

3 RESULTS

3.1 Analysis of Raw Data

Raw data was collated in spread sheets, re-arranged according to population classes, and analysed using Microsoft Excel and Statview statistics software.

3.2 National Currency

Where budget amounts are indicated, these are in the national currency of Sweden, the Krona (SEK). At the time of the closing date of the questionnaire, the exchange rate for British Sterling was 1£ = 13.97SEK (SEB, 2006).

3.3 Summary of Pertinent Results

The result section examines the raw data that was given in the returned questionnaires. Responses to key indicator questions point to the overall poor knowledge of the tree resources and their management. The pertinent results are summarised below (Table 3.1). Tables and figures for all analyses are in the appendix to this report.

Table 3.1 – Summary of relevant analyses and results.

Analysis	Result
THE NATURE OF THE PUBLICLY OWNED STREETS AND PARK TREES	
Number of street trees	The number of street trees ranged between 0 and 29 472 and increased with the population of each size class, except for the class Between 20 001 and 50 000 (table 3.2). The mean number of trees for all local authorities was 2 813. One local authority, located in the north, indicated not having any street trees that belonged to the local authority.
Number of park trees	The number of park trees ranged between 30 and 1 000 000 and increased with the population of each size class (table 3.3).
Percentage of total tree covered urban area in local authority ownership	The mean tree covered area under local authority ownership was 51.53 percent (table 3.4). None of the replies indicated accurate records for this data.
INFORMATION ABOUT THE RESPONDENTS	
Response rate	57.94 percent of the sample population replied to the survey. All urban areas in the two largest population classes responded (table 3.5). The percentage of replies was smallest in the class <i>Between 15 001 and 20 000</i> .

Information about the respondents continued

Distribution of population classes of returned questionnaires	The total population of the local authorities that returned the questionnaires constitutes 42.77 percent of the total population of Sweden (table 3.6).
Location in Sweden of replying local authorities	The largest number of replying local authorities was situated in the east of Sweden (table 3.7). The most highly populated local authorities are situated in the east, west and south.
Questions answered by the respondents	The least number of replies were to the section 'Inventories and Strategies', while most respondents had answered all questions in the sections 'Information about the person responsible about the urban tree resource' and 'Budgets and Strategies' (table 3.8).
Gender of respondents	26.32 percent of the respondents were female and 73.68 percent were male.
Job title	The most frequently stated job title of the respondents was within the job title category 'Parks management' (table 3.9). Only two local authorities indicated 'Arborist' as the job title category.
Budget per head of population in relation to each job title category	'Horticulturists', 'Landscape engineers' and 'Arborists' had the highest mean budget per head (fig. 3.1).
Budget per head of population in relation to job titles	'City Head Gardeners' had a higher mean budget per head than 'Landscape architects' and other job titles indicated (fig. 3.2).
Title of the department	A majority (54.55 percent) of the respondents worked in either a Parks or a Technical Department (table 3.10).
Budget per head of population in relation to each department	Respondents working in a Streets department had the highest mean budget per head (fig. 3.3).
Responsibility for street trees, park trees and urban woodlands	Out of the 52 that responded to this question, 38 (73.08 percent) were responsible for street, park and woodland trees (table 3.11). 13.46 percent were only responsible for park trees and 1.92 percent (1 respondent) was responsible for only the street trees in public domain.
Years spent in a tree-related managerial job within the local authority	The mean number of years was 15.8, with a minimum of 1 and a maximum of 38 (table 3.12). The highest mean number of years spent in a tree-related managerial job within the local authority were within the population class <i>Between 10 000 and 15 000</i> .

Information about the respondents continued

Highest academic qualification	72.2 percent of the respondents had a university degree as their highest qualification (table 3.13).
Years spent in a tree-related managerial job in relation to each category of highest qualification	The persons stating Further education as their highest academic qualification had on average spent more years in a tree-related managerial job within the local authority (fig. 3.4).
Budget per head of population in relation to each category of highest qualification	Respondents stating Higher education as their highest academic qualification had the highest mean budget per head (fig. 3.5).
Main professional background	66.70 percent of the respondents stated Horticulture, Parks or Landscape as their background (table 3.14). Only 8.70 percent indicated Arboriculture as their background.
Attendance at one or more arboricultural short-courses	73.17 percent of the respondents had attended arboricultural short-courses (table 3.15).
Memberships of professional organisations and readership journals	44.44 percent of the respondents were members of a professional arboricultural organisation (table 3.16). 34 percent of the respondents read arboricultural journals and 66 percent read other journals related to green issues.
Budget per head of population in relation to the respondents being or not being a member of a professional arboricultural organisation	Respondents who were not members of a professional arboricultural organisation had the highest mean budget per head (fig. 3.6).
Budget per head of population in relation to the respondents naming the professional arboricultural organisation	Respondents that were not members of an organisation had a higher mean budget per head (fig. 3.7).
Estimated percentage of working time spent on tree-related issues	The mean estimated working time spent on tree-related issues for all respondents was 13.23 percent; however, the mean of the local authorities in the population class <i>More than 150 000</i> was almost half of their total working time, and the maximum percentage in this class was 75 percent (table 3.17).
Test for independence between population size of local authorities and the percentage of working time spent on tree-related issues	There was a significant association between population size and the percentage working time (table 3.18). The higher the population of the local authorities the more likely it is that the person responsible for the tree resource spends a larger percentage of his/her working time on tree-related issues.
Working time spent on tree-related issues in relation to the number of street trees in local authority ownership	Respondents stating more than 10 000 trees spent considerably more time on tree-related issues than the respondents stating a lesser number of trees (fig. 3.8).

Information about the Respondents continued

Working time spent on tree-related issues in relation to job title category Respondents within the job title category ‘Arborist’ spent a considerably higher mean percentage of their time on tree-related issues than respondents in other job title categories (fig. 3.9).

BUDGETS

Total budget for tree-related work for 2004	The total budget for tree-related work for 2004 increased on average as the population increase (table 3.19). The minimum budget was 50 000 SEK and the maximum more than 9 million SEK.
Budget per head of population	The mean budget per head was 25.25SEK, with a minimum of 3.33 and a maximum of 204.01SEK (table 3.20).
Budget per head of population in 2004	Local authorities located in the east showed the highest mean budget per head (fig. 3.10).
Budget per head of population in relation to the number of street trees	Respondents stating more than 10 000 trees had the highest mean budget per head (fig. 3.11).
Accurate record or estimates for the total budget for tree-related work for 2004	Only 35.42 percent of the respondents could give an accurate record of the total budget for tree-related work in 2004 (table 3.21).
Budget per head of population in relation to indication of accurate record or estimate for the total annual tree budget of 2004	The respondents having accurate records had the highest mean budget per head (fig. 3.12).
Increase, decrease or no change in total annual budget for tree-related work over the past five years	The most frequently stated change in budget in the total annual budget over the past five years was (fig. 3.13).
Test for independence between population size of local authorities and indication of accurate records or estimate for the total annual tree budget of 2004.	There was no significant association between population size and having or not having accurate records for the tree budget (table 3.22)
Test for independence between budget per head of population and indication of accurate records or estimate for the total annual tree budget of 2004	There was a significant association between budget per head of population and having or not having accurate records for the tree budget (table 3.23). The larger the budget per head of population, the more likely it is that local authorities will have accurate records.
Percentage increase of the total annual budget over the past five years	22.73 percent of the respondents stated an increase of 51 percent or more in the total annual budget over the past five years (table 3.24). One respondent stated an increase of more than hundred percent.

Budgets continued

Main reason given for any increase in the total annual budget for all tree-related work over the past five years.	'New planting' and 'Replacing dead/dying trees' were the main reasons for any increase in the total annual budget given by the most number of respondents (table 3.25). 5.26 percent stated the launch of a politically supported tree strategy document as the main reason for any increase.
Budget per head of population in relation to the main reason given for any increase in the total annual budget for all tree-related work over the past five years	The respondent stating launch of tree strategy document as the main reason had a considerably higher mean budget per head than those stating other reasons (fig. 3.14).
Main reason given for any decrease in the total annual budget for all tree-related work over the past five years	All of the respondents stating the main reason for the decrease in their total annual budget gave the same reason: general savings within the local authority (table 3.26).
Brief explanation of how the size of the total annual tree work budget for 2004 was determined	A majority of the respondents (65.79 percent) stated that a specific tree budget does not exist, but that trees are allocated funding from a department budget that has to cover many other areas as well (table 3.27).
Maintenance amount per tree in 2004	The mean amount spent per tree was 72.03SEK, with a minimum 1.30 and a maximum of 500 (table 3.28)
Maintenance amount per tree in 2004 in relation to the location of the local authority	Local authorities in the east had the highest mean budget per head (fig. 3.15).
Mean maintenance budget per tree in 2004 in relation to the number of street trees in local authority ownership	Respondents stating 0-500 and 1 501-3000 street trees spent the mean highest amount (fig. 3.16).

