%. There was, however, some polarisation in the results between those LAs that were performing well in this respect and those that were not. While 31% of the LAs were achieving a level of 80% or more, 36% were achieving less than 20%. The remarkable 8% of the LAs where the level was claimed to be 100% should be investigated to see if they really are achieving no wastage at all. The 14% of the LAs where it was claimed that no recycling or utilisation was taking place at all was equally remarkable indicating a complete inability to use the urban forest as a source of valuable raw material.

The percentage of tree debris that was utilised or recycled was correlated with the population size of the LA districts (see Question 14 in Section A). No significant relationship was established ( $r = 0.0181$ ,  $df = 130$ ,  $p > 0.05$ ).

**5. Trends in tree debris utilisation**

The respondents were asked to estimate if the percentage of tree debris utilisation given above had significantly increased, decreased or stayed about the same over the last five years.

50% Increased their utilisation of tree debris  
3% Decreased their utilisation of tree debris  
47% About the same

(12 did not state)

*Conclusions:*

With 50% of the respondents specifying a significant increase, there was a major trend among the LAs towards greater recycling and utilisation of tree debris. This reflects the increased attention given in recent years to recycling in many aspects of LA work, influenced by a greater awareness of the value of this among the public and the financial implications of Landfill Tax. It was, however, still disappointing that 50% of the LAs had not achieved any significant progress.

**6. Systematic post-planting maintenance**

The respondents were asked to estimate the percentage of all their LA's newly planted trees, excluding woodland, that currently receive systematic post-planting maintenance until they are established. This is another key indicator of systematic management. While some LAs may not have the resources to systematically maintain the majority of their mature trees, a severe lack of maintenance on newly-planted trees might indicate a LA that found it particularly difficult to develop any significant level of systematic management. Woodland plantings were excluded as the incidence of this work is usually much higher than with individual specimen trees.

69% Average percentage receiving post-planting maintenance  
37% Standard deviation  
0-100% Range

(eight did not state)

source may be unpredictable and quite difficult to secure in large amounts, there are some well-known examples of LAs that have had considerable success, something that is possible for other LAs given an appropriate project or scheme and some imaginative marketing.

**30. Sources and amount of external funding for tree management**

The respondents were asked to list the sources of any external funding for tree management received by their LA over the past five years, and to give the approximate total value from each source over that period.

32% Received some external funding for tree management

£44,851 Average  
£400 - £407,885 Range  
£1,569,785 Total

(nine did not state source or amount)

Significant sources:

Forestry Authority:  
17% of all LAs obtained this funding Total amount: £280,667  
% of total funding, all sources: 18%

Countryside Commission:  
4% of all LAs obtained this funding Total amount: £108,333  
% of total funding, all sources: 7%

Other LAs for work on an agency basis:  
6% of all LAs obtained this funding Total amount: £1,108,885  
% of total funding, all sources: 71%

Voluntary/community and private sectors:  
No funding received by any LA

*Conclusions:*

The vast majority of funding for tree management came from other LAs for work on an agency basis. This would indicate that funding from grant aid for this was quite limited. The complete absence of any funding from the voluntary/community and private sectors was disappointing. While it cannot be expected that this would be as easy to attract as funding for tree planting, there are still many opportunities for LAs to secure this type of funding for tree management.

**SECTION B: PLANNED MANAGEMENT**

This section of the questionnaire aimed to identify the level of planned management that existed within the LAs. In common with other forms of resource management, the principle of planned management is central to urban forestry. A wide range of indicators was selected to measure this, one of the most significant being the existence of a relevant strategy document.

Whether or not the LAs had such a document, it was also important to ascertain the level of data available to formulate any type of tree management plans.