PLANNED MANAGEMENT

Accurate record or estimate for the number of street trees	Only 28 percent stated having accurate records of the number of street trees in the local authority (table 3.29).
Accurate record or estimate for the number of park trees	Only 20 percent of the respondents stated having accurate records of the number of park trees (table 3.30).
Test for independence between population size of local authorities and indication of accurate record or estimate for the number of street trees	There was no significant association between population and having or not having accurate records for the number of street trees (table 3.31).
Test for independence between population size of local authorities and indication of accurate record or estimate for the number of park trees	There was no significant association between population and having or not having accurate records for the number of park trees (table 3.32).

Planned Management continued

Test for independence between having or not having a tree strategy document and stating accurate records for the number of street trees.	There was no significant association between having or not having a tree strategy document and stating accurate records for the number of street trees (table 3.33).
Test for independence between having or not having a tree strategy documents and stating accurate records for the number of park trees.	There was no significant association between having or not having a tree strategy document and stating accurate records for the number of park trees (table 3.34).
Percentage tree cover of urban area	The mean tree cover of the urban area was 9.67 percent (table 3.35). None of the replies stated accurate records for this data.
Percentage of total tree covered urban area in local authority ownership	The mean tree covered area in local authority ownership was 51.53 percent (table 3.36). None of the replies stated accurate records for this data.
Local authorities with and without strategy and policy documents relevant to street and park trees	41.17 percent stated that they had a separate tree strategy document, and 34.62 percent indicated that they had a separate tree policy document (table 3.37). Out of the respondents that replied having a tree strategy and/or tree policy document, 6 replies indicated that there were also other strategy documents in use within the local authority that relate to street and park trees. 8 respondents had indicated which strategy document was regarded as the most important in relation to trees. 6 of these indicated the tree strategy to be the most important document, 1 indicated the avenue policy and 1 indicated the green space strategy.
Test for independence between population size of local authorities and tree strategy/policy documents	There was no significant association between population and having or not having a tree strategy/policy (table 3.38).
Budget per head of population in relation to strategy/policy documents relevant to street and park trees	The local authorities having tree policy/strategy documents or having a tree strategy document with other green strategies had the highest mean budget per head (fig. 3.17).
Mean amount spent on maintenance per tree in 2004 in relation to strategy/policy documents relevant to street and park trees	The local authorities that had a tree strategy document spent the highest mean amount (fig. 3.18).
Launch year of strategy/ policy document relevant to street and park trees.	A majority of the local authorities launched their tree strategy documents from 1996 and onwards (table 3.39). The two largest local authorities launched their tree strategy documents between 1990 and 1995.
Job title categories of those involved in developing the most relevant strategy/policy document relating to street and park trees	Only one respondent stated that an arboriculturist had been involved in developing the most relevant strategy/policy document (table 3.40). A majority stated the involvement of a Landscape architect.

SYSTEMATIC MANAGEMENT

Maintenance carried out on a systematic, regular cycle	The mean percentage of systematic maintenance was 60.62 for all the responding local authorities (table 3.41).
Test for independence between population size of local authorities and percentage systematic maintenance	There was no significant association between population and local authorities carrying out more or less than fifty percent of their maintenance on a systematic cycle (table 3.42).
Test for independence between number of street trees and local authorities carrying out more or less than sixty percent on a systematic cycle	There was no significant association between number of street trees and local authorities carrying out more or less than sixty percent on a systematic cycle (table 3.43).
Test for independence between number of park trees and local authorities carrying out more or less than sixty percent on a systematic cycle	There was no significant association between number of park trees and local authorities carrying out more or less than sixty percent on a systematic cycle (table 3.44).
Budget per head of population in 2004 in relation to the percentage of tree maintenance carried out on a systematic, regular cycle	The local authorities performing more than 70 percent on a systematic cycle had the highest mean budget per head (fig. 3.19).
Systematic inspections of street trees	60 percent of the local authorities inspect their street trees on a regular basis (table 3.45). None of the local authorities with more than 100 000 residents inspected their street trees regularly.
Systematic inspections of park trees	47.73 percent of the local authorities inspected their park trees on a regular basis (table 3.46). None of the local authorities with more than 100 000 residents inspected their park trees regularly.
Test for independence between population size of local authorities and systematic inspections of street trees	There was no significant association between population and local authorities carrying out or not carrying out systematic inspections of street trees (table 3.47).
Test for independence between population size of local authorities and systematic inspections of park trees	There was no significant association between population and carrying out or not carrying out systematic inspections of park trees (table 3.48).
Test for independence between number of street trees and local authorities inspecting their street trees regularly	There was no significant association between number of street trees and local authorities inspecting their street trees regularly (table 3.49).
Test for independence between number of park trees and local authorities inspecting their park trees on a regular cycle	There was no significant association between number of park trees and local authorities inspecting their park trees regularly (table 3.50).
Budget per head of population in 2004 in relation to systematic inspections of street trees	Local authorities that did carry out regular inspections had the highest mean budget per head (fig. 3.20).

Systematic Management continued

Budget per head of population in 2004 in relation to systematic inspections of park trees	Local authorities that did inspect their park trees regularly had the highest mean budget per head (fig. 3.21).
Amount spent on maintenance per tree in relation to systematic inspections of street trees	Local authorities that did not inspect their street trees regularly spent the mean highest amount (fig. 3.22).
Amount spent on maintenance per tree in 2004 in relation to systematic inspections of park trees	Local authorities that did not inspect their park trees regularly spent the mean highest amount (fig. 3.23).
Frequency of inspections (in months) of individual street trees	Mean number of months between inspections of street trees was 14.56 for all local authorities that indicated the frequency (table 3.51).
Frequency of inspections (in months) of individual park trees	Mean number of months between inspections of park trees was 14.78 for all local authorities indicating frequency (table 3.52).
Usage of a computerised management system for street and park trees	44.44 percent of the local authorities used a computerised management system (table 3.53).
Test for independence between population size of local authorities and computerised management system	There was a significant association between population and using or not using a computerised management system (table 3.54). The larger the population the more likely it is that the local authority is using a computerised management system for street and park trees.
Test for independence between number of street trees and local authorities using a computerised management system for trees	There was no significant association between number of street trees and local authorities using a computerised management system (table 3.55).
Test for independence between number of park trees and local authorities using a computerised management system for their trees	There was no significant association between number of park trees and local authorities using a computerised management system (table 3.56).
Budget per head of population in 2004 in relation to local authorities using or not using a computerised management system for street and park trees	Local authorities that used a computerised management system had the highest mean budget per head (fig. 3.24).
Mortality within the establishment phase for all newly planted street and park trees	The most frequently stated mortality rate was 5 percent, but the mean percentage for all respondents was 6.24 (table 3.57).
Tree-related work performed by in-house staff	A majority of the local authorities with a population between 10 000 and 100 000 indicated that 100 percent of all tree-related work was performed by in-house staff (table 3.58). Most of the local authorities in the population class <i>More than 150 000</i> indicated that only 50 percent was performed by in-house staff.

Systematic Management continued

Hours charged by private consultant for having performed tree-related consultancy work in 2004	The minimum number of hours was 20 and the maximum 800, with a mean number of 211 hours charged (table 3.59).
Test for independence between the percentage of work being undertaken by in-house staff and the number of hours charged by private consultants	There was a significant association between the percentage of work being undertaken by in-house staff and the number of hours charged by private consultants (table 3.60). Local authorities with less amount of work undertaken by in-house staff were more likely to engage private consultants.
Test for independence between population size of local authorities and percentage tree-related work performed by in-house staff	There was no significant association between population and the percentage tree-related work performed by in-house staff (table 3.61).
Amount spent on maintenance per tree in 2004 in relation to the percentage of tree-related work carried out by in-house staff	Local authorities that stated that more than 70 percent of the work was undertaken by in-house staff spent the highest mean amount (fig. 3.25).
Mode of priority ratings of factors that may be considered when selecting trees for a planting scheme (0= not a priority; 1= very low priority and; 5= very high priority)	‘Quality’ and ‘Ultimate Size’ were the highest rated factors, followed by ‘Long-term maintenance cost’ (fig. 3.26).

INTEGRATED MANAGEMENT

Co-operation with the public in tree-related issues	46 percent of the respondent stated involving the public (table 3.62).
Test for independence between population size of local authorities and involving the public in the tree programme	There was no significant association between population and local authorities involving the public in the tree programme (table 3.63).
Test for independence between budget per head of population in 2004 and involving the public in the tree programme	There was no significant association between budget per head of population and local authorities involving the public in the tree programme (table 3.64).
Test for independence between involving the public and tree strategies	There was no significant association between the local authorities that involve the public in the tree program and having or not having a tree strategy document (table 3.65).
Involvement with the public	The most frequently stated type of involvement was the public informing the local authority of hazardous situations (fig. 3.27).
Co-operation with organisations outside the local authority in tree-related issues	41.30 percent of the respondents stated involving organisations (table 3.66).
Test for independence between population size of local authorities and involving organisations outside the local authority in the tree programme	There was no significant association between population and local authorities involving organisations in the tree programme (table 3.67).

Integrated Management continued

Test for independence between involving organisations outside the local authority and tree strategies	There was a significant association between involving organisations and having or not having a tree strategy document (table 3.68). If a tree strategy document is in place the likelihood of involving organisations in the tree program is greater.
Type of involvement with organisations outside the local authority	The most frequently stated types of involvement with organisations were receiving ideas and views from the organisations and giving information to the organisations (fig. 3.28).
Co-operation with private companies in tree-related issues	53.19 percent of the respondents stated involving private companies (table 3.69).
Test for independence between population size of local authorities and involving private companies in the tree programme	There was no significant association between population and local authorities involving private companies in the tree programme (table 3.70).
Test for independence between involving private companies and tree strategies	There was no significant association between involving private companies and having or not having a tree strategy document (table 3.71).
Type of involvement with private companies	The most frequently stated type of involvement was to provide private companies with work (fig. 3.29).

3.4 Tables and Figures for Pertinent Results

3.4.1 The Nature of the Publicly Owned Street and Park Trees

Table 3.2 - Number of street trees per population class.

Population Class	Number of replies	Mean	SE of mean	Minimum	Maximum
Between 10 000 and 15 000	11	359	129.19	0	1 500
Between 15 001 and 20 000	3	1339	672.24	90	2 400
Between 20 001 and 50 000	7	839	287.32	150	2 123
Between 50 001 and 100 000	2	3516	916.00	2600	4 432
Between 100 001 and 150 000	-	-	-	-	-
More than 150 000	2	24 736.31	4 736.00	20 000	29 472
Total	25	2 813	1 364	0	29 472

The number of street trees ranged between 0 and 29 472 and increased in general with the population of each class (table 3.2). The mean number of trees for all local authorities was 2 813. One local authority, located in the north, indicated not having any street trees that belong to the local authority.

Table 3.3 - Number of park trees per population class.

Population Class	Number of replies	Mean	SE of mean	Minimum	Maximum
Between 10 000 and 15 000	10	1 809	680	30	6 500
Between 15 001 and 20 000	3	8 383	6 610	1500	21 600
Between 20 001 and 50 000	8	2391	903	800	8 500
Between 50 001 and 100 000	3	4 436	1 605	1900	7 407
Between 100 001 and 150 000	-	-	-	-	-
More than 150 000	2	514 267	485 734	28 533	1 000 000
Total	26	42 470	38 323	30	1 000 000

The number of park trees ranged between 30 and 1 000 000 and increased with each population class (table 3.3).

Table 3.4 - Percentage of total tree covered urban area under local authority ownership, per population class.

Population Class	Number Of replies	Mean	SE of mean	Minimum	Maximum
Between 10 000 and 15 000	5	54.00	14.35	10.00	90.00
Between 15 001 and 20 000	4	62.25	20.91	4.00	95.00
Between 20 001 and 50 000	6	42.00	16.31	2.00	100.00
Between 50 001 and 100 000	1	90.00	n/a	90.00	90.00
Between 100 001 and 150 000	0	n/a	n/a	n/a	n/a
More than 150 000	1	15.00	n/a	15.00	15.00
Total	17	51.53	8.82	2	100

The mean tree covered area under local authority ownership was 51.53 percent (table 3.4). None of the replies stated accurate records for this data.

3.4.2 The Respondents

Out of the 107 questionnaires sent off, 62 (57.94 percent) were returned either by air mail or by e-mail. Out of all the respondents one had completed the entire questionnaire.

Table 3.5 - Percentage replying local authorities per population class.

Population Class	Total number of Urban Areas in class	Number of replying Urban Areas	Percentage replying Urban Areas
Between 10 000 and 15 000	34	20	58.82
Between 15 001 and 20 000	19	8	42.11
Between 20 001 and 50 000	35	18	51.43
Between 50 001 and 100 000	14	11	78.57
Between 100 001 and 150 000	2	2	100
More than 150 000	3	3	100
Total	107	62	57.94

All urban areas in the two largest population classes responded (table 3.5). The percentage of replies was smallest in the class *Between 15 001 and 20 000*.

Table 3.6 - Distribution of population of responding local authorities (Census figures from SCB, 2005).

Population Class	Number of Urban Areas	Mean of Population	Total Population	Standard Error of Mean
Between 10 000 and 15 000	20	12 945	258 904	310.54
Between 15 001 and 20 000	8	17 277	138 214	489.32
Between 20 001 and 50 000	18	29 009	522 160	2120.92
Between 50 001 and 100 000	11	68 369	752 057	4765.01
Between 100 001 and 150 000	2	113 292	226 584	10 744.23
More than 150 000	3	652 188	1 956 565	288 963.51
Total	62	62 169	3 854 484	

The total population of the local authorities that returned the questionnaires constitutes 42.77 percent of the total population of Sweden (table 3.6; SCB, 2005).

Table 3.7 – Location in Sweden of replying local authorities per population class (for a map of Sweden see Fig. 2)

Population Class	North	East	Midlands	South	West
Between 10 000 and 15 000	1	8	7	2	2
Between 15 001 and 20 000	-	3	-	3	2
Between 20 001 and 50 000	4	6	2	3	3
Between 50 001 and 100 000	0	7	1	1	2
Between 100 001 and 150 000	-	2	-	-	-
More than 150 000	-	1	-	1	1
Total	5	27	10	10	10

The largest number of replying local authorities was situated in the east of Sweden (table 3.7). The most densely populated local authorities are situated in the east, west and south (Sweden Statistics, 2006).

Table 3.8 - Number of questions answered by the respondents.

Sections of Questionnaire	Total Number of Questions in Section	Mean Number of Questions Answered	Mode of Number of Questions Answered
Information about the person responsible for the urban tree resource	9	7.53	9
Budgets and Resources	12	8.91	12
Inventories and Strategies	8	4.00	6
Planning and Maintenance	8	6.23	8
Integrated Management	1	n/a	1
Additional Information, if any	1	n/a	0
Total	38		

The section 'Integrated Management' was completed by 80.65 percent of the respondents, and the section 'Additional Comments' was completed by 22.58 percent of the respondents (table 3.8).