### 1. Surveys of LA trees and woodland

The respondents were asked to specify the categories of trees and woodland where their LA had tree surveys, and to indicate whether this was a full survey of all such trees or only a sample survey. Although the term 'sample' survey was used in the questionnaire, it was apparent from the responses in those categories that did not embrace 'all' trees that this was also interpreted to include partial surveys. This may have occurred in circumstances where trees in the parks or LA housing estates in a particular district may have been surveyed, but the aim was not to undertake a sample survey to obtain data about the rest of the trees in this category of the urban forest. In recording the results in these categories, the title has been changed to 'sample or partial survey'.

11% Had no surveys in any category  
89% Had some survey in at least one category

(six LAs indicated surveys in the 'Other' category - these were for other LA properties)

All trees and woodland, both public and private:

0% Full survey  
18% Sample survey

All local authority trees and woodland:

7% Full survey  
22% Sample survey

Highway trees:

49% Full survey  
29% Sample or partial survey

Park trees:

24% Full survey  
38% Sample or partial survey

Open space trees:

20% Full survey  
30% Sample or partial survey

Local authority woodland:

15% Full survey  
35% Sample or partial survey

Local authority housing stock:

11% Full survey  
29% Sample or partial survey

Trees and woodland in private ownership, non-TPO:

0% Full survey  
12% Sample or partial survey

### Conclusions:

With only 41% of the LAs having a computerised tree management system, there is clearly much scope for the further introduction of this technology. While there was a significant increase in the numbers of LAs acquiring the technology in the early part of the 1990s, there has been no dramatic increase in the past few years despite the publicity given to these systems and the availability of an increasing number of 'off the shelf' software packages. As expected, the vast majority of the systems covered highway trees but it was encouraging that more than 50% also covered park and open space trees. As only 50% of the LAs had computerised inventories (See Question 9 in Section B), it is clear that the majority of computerised systems now in use have a tree management capability. Given the low level of scheduled maintenance work among most of the LAs (See Question 1 in this Section), it is possible that many of those systems already installed are not being used to anything like their full capacity. While this may be due to a lack of resources and officer time to fully utilise the system, it may also be due partly to a lack of computer literacy on the part of the officers, something that could be rectified by further training.

A t-test indicated that there was a significant difference at the 10% level of probability between the population size of the LA districts (see Question 14 in Section A) that stated they had a computer based management system and those that did not (mean population size of LA districts with a computer based management system = 202,039, mean population size of LA districts without a computer based management system = 162,621;  $t = 1.8779$ ,  $df = 136$ ,  $p = 0.05-0.1$ ). This indicates that the larger the population size of the LA district, the more likely it is to have a computer based management system.

### 4. Utilisation or recycling of tree debris

The respondents were asked to estimate the percentage of all prunings and fellings from their LA's trees and woodland that is currently utilised or recycled for timber and other wood products. Given the publicity surrounding the utilisation of 'green waste' in recent years, its relevance to LA urban forestry operations and the impact of Landfill Tax, this question aimed to give an indication of the extent to which a systematic approach to this work had been adopted.

47% Average percentage of tree debris utilised  
38% Standard deviation  
0-100% Range

(six did not state)

Percentage frequency of percentage of tree debris utilised:

25%	0-9%
11%	10-19%
5%	20-29%
2%	30-39%
5%	40-49%
8%	50-59%
4%	60-69%
8%	70-79%
8%	80-89%
23%	90-100%

The percentage of scheduled maintenance work was correlated with the population size of the LA districts (see Question 14 in Section A). No significant relationship was established ( $r = 0.1035$ ,  $df = 133$ ,  $p > 0.05$ ).

## 2. Trends in scheduled maintenance work

The respondents were asked if the percentage of their LA's systematic, regularly scheduled tree maintenance work had significantly increased, decreased or stayed about the same over the last five years.

39% Increased their scheduled maintenance work  
 11% Decreased their scheduled maintenance work  
 49% About the same

(six did not state)

### Conclusions:

In view of the disappointing results from the previous question, it was encouraging that 39% of the LAs had succeeded in significantly increasing their level of scheduled work over the past five years, while in only 11% had the situation significantly deteriorated.