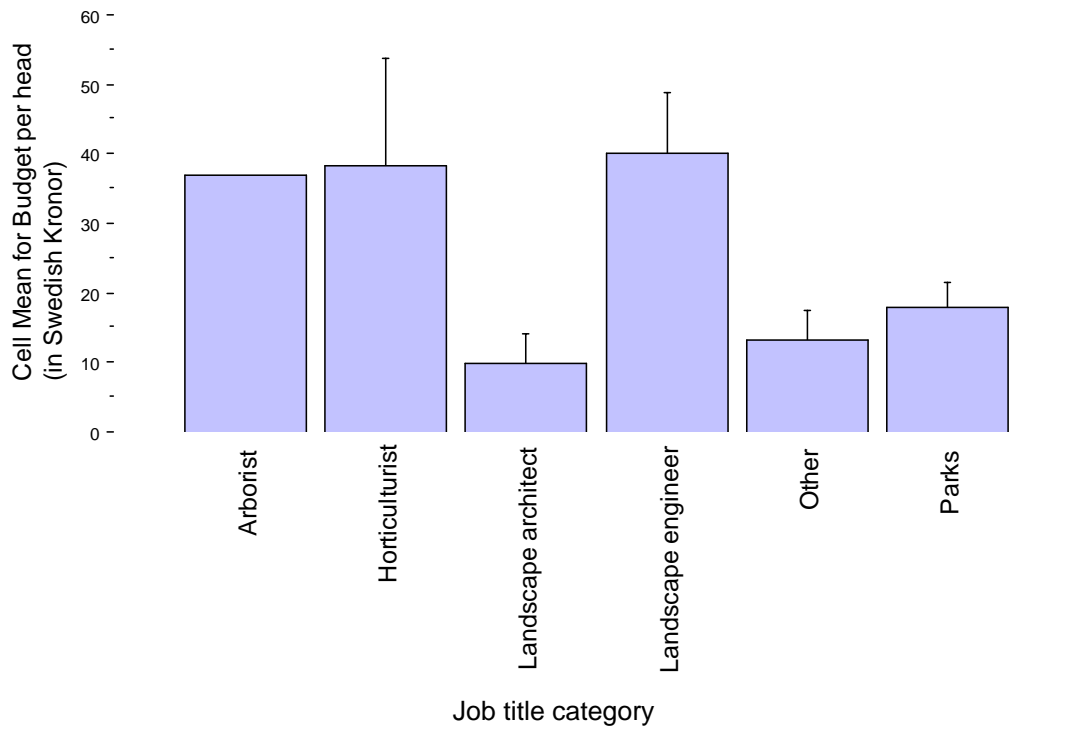
The least number of replies were to the section 'Inventories and Strategies', while most respondents had answered all questions in the sections 'Information about the person responsible for the urban tree resource' and 'Budgets and Resources' (table 3.4).

Table 3.9 - Number of replies stating the job title.

Job title category	Number of replies	Percentage of total replies to this question
Arborist	2	3.92
Horticulturist	14	27.45
Landscape Architect	6	11.76
Landscape Engineer	11	21.57
Parks management	17	33.33
Other	9	13.73
Total	51	

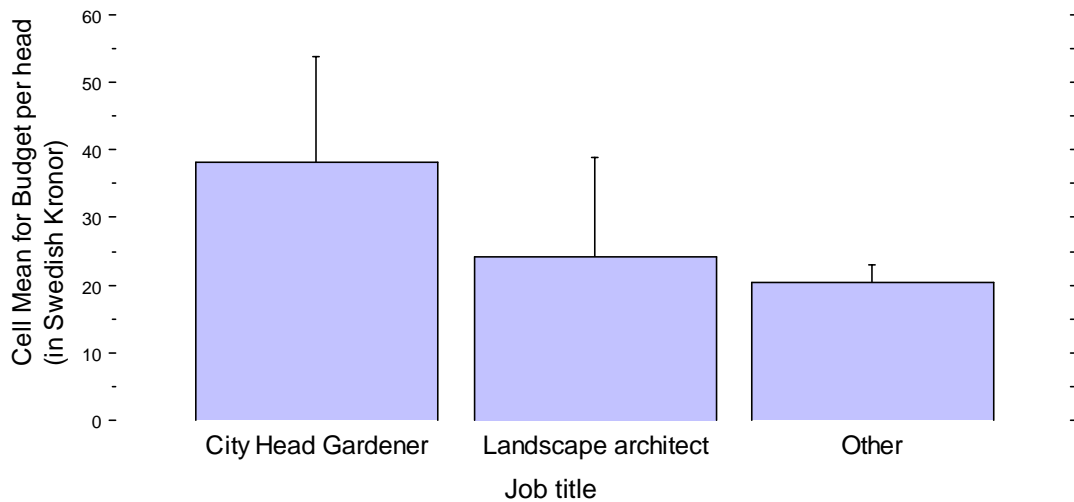
The most frequently stated job title of the respondents was within the job title category 'Parks management' (table 3.9). Only two local authorities stated 'Arborist' as the job title category.

Fig. 3.1 - Budget per head of population in relation to each job title category of the person responsible for the tree resource (\pm Standard Error).



Budget per head of population varied considerably in relation to job title category (fig. 3.1).

Fig. 3.2 - Budget per head of population in relation to two job titles of persons responsible for the tree resource (\pm Standard Error).



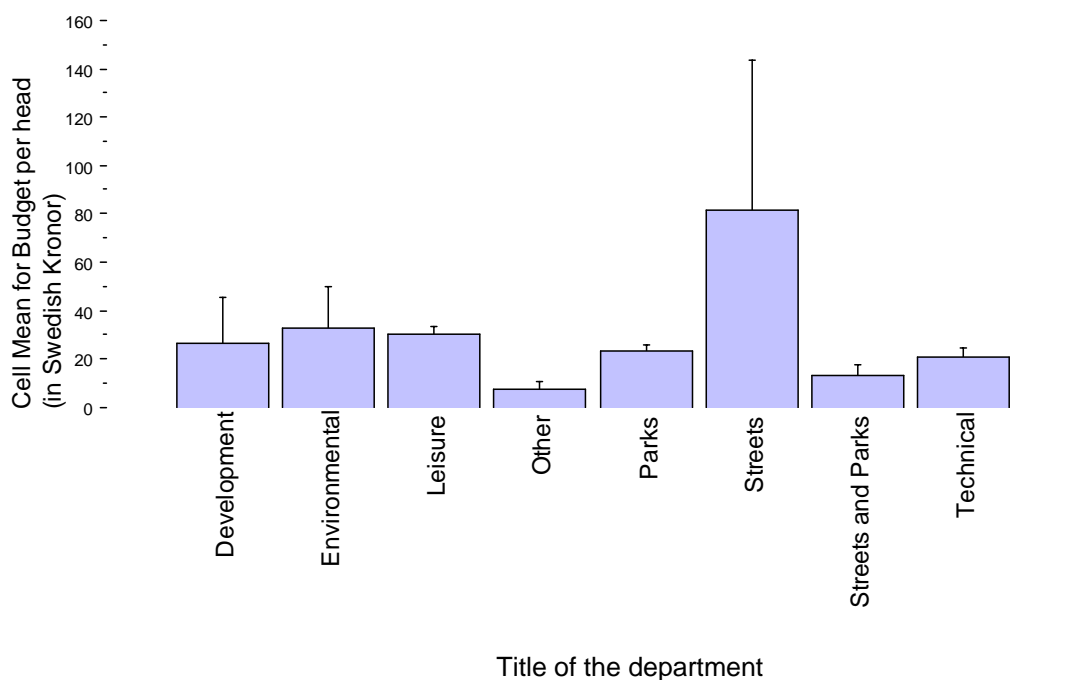
Budget per head of population varied considerably according to the job titles City Head Gardener, Landscape architect and other job titles indicated (fig. 3.2).

Table 3.10 - Number of replies per population class stating the title of the department.

Population Class	Parks	Streets and Parks	Development/ Environment	Leisure	Technical
Between 10 000 and 15 000	3	4	2	1	5
Between 15 001 and 20 000	-	1	2	1	2
Between 20 001 and 50 000	5	3	2	1	7
Between 50 001 and 100 000	4	3	3	-	1
Between 100 001 and 150 000	2	-	-	-	-
More than 150 000	1	2	-	-	-
Total	15	13	9	3	15

A majority of the respondents worked in either a Parks or a Technical Department (table 3.10).

Fig. 3.3 - Budget per head of population in relation to each department of the person responsible for the tree resource (± Standard Error).



Budget per head of population varied according to the department of the person responsible for the tree resource (fig. 3.3).

Table 3.11 - Number of replies per population class stating responsibility for street trees, park trees and urban woodlands,

Population Class	Only street trees	Only park trees	Street and park trees	Street/park trees plus woodlands
Between 10 000 and 15 000	-	3	15	12
Between 15 001 and 20 000	-	-	6	6
Between 20 001 and 50 000	-	2	10	13
Between 50 001 and 100 000	-	2	8	4
Between 100 001 and 150 000	-	-	2	1
More than 150 000	1	-	3	2
Total	1	7	44	38

Out of the 52 that responded to this question, 38 (73.08 percent) were responsible for street, park and woodland trees (table 3.11). 13.46 percent were only responsible for park trees and 1.92 percent (one respondent) was responsible for only the street trees in public domain.

Table 3.12 - Number of replies per population class stating the number of years spent in a tree-related managerial post within the local authority.

Population Class	Number of replies	Mean	SE of mean	Minimum	Maximum
Between 10 000 and 15 000	18	21.43	2.79	1	38
Between 15 001 and 20 000	6	15.62	2.31	6	23
Between 20 001 and 50 000	17	12.94	2.51	1	30
Between 50 001 and 100 000	10	9.30	2.86	1	30
Between 100 001 and 150 000	2	17	1	16	18
More than 150 000	3	20.34	2.60	16	25
Total	56	15.8	1.42	1	38

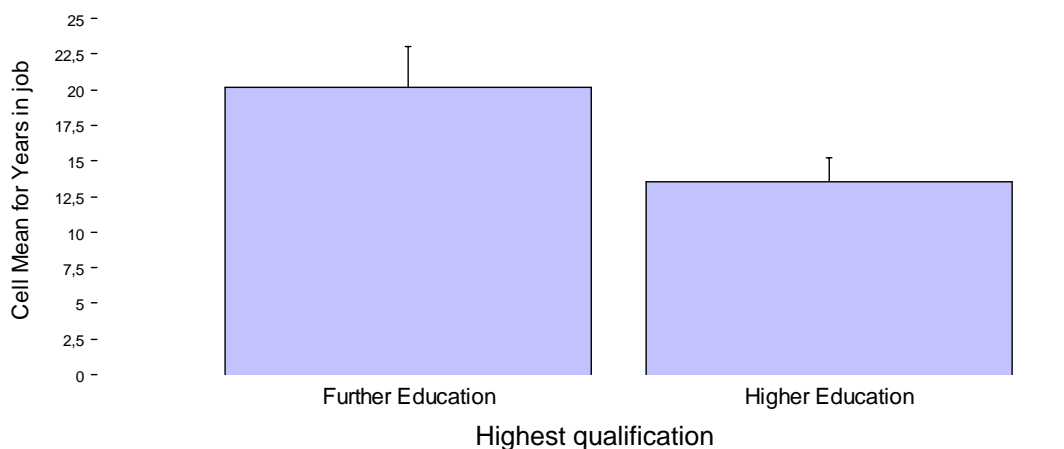
The mean number of years was 15.8, with a minimum of 1 and a maximum of 38 (Table 3.12). The highest mean number of years spent in a tree-related managerial job within the local authority was within the population class *Between 10 000 and 15 000*.

Table 3.13 - Number of replies per population class stating the highest academic qualification.

Population Class	Higher Education	Further Education	Secondary
Between 10 000 and 15 000	8	7	1
Between 15 001 and 20 000	3	2	-
Between 20 001 and 50 000	16	1	-
Between 50 001 and 100 000	9	2	-
Between 100 001 and 150 000	1	1	-
More than 150 000	2	1	-
Total	39	14	1
Percentage of total replies	72.20	25.90	1.90

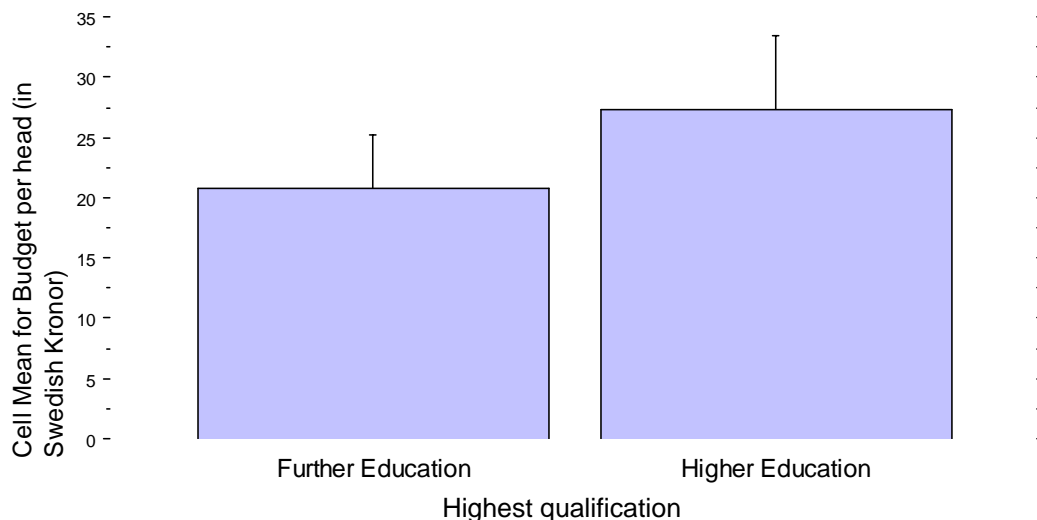
72.2 percent of the respondents had a university degree as their highest qualification (fig. 3.13).

Fig. 3.4 - Mean number of years spent in a tree-related managerial job in relation to each category of highest qualification of the person responsible for the tree resource (± Standard Error).



The persons indicating Further education as their highest academic qualification have on average spent more years in a tree-related managerial job within the local authority (fig. 3.4).

Fig. 3.5 - Budget per head of population in relation to each category of highest qualification of the person responsible for the tree resource (± Standard Error).



Budget per head of qualification varied according to the level of highest academic qualification (fig. 3.5).

Table 3.14 - Number of replies per population class stating background.

Population Class	Arboriculture	Forestry	Horticulture/ Parks/ Landscaping	Landscape Architecture	Other Non Green
Between 10 000 and 15 000	1	-	13	1	2
Between 15 001 and 20 000	-	-	6	-	-
Between 20 001 and 50 000	-	1	16	8	1
Between 50 001 and 100 000	3	-	8	4	-
Between 100 001 and 150 000	-	-	2	-	-
More than 150 000	2	-	1	-	-
Percentage of total replies	6	1	46	13	3
Percentage of total replies	8.70	1.50	66.70	18.80	4.30

66.70 percent of the respondents stated Horticulture, Parks or Landscaping as their background (table 3.14). Only 8.70 percent (twelve respondents) stated Arboriculture as their background.

Table 3.15 - Number of replies per population class stating having attended one or more arboricultural short-courses.

Population Class	Yes	No
Between 10 000 and 15 000	12	3
Between 15 001 and 20 000	2	2
Between 20 001 and 50 000	7	4
Between 50 001 and 100 000	5	1
Between 100 001 and 150 000	1	1
More than 150 000	3	-
Total	30	11
Percentage of total replies	73.17	26.83

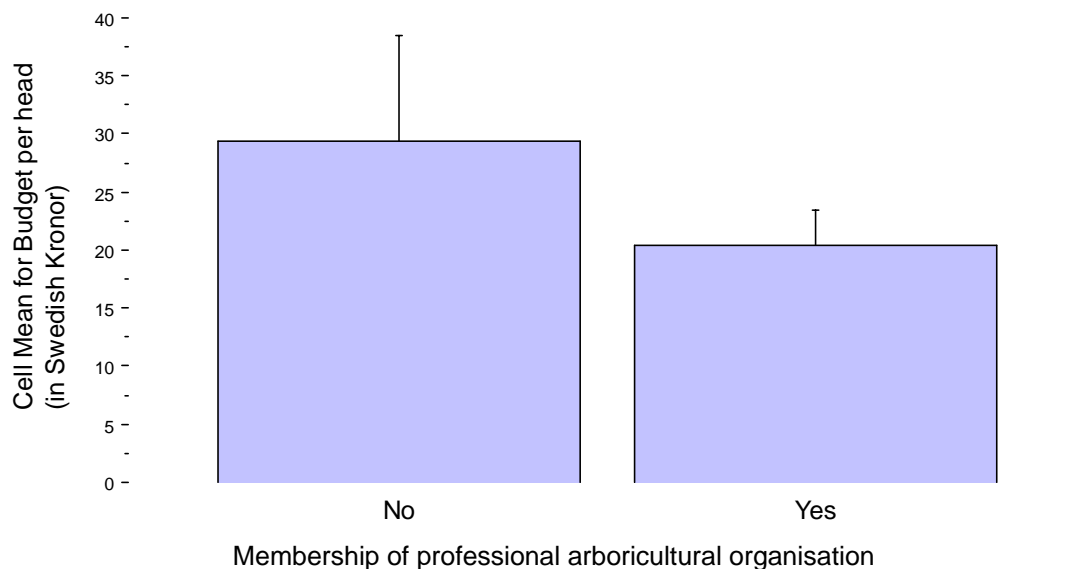
73.17 percent of the respondents had attended arboricultural short-courses (table 3.15).