## 3. Computerised tree management

If their LA used a computer based system for tree management, the respondents were asked to give the year such a system was first installed. They were also asked to specify the categories of trees where this was currently used to formulate systematic work programmes. While a computerised inventory system will keep a record of trees, there are now a number of commercial software programmes available that will facilitate the cost-effective management of the trees.

41% Had a computerised management system  
 59% Did not have a computerised management system

Year installed	No. of LAs	Year installed	No. of LAs
1982	1	1990	8
1983	0	1991	6
1984	1	1992	10
1985	0	1993	6
1986	1	1994	5
1987	0	1995	3
1988	3	1996	4
1989	1	1997	7

Categories of trees covered:  
 (% of 56 LAs)

89% Highway trees  
 59% Park trees  
 52% Open space trees  
 36% Local authority housing stock

### Conclusions:

No LA had undertaken a full survey of all the trees and woodland in its urban forest, both public and privately owned. This was not surprising since the limited benefit of having a full survey of the privately owned urban forest and the considerable costs involved would be most unlikely to make this a cost-effective exercise. However, 18% had a sample survey of the entire urban forest, data that could be used as the basis for developing an appropriate urban forestry strategy across the whole forest. Although 29% of the LAs had a full or sample survey of their LA owned tree resource, it was expected this figure would be higher, given that information from such a survey would be necessary to ensure an appropriate level of funding for urban forestry operations on its own trees and woodland. Detailed information on these trees is also essential in drawing up accurate specifications for bids by contractors. Surveys of highway trees were given the greatest priority of any category with 78% of the LAs having a full or sample/partial survey. It would seem that the safety implications of managing the various categories of trees is reflected in the priority given to surveying them. It is of concern that 11% of the LAs had no surveys of any major sector of their urban forest. The absence of any data about the nature and extent of the urban forest cannot be acceptable if LAs are serious about developing a responsible approach to its management of this resource.

## 2. Numbers of trees and accurate records

The respondents were asked to estimate the number of trees currently managed by their LA in each of several given categories, and to indicate if there was an accurate record of this. In many instances, where there was no accurate record, no estimate was given. Some of the estimates given also covered a very wide range. Therefore, the data on estimates were of little or no value and have not been used. However, the main aim of the question was to establish the extent to which the LAs had an accurate record of the number of trees in various categories. Although this question is closely related to Question 1 in this Section regarding surveys of trees, it was included to give an indication of the availability of more precise data for planned management. An accurate record of the number of trees in the different elements of the LA's tree resource is regarded as important information that should be readily available to the Tree Officer.

### Accurate records in categories:

54% No accurate records in any category  
 4% All local authority trees, excluding woodland  
 49% Highway trees  
 15% Park trees  
 10% Open space trees  
 12% Local authority housing stock  
 4% Trees in schools  
 7% Trees in cemeteries

### Numbers of trees in categories:

Only the data for highway trees have been used where there was an accurate record of this. The small amount of accurate data in the other categories rendered any further analysis unreliable, particularly as many respondents did not give specific estimates of tree numbers, even where there was an accurate record.

### Highway trees:

14,338 Average number of highway trees  
 311-150,000 Range

(from 60 LAs, seven did not state the number of trees)

*Conclusions:*

It is disappointing that 54% of the LAs did not have accurate records of the number of their trees in any of the categories. As expected, 'Highway trees' was the category where most LAs had accurate records of the numbers of trees. However, only 49% of the LAs had such records and this is of concern. There is some discrepancy between the results from this question and the results from Question 1 in this Section relating to surveys of trees. It was expected that where a LA had a full survey of its trees in a particular category, it would also have an accurate record of the number of trees in that category. Some of the more significant discrepancies relate to park and open space trees. A possible explanation for this is that although the LA had a survey of trees in a particular category, this was conducted some time ago, it not been updated recently and therefore it could no longer be relied upon to give an accurate record of the number of trees.

**3. Increase or decrease in number of LA trees**

Even if there were no accurate records, the respondents were asked to estimate the percentage increase or decrease over the past five years in the total number of trees, excluding woodland, managed by their LA. Woodland was excluded because even a small increase in the area of woodland could significantly increase the number of individual trees. Furthermore, the level of resources required to establish and maintain woodland trees would be significantly lower than in the other categories. Many of those respondents not replying to this question were from NUAs where no genuine comparison could be made regarding tree numbers before and after restructuring. The data from three replies were not used because one of the main reasons given for the significant variation was due to boundary changes following NUA status.

- 57% Increased their total number of trees
- 25% Decreased their total number of trees
- 18% About the same

(15 did not state and three NUAs were excluded)

- 9% Average increase, 1-30% Range of increase
- 8% Average decrease, 2-50% Range of decrease

*Conclusions:*

While it was encouraging that 57% of the LAs had managed to increase the number of their individual trees over the past five years, it is of concern that as many as 25% had experienced a decrease. Although the respondents were asked to state the reasons for any significant increase or decrease, the response rate to this open-ended question was very poor. As a result, no accurate analysis was possible. However, where reasons were given for a significant increase, this was usually due to an increase in planting. Where reasons were given for a significant decrease, these were very varied but included cuts in the planting budget, and tree death through vandalism, lack of maintenance and drought conditions.

**4. Area of LA woodland and accurate record**

The respondents were asked to estimate the area of woodland, in hectares, currently managed by their LA, and to indicate if there was an accurate record of this.

- 17% Moderately ineffective
- 7% Ineffective

(three did not state)

*Conclusions:*

Although 76% of LAs stated their strategy was effective or moderately effective, precisely how this was achieved is unclear given the data from the previous question indicating the usual absence of any measurement criteria.

**SECTION C: SYSTEMATIC MANAGEMENT**

This section of the questionnaire aimed to assess the level of systematic management of trees and woodland within the LAs. The practical management of the urban forest to realise any planned objectives must be undertaken in a systematic manner. This involves establishing and operating a wide range of management systems that will ensure the successful implementation of the overall strategy. The various operations involved in the planting, maintenance and management of the trees should be conducted in an organised and systematic manner. Without a systematic approach, management becomes inefficient and ineffective.

**1. Percentage of work scheduled and 'on demand'**

The respondents were asked to estimate the percentage of all tree maintenance work on their LA trees and woodland that was currently undertaken on a systematic, regularly scheduled cycle and the percentage that was done 'on demand' in response to requests, complaints and hazardous situations. This statistic is one of the key indicators of systematic management.

- 31% Average percentage of scheduled work
- 30% Standard deviation
- 0-98% Range

(three did not state)

Percentage frequency of percentages of scheduled work:

- 30% 0-9%
- 16% 10-19%
- 13% 20-29%
- 6% 30-39%
- 4% 40-49%
- 6% 50-59%
- 5% 60-69%
- 9% 70-79%
- 5% 80-89%
- 6% 90-100%

*Conclusions:*

It was disappointing that the average level of scheduled work among the LAs was only 31%. This is significantly below the level of 40% or more cited by Kielbaso (1988) as indicating a systematic approach to this work in the USA. Only 35% of the LAs had attained this level of scheduled work. 30% of the LAs undertook less than 10% of their work in this manner, indicating a heavy reliance on 'crisis management'.



the general public would also be regarded as essential to ensure the strategy reflected the views and wishes of the people who live and work in the urban forest. However, the level of consultation in both categories was only 41%.

### 16. Revisions of strategy

The respondents were asked to state how often the strategy was revised, or planned to be revised. Some provision for periodic revision is essential if the document is to remain relevant.

(% of 43 LAs with relevant strategies)

- 37% No planned revision
- 63% Some planned revision
- 5.1 years Average time between revisions
- 1-20 years Range
- (one did not state)

#### Conclusions:

It was remarkable that 37% of LAs had no plans to revise their strategies. Of those that had made some provision, the average length of time of about five years between revisions could be regarded as adequate.