Table 3.16 - Number of replies per population class stating memberships and subscriptions to professional organisations and journals.

Population Class	Arboricultural Membership	Other Green	Arboricultural Journals	Other Green Journals
Between 10 000 and 15 000	3	4	3	10
Between 15 001 and 20 000	0	4	0	4
Between 20 001 and 50 000	8	12	6	8
Between 50 001 and 100 000	5	2	4	7
Between 100 001 and 150 000	1	2	1	2
More than 150 000	3	1	3	2
Total	20	25	17	33
Total replies to this question	45	45	50	50
Percentage of total replies	44.44	55.56	34.00	66.00

44.44 percent of the respondents were members of a professional arboricultural organisation (table 3.16). 34 percent of the respondents read arboricultural journals and 66 percent read other journals related to green issues.

Fig. 3.6 - Budget per head of population in relation to the person responsible for the tree resource being or not being a member of a professional arboricultural organisation (\pm Standard Error).



Budget per head of population varied according to respondents being or not being a member of a professional arboricultural organisation (fig. 3.6).

Fig. 3.7 - Budget per head of population in relation to those persons responsible for the tree resource naming the professional arboricultural organisation they are members of (\pm Standard Error).



Budget per head of population varied within the group that indicated being a member of a professional arboricultural organisation (fig. 3.7).

Table 3.17 - Estimated percentage of working time spent by the respondent.

Population Class	Number of replies	Mean	SE of mean	Minimum	Maximum
Between 10 000 and 15 000	15	7.02	1.76	1	25
Between 15 001 and 20 000	5	8.23	1.93	5	15
Between 20 001 and 50 000	16	7.81	1.63	1	25
Between 50 001 and 100 000	9	26.74	7.82	5	75
Between 100 001 and 150 000	2	7.51	2.50	5	10
More than 150 000	3	45.01	18.93	10	75
Total	50	13.23	2.38	1	75

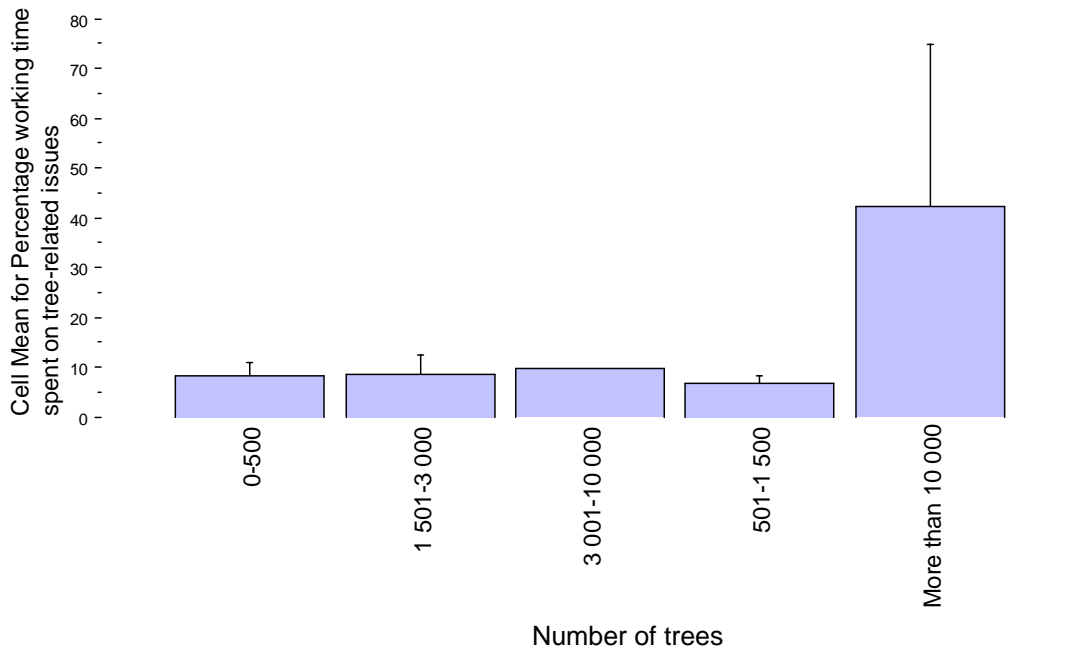
The mean of estimated working time spent on tree-related issues for all respondents was 13.23 percent; however, the mean of the local authorities in the population class *More than 150 000* was almost half of their total working time, and the maximum percentage in this class was 75 percent (table 3.17).

Table 3.18 – Test for independence between population size of local authorities and the percentage of working time spent on tree-related issues.

Population	Observed					Expected				
	0-5%	6-10%	11-20%	21-30%	More than 30%	0-5%	6-10%	11-20%	21-30%	More than 30%
10 000 – 50 000	22	6	4	3	0	17.14	7.14	5.00	2.86	2.86
More than 50 001	2	4	3	1	4	6.86	2.86	2.00	1.14	1.14
Total										49
x² P-value										0.003

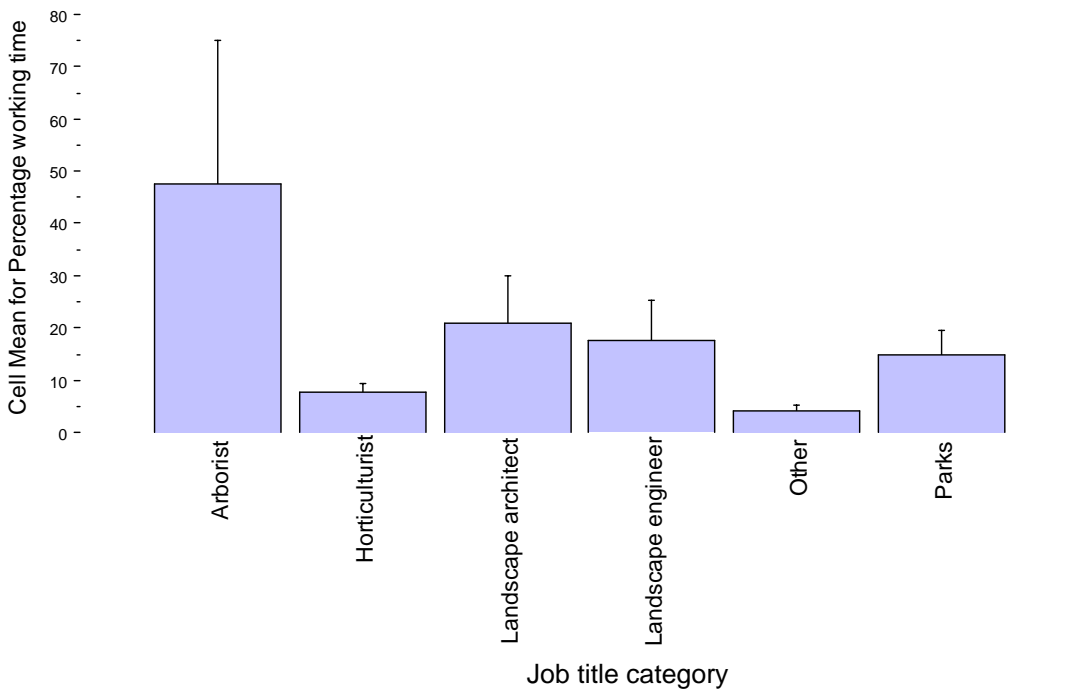
There was a significant association between population size and the percentage working time (table 3.18). The higher the population of the local authorities the more likely it is that the person responsible for the tree resource spends a larger percentage of his/her working time on tree-related issues.

Fig. 3.8 - Estimated percentage working time spent on tree-related issues in relation to the number of street trees under local authority ownership (\pm Standard Error).



Estimated percentage working time varied considerably according to the number of street trees of each local authority (fig. 3.8).

Fig. 3.9 - Estimated percentage working time spent on tree-related issues in relation to job title category of the person responsible for the tree resource (\pm Standard Error).



Estimated percentage working time varied considerably according to job title category (fig. 3.9).

3.4.3 Budgets

Table 3.19 - Total budget for tree-related work for 2004 per population class.