### 17. Strategies that included management plans

The respondents were asked if the strategy included any detailed management plans for specific areas or categories of trees, rather than just broad policy objectives. While broad policy statements about the need to plant more trees and improve the care of existing trees throughout the LA district are to be commended, to be effective these need to be supported by management plans with specific targets that specify how these objectives will be achieved. It could be argued that any document that does not include some reference to planned management objectives is not a genuine strategy and is little more than a mission statement.

(% of 44 LAs with relevant strategies)

- 39% Included management plans
- 61% Did not include management plans

#### Conclusions:

At only 39%, the incidence of any detailed management plans was disappointing. It seems that what is meant by an urban forestry strategy is not clearly understood by most LAs that claim to have some relevant strategy embracing their entire district.

### 18. Effectiveness of the strategy

The respondents were asked to indicate the overall effectiveness of the strategy in determining what happens to the trees and woodland it embraced.

(% of 41 LAs with relevant strategies)

- 22% Effective
- 54% Moderately effective

- 30% Had an accurate record

(41 did not state)

- 271 ha Average area of those with accurate records (three did not state area)
- 9-2023 ha Range

#### Conclusions:

Considering the excellent response rate to most questions in the questionnaire, it is significant that as many as 30% of the officers did not give an estimate of the size of their LA's area of woodland. It could be concluded that a majority of these officers did not have sufficient information to make an estimate. Even if the officer was not responsible for their LA's woodland, it was expected they would at least be able to give an estimate of its size. It was also surprising that only 30% of the LAs had an accurate record of the size of the area of woodland they managed. Since this information is necessary to develop any meaningful woodland management plans, this would indicate a low level of sophistication among most of those plans, or that these plans did not exist and there was very little planned management of the resource. Any application for grant aid would have to include an accurate record of the size of the woodland.

### 5. Increase or decrease in LA woodland

Even if there were no accurate records, the respondents were asked to estimate the percentage increase or decrease over the past five years in the area of woodland managed by their LA. Many of those not responding were from NUA's and the data from one NUA that did reply were not used because the main reason for the significant variation was the recent boundary change.

- 54% Increased their area of woodland
- 3% Decreased their area of LA woodland
- 43% About the same

(30 did not state and one NUA was excluded)

- 25% Average increase, 1-200% Range of increase
- 9% Average decrease, 8-10% Range of decrease

#### Conclusions:

It was encouraging that 54% of the officers stated their LA had increased the area of woodland over the past five years. However, at 25%, the higher than expected average level of increase was probably due to many of the LAs having only a very small area of woodland five years previously. The very low figure of 3% where the area had decreased was expected. The destruction of a discrete piece of woodland is far more obvious than any steady decline in the number of individual trees, for example in parks and streets. The numbers of the latter could continue to decline over many years without becoming apparent to the public or the media, whereas the removal of woodland would be likely to generate far more immediate public attention and opposition.

The percentage increase or decrease in the LAs' area of woodland over the previous five years was correlated with the population size of the LA districts (see Question 14 in this Section). No significant relationship was established ( $r = 0.0959$ ,  $df = 105$ ,  $p > 0.05$ ).

## 6. Percentage tree cover of the LA district

The respondents were asked to estimate the percentage of the total area of their LA district covered by trees and woodland, both public and privately owned. They were also asked to indicate if there was an accurate record of this. This statistic provides a valuable measure of the 'greenness' of the LA district and is important baseline information from which an urban forestry strategy could be developed.

12%	Had an accurate record
8.5%	Average of those with accurate record
2-30%	Range of those with accurate record
13.3%	Average of those with and without accurate record
0.3-60%	Range of those with and without accurate record

(40 did not give an estimate)

### Conclusions:

The response rate to this question was poor with 29% of officers not giving any estimate. It could be concluded that a majority of these were unable to make any estimate of this vital statistic about the 'greenness' of their LA district. It was disappointing that only 12% of the officers stated that their LA had an accurate record of this important statistic. Any meaningful strategy or management plan for the urban forest must begin with an assessment of the current extent of tree cover. Based on those data, a strategy might propose an increase of x% in the tree cover of areas that were less 'green', over a specified timescale. There are other methods of ascertaining the extent of tree cover, for example, the London Tree Survey (Cobham Resource Consultants, 1993) used mean tree density based on the number of trees per ha in sample plots. However, establishing the percentage of tree cover is a more useful measure of 'greenness' for developing broad-based strategies. This measure is also likely to be used more frequently by LAs because it does not require a ground survey. Securing this basic information need not involve any lengthy period of investigation since it can be easily obtained from aerial photography, something that is usually already available to LAs because of its relevance to other aspects of their work.

The estimates of percentage tree cover were correlated with both the population size of the LA districts (see Question 14 in Section A) and their total area in ha (see Question 15 in Section A). No significant relationship was established with either population size ( $r = -0.1465$ ,  $df = 96$ ,  $p > 0.05$ ) or area ( $r = 0.0860$ ,  $df = 96$ ,  $p > 0.05$ ).

## 7. Percentage of public and private owned tree cover

The respondents were asked to estimate the percentage of the total area of trees and woodland in their LA district that was either public or privately owned. They were also asked to indicate if there was an accurate record of this. These data give a measure of the relative importance of these elements in terms of their contribution to the overall urban forest. The information is essential in determining an appropriate balance of policies and resources in the planned management of these different elements.

18%	Had an accurate record
53% public, 47% private	Average with accurate record
50% public, 50% private	Average of those with and without accurate record

(53 did not give an estimate)

84%	Local authority woodland
43%	All privately owned trees and woodland
50%	Privately owned woodland

### Conclusions:

Of the LAs with district-wide strategies, only 43% of these covered all trees and woodland both public and privately owned. However, 64% did have a strategy that embraced all categories of the LA's own tree resource. The most common category for these strategies was local authority woodland, possibly because of the need to have such a strategy when applying for some forms of grant aid.

## 14. Most relevant strategy

Some LAs have more than one strategy that is relevant to trees or woodland throughout their district. To avoid any confusion with the remaining questions in this Section, the respondents were asked to give the name of the strategy that was most relevant to the management of their LA's trees and woodland, or to give the name of the only relevant strategy. To maintain the confidentiality of the LAs, the names of the strategies are not given in these results. The responses were classified in the three types of strategy given previously. The data from this question were of no great significance in the survey results but were invaluable in follow-up telephone calls to clarify some responses.

(% of 44 LAs with relevant strategies)

52%	Tree strategy
27%	Woodland strategy
20%	'Green' strategy

## 15. Consultation on strategy

The respondents were asked to specify who was consulted when the strategy was being prepared. To ensure that it is effective, an urban forestry strategy should be produced in consultation with other organisations and groups that have some ownership, responsibility or concern for the urban forest.

(% of 44 LAs with relevant strategies)

93%	Other departments in LA
18%	Other LA(s)
43%	Government agency(ies)
41%	Voluntary organisation(s)
41%	General public

(Only two officers gave a response in the 'Other' category and both stated local educational establishments.)

### Conclusions:

Consultation with other departments of the LA when developing these strategies was very common. However, consultation with relevant bodies outside the LA was less common. While it might be expected that a LA would automatically consult with at least one relevant government agency, such as the Forestry Authority, Countryside Commission or the DETR, this only occurred with 43% of the LAs. Consultation with local voluntary organisations and

*Conclusions:*

The emphasis given to the value of developing some relevant strategy by many organisations over the past decade, such as the DETR, seems to be encouraging their adoption by LAs. There was a major growth in the number of relevant strategies in the early 1990s, although the rate of growth seems to have slowed over the past few years. The popularity of purely woodland strategies seems to have declined more in the past few years in comparison with wider tree strategies or more general 'green' strategies. Four of the 'green' strategies were Community Forest Plans.