Population Class	Number of replies	Mean	SE of mean	Minimum	Maximum
Between 10 000 and 15 000	16	198 748	37 738	50 000	495 000
Between 15 001 and 20 000	6	1 159 167	466 959	500 000	3 480 000
Between 20 001 and 50 000	16	471 250	74 839	100 000	1 295 000
Between 50 001 and 100 000	7	2 159 286	747 211	300 000	5 415 000
Between 100 001 and 150 000	2	2 605 074	1 105 074	1 500 000	3 710 148
More than 150 000	2	7 575 000	1 575 000	6 000 000	9 150 000
Total	49	1 084 696	256 420	50 000	9 150 000

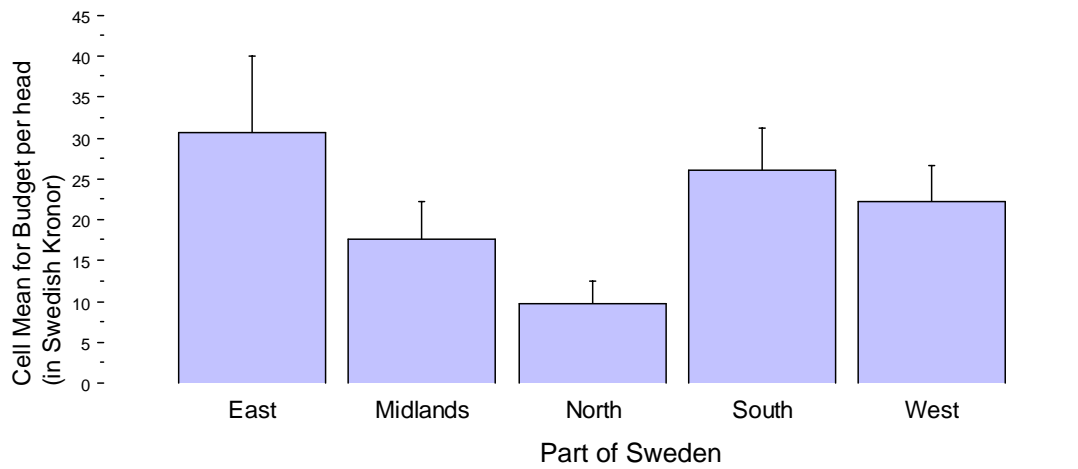
The total budget for tree-related work for 2004 increased on average as the urban population increases (table 3.19). The minimum budget was 50 000SEK and the maximum more than 9 000 000SEK.

Table 3.20 - Budget per head of population in 2004 per population class (Census figures from SCB, 2005).

Population Class	Number of replies	Mean	SE of mean	Minimum	Maximum
Between 10 000 and 15 000	16	15.15	2.91	3.33	35.18
Between 15 001 and 20 000	6	68.89	27.22	26.91	204.01
Between 20 001 and 50 000	16	16.91	2.38	4.02	32.67
Between 50 001 and 100 000	7	31.05	12.32	3.69	95.87
Between 100 001 and 150 000	2	22.27	7.64	14.63	29.91
More than 150 000	2	24.46	12.36	12.10	36.82
Total	49	25.25	4.46	3.33	204.01

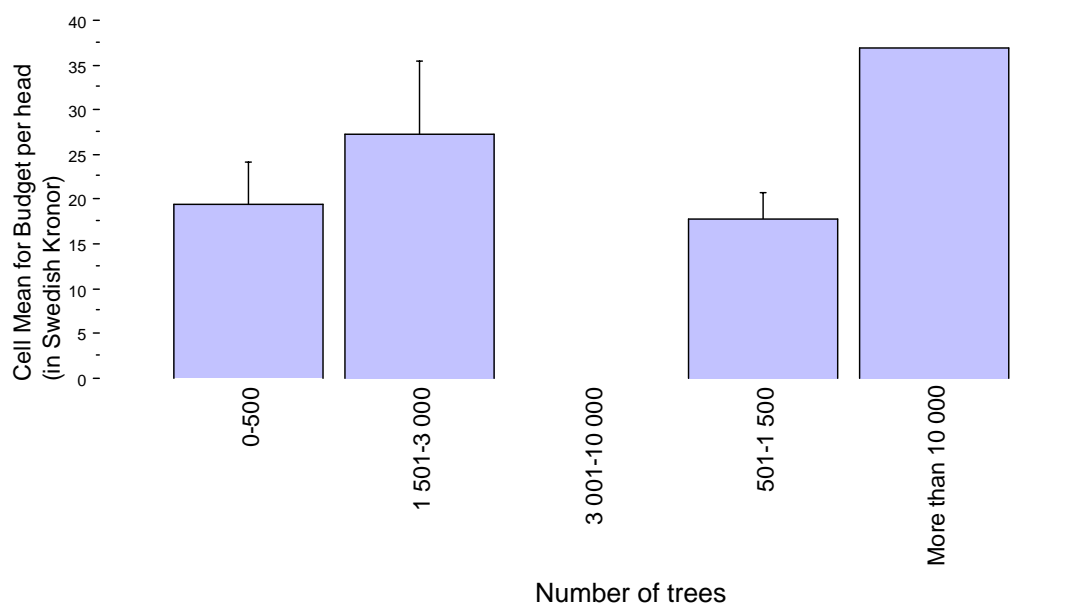
The local authorities within the population class *Between 15 001 and 20 000* showed a larger mean budget per head of population than local authorities in any other population class (table 3.20). The mean budget per head was 25.25SEK, with a minimum amount of 3.33SEK and a maximum amount of 204.01SEK.

Fig. 3.10 – Budget per head of population in 2004 in relation to the location of the local authority (\pm Standard Error).



Budget per head of population varied considerably between the locations of the local authorities (fig. 3.10).

Fig. 3.11 - Budget per head of population in relation to the number of street trees under local authority ownership (\pm Standard Error).



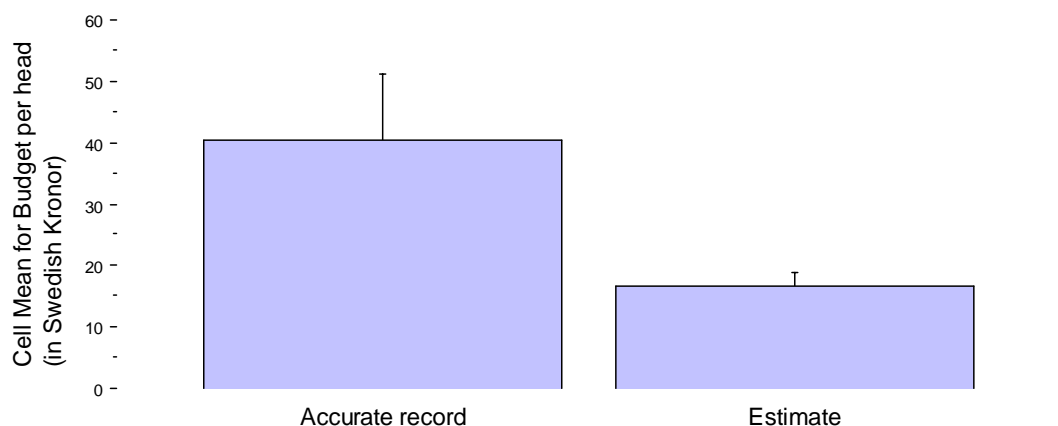
Budget per head of population varied according to the number of street trees (fig. 3.11).

Table 3.21 – Number of replies stating accurate record or estimates for the total budget for tree-related work for 2004 per population class.