**12. Strategies embracing the entire LA district**

The respondents were asked if any of the strategies embraced any entire categories of trees or woodland throughout their LA district, rather than being a strategy that was limited to a specific geographic area within their district. While geographically specific strategies are important in developing planned management in that locality, they have little relevance to the rest of the urban forest. The data obtained from this question were of limited significance. However, it was included to enable those LAs to disregard the remaining questions in this section as these were not relevant.

(% of all 138 LAs)

- 32% Had some type of district-wide strategy
- 68% Did not have any type of district-wide strategy

*Conclusions:*

Only 32% of LAs had developed some form of strategy that embraced at least one category of trees throughout its entire district. It is clear that this type of overview of the existing tree resource, even though it may be limited to just one element of the urban forest, is not common.

A t-test indicated that there was no significant difference at either the 5% or 10% level of probability between the population size of the LA districts (see Question 14 in Section A) that stated they had a relevant strategy that embraced at least one category of trees throughout the entire district and those with a relevant strategy that did not (mean population size of LA districts with a relevant strategy that did embrace entire district = 204,668, mean population size of LA districts with a relevant strategy that did not embrace entire district = 191,604;  $t = 0.2766$ ,  $df = 57$ ,  $p > 0.1$ ).

**13. Categories of trees covered**

If the respondents had given a positive response to the above question, they were asked to specify the categories of trees and woodland embraced by the strategy or strategies.

(% of 44 LAs with district-wide strategies)

- 43% All trees and woodland, public and private
- 64% All local authority trees and woodland
- 70% Highway trees
- 66% Park trees
- 64% Open space trees
- 59% Local authority housing stock

*Conclusions:*

Again, the response rate to this question was low with 38% of officers not giving any estimate. It was particularly disappointing that only 8% of officers stated that their LA had an accurate record of this statistic, considering the importance of the information in determining major policy and resourcing decisions. Given this, the respective average percentages of public and private areas are of limited significance. It was surprising to discover that where this information for a number of the LAs had already been published, most of the respective officers were not aware of this. The London Tree Survey (Cobham Resource Consultants, 1993), gives data on public/private ownership for all London's 33 LAs. Although 20 responded to the questionnaire, only three stated they had an accurate record, the figure stated being the same or very similar to the London Tree Survey. Of the remaining 17, 11 did not state an estimate, three gave an estimate that was significantly different from the London Tree Survey, and only three gave an estimate which was similar.

The estimates of percentage tree cover that was privately owned were correlated with both the population size of the LA districts (see Question 14 in Section A) and their total area in ha (see Question 15 in Section A). While there was a significant negative correlation with population size ( $r = -0.2101$ ,  $df = 83$ ,  $p < 0.05$ ), there was a significant positive correlation with area ( $r = 0.2372$ ,  $df = 83$ ,  $p < 0.05$ ). From this, it can be concluded that the proportion of the urban forest that was privately owned decreased as the population size of the LA districts increased, while it increased as the area of the LA districts increased.

**8. Categories of trees with detailed information**

This question sought further information about the LA's records of its individual trees. However, due to some ambiguity in the wording of the question, the respondents were unclear about what they were being asked to specify and the data could not be used.

**9. Computerised tree inventories**

The respondents were asked if their LA used a computerised tree inventory system, to give the year one was first installed, and to indicate the categories of trees currently covered. These are now widely recognised as an essential tool in the cost effective planning and management of the urban forest.