Population Class	Accurate record	Estimate	Percentage of class indicating Accurate record
Between 10 000 and 15 000	3	13	18.75
Between 15 001 and 20 000	3	3	50.00
Between 20 001 and 50 000	6	9	40.00
Between 50 001 and 100 000	2	5	28.57
Between 100 001 and 150 000	2	-	100.00
More than 150 000	1	2	33.33
Total	17	31	35.42
Percentage of total replies	35.42	64.58	

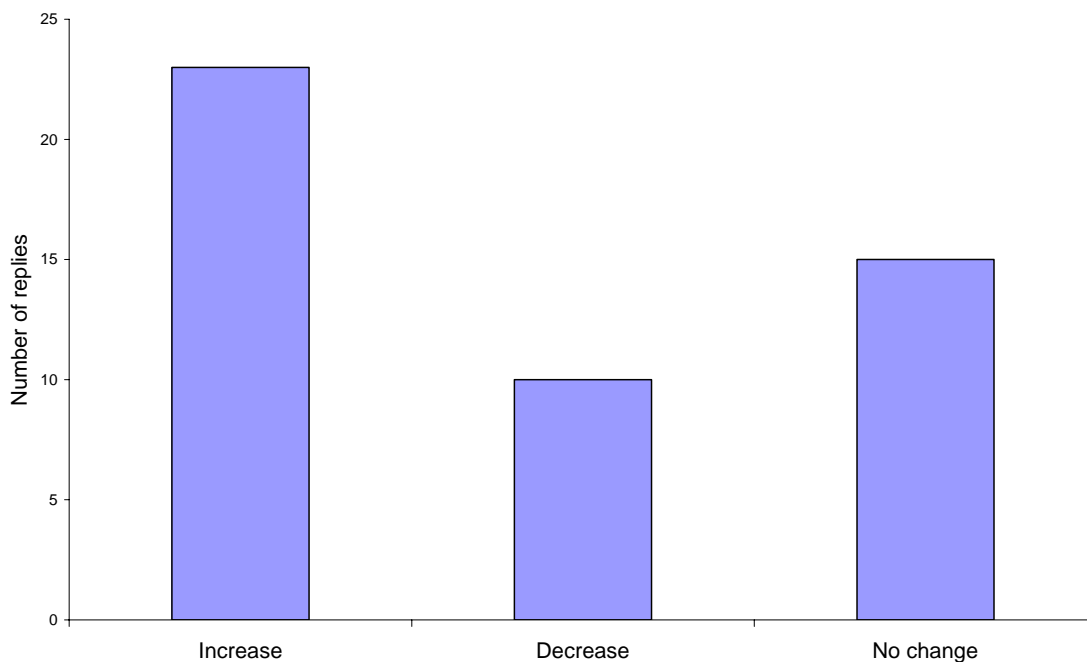
Only 35.42 percent of the respondents could give an accurate record of the total budget for tree-related work in 2004 (table 3.21).

Fig. 3.12 - Budget per head of population (in Swedish Kronor) in relation to indication of accurate record or estimate for the total annual tree budget of 2004 (± Standard Error).



Budget per head of population varied considerably according to whether or not an accurate account was given for the total annual tree budget in 2004 (fig. 3.12).

Fig. 3.13 - Number of replies stating increase, decrease or no change in total annual budget for tree-related work over the past five years (n=49).



A majority of the respondents stated an increase in the total annual budget over the past five years (fig. 3.13).

Table 3.22 – Test for independence between population size of local authorities and indication of accurate records or estimate for the total annual tree budget of 2004.

Population	Observed		Expected	
	Accurate	Estimate	Accurate	Estimate
10 000 – 50 000	12	25	13.88	23.13
More than 50 001	6	5	4.13	6.88
			Total	48
			x² P-value	0.18

There was no significant association between population size and having or not having accurate records for the tree budget (table 3.22)

Table 3.23 – Test for independence between budget per head of population and indication of accurate records or estimate for the total annual tree budget of 2004.

Budget per head	Observed		Expected	
	Accurate	Estimate	Accurate	Estimate
0-10	3	14	6.38	10.63
11-20	2	7	3.38	5.63
21-40	9	7	6.00	10.00
More than 40	4	2	2.25	3.75
			Total	48
			x² P-value	0.04

There was a significant association between budget per head of population and having or not having accurate records for the tree budget (table 3.23). The larger the budget per head of population, the more likely it is that local authorities will have accurate records.

Table 3.24 - Number of replies per population class stating the percentage increase of the total annual budget over the past five years.

Population Class	1-10%	11-20%	21-50%	51-80%	81-100%	100+ %
Between 10 000 and 15 000	3	-	1	-	-	-
Between 15 001 and 20 000	1	1	1	-	-	-
Between 20 001 and 50 000	3	-	-	-	2	-
Between 50 001 and 100 000	1	2	-	-	1	1
Between 100 001 and 150 000	0	2	-	-	-	-
More than 150 000	0	0	2	1	-	-
Total replies	8	5	4	1	3	1
Percentage of total replies	36.36	22.73	18.18	4.55	13.63	4.55

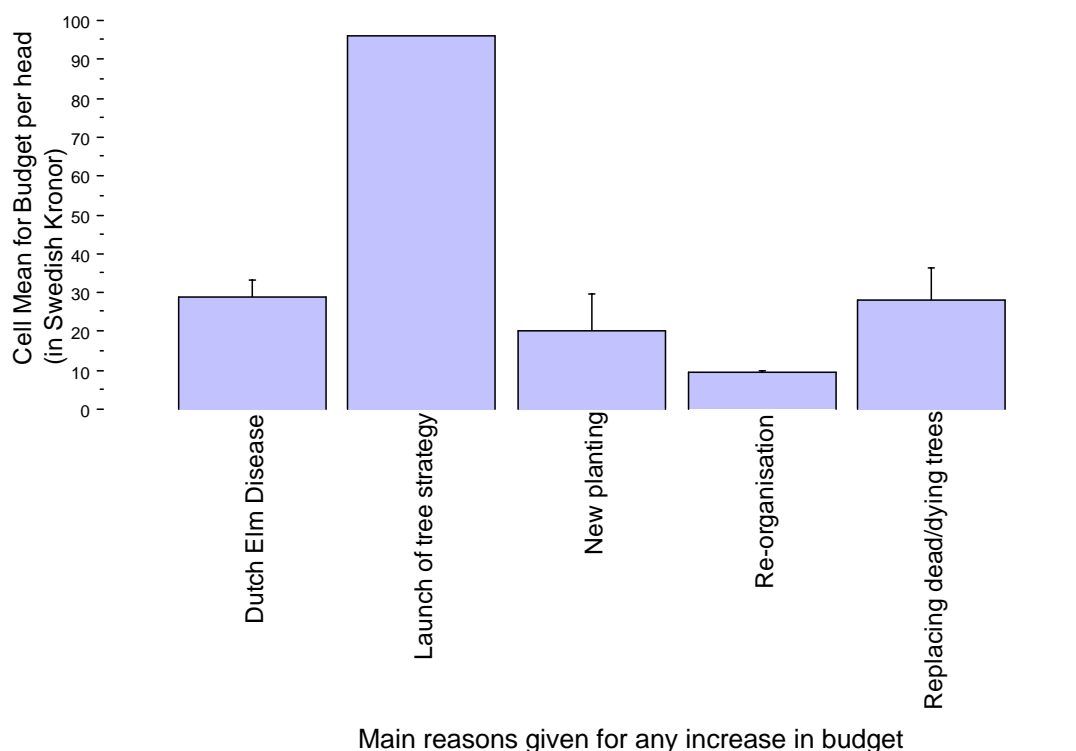
22.73 percent of the respondents stated an increase of 51 percent or more in the total annual budget over the past five years (table 3.24). One respondent stated an increase of more than hundred percent.

Table 3.25 - Main reason given for any increase in the total annual budget for all tree-related work over the past five years.

Reason for increase	Number of replies	Percentage of total replies to this question
New planting	6	31.58
Replacing dead/dying trees	6	31.58
Dutch Elm Disease	4	21.05
Re-organisation	2	10.53
Launch of tree strategy	1	5.26
Total	19	

‘New planting’ and ‘Replacing dead/dying trees’ were the main reasons for any increase in the total annual budget given by the most number of respondents (table 3.25). 5.26 percent stated the launch of a politically supported tree strategy as the main reason for any increase.

Fig. 3.14 - Budget per head of population in relation to the main reason given for any increase in the total annual budget for all tree-related work over the past five years (± Standard Error).



Budget per head of population varied according to the main reason given for any increase in the total annual budget over the past five years (fig. 3.14).

Table 3.26 - Main reason given for any decrease in the total annual budget for all tree-related work over the past five years.

Reason for decrease	Number of replies	Percentage of total replies to this question
General local authority savings	6	100
Total	6	

All of the respondents stating the main reason for the decrease in their total annual budget gave the same reason: general savings within the local authority (table 3.26).

Table 3.27 - Number of replies giving a brief explanation of how the size of the total annual tree work budget for 2004 was determined.

Explanation	Number of replies	Percentage of total replies to this question
Based on previous year's budget