- 50% Had a computerised inventory
- 50% Did not have a computerised inventory

Categories of trees covered:  
(% of 69 LAs with computerised inventories)

- 91% Highway trees
- 58% Park trees
- 51% Open space trees
- 45% Local authority housing stock
- 16% TPOs

Year installed	No. of LAs	Year installed	No. of LAs
1982	1	1990	7
1983	0	1991	8
1984	1	1992	13
1985	1	1993	7
1986	1	1994	7
1987	0	1995	4
1988	3	1996	5
1989	4	1997	6

(one did not state year)

#### Conclusions:

With 50% of the LAs without a computerised inventory of any kind, there is clearly much scope for the continuing installation of new systems among LAs. 91% of all the existing inventories covered highway trees, reflecting the need to monitor these trees closely because of their greater implications for public safety and because they usually generate the majority of requests and complaints from the public. It was encouraging that their use is also becoming common among park and open space trees. It was expected there would have been far greater use of this technology in the management of TPOs, considering the storage and retrieval of the often detailed information relating to these trees becomes so much easier. Although this technology was available to LAs during the 1980s, very few acquired it during this period. It was not until the early 1990s that there was any major growth in the use of computerised inventories. In the past few years this rate of growth appears to have slowed although there was still an increase of about five LAs a year.

A t-test indicated that there was a significant difference at the 10% level of probability between the population size of the LA districts (see Question 14 in Section A) that stated they had a computerised tree inventory and those that did not (mean population size of LA districts with a computerised tree inventory = 197,552, mean population size of LA districts without a tree inventory = 160,222;  $t = 1.8090$ ,  $df = 136$ ,  $p = 0.05-0.1$ ). This indicates that the larger the population size of the LA district, the more likely it is to have a computerised tree inventory.

#### 10. Strategy documents relevant to trees

The respondents were asked to state if their LA had any existing strategy or strategies relevant to trees or woodland, and were any being prepared. This did not include statutory planning documents. A long term and effective strategy should form the basis of any urban forestry programme. This could either be specifically relevant to trees or woodland, or the tree resource could be included in a wider 'green' strategy.

17%	Tree strategy in existence
13%	Purely woodland strategy in existence
38%	Tree strategy being prepared
6%	Purely woodland strategy being prepared
22%	Included in existing wider 'green' strategy
14%	Wider 'green' strategy being prepared

36%	No existing strategy relevant to trees or woodland
20%	Did not state 'no existing strategy' but did not indicate they had one in this question or in response to further questions about existing relevant strategies. However, all were preparing some form of strategy. If these are included with those that clearly stated 'no existing strategy', then the total is: 57% Had no existing relevant strategy 43% Had some existing relevant strategy
25%	Had no existing strategy AND none was being prepared

#### Conclusions:

Although only 17% of officers stated their LA already had a specific tree strategy, there was clearly considerable interest among the LAs in developing one. With 38% currently preparing such a document, their existence is likely to become far more widespread in the next few years. It is of concern that 57% of the LAs had no existing relevant strategy of any description, indicating a severe lack of planned management among most of the LAs. Of greater concern was that 25% of the LAs not only had no existing relevant strategy, but none was being prepared.

A t-test indicated that there was a significant difference at the 10% level of probability between the population size of the LA districts (see Question 14 in Section A) that stated they had a relevant strategy document and those that did not (mean population size of LA districts with a relevant strategy document = 200,920, mean population size of LA districts without a relevant strategy document = 161,459;  $t = 1.8984$ ,  $df = 136$ ,  $p = 0.05-0.1$ ). This indicates that the larger the population size of the LA district, the more likely it is to have a strategy document that is relevant to trees.

#### 11. Launch of relevant strategies

The respondents were asked to give the titles of any existing strategies that were relevant to trees or woodland, and the year they were launched. All the titles were then classified in three categories: tree strategies, purely woodland strategies, and wider 'green' strategies.

Types of strategies and number launched in each year:

Tree	Woodland	Green
1978 1	1982 1	1987 1
1982 1	1985 1	1988 1
1986 1	1987 1	1989 1
1988 1	1990 1	1990 3
1989 1	1991 1	1991 3
1990 1	1992 2	1992 5
1991 1	1993 3	1993 1
1992 1	1994 3	1994 4
1993 4	1995 4	1995 3
1994 4	(one did not state year)	1996 2
1995 4		1997 3
1996 2		(three did not state year)
1997 2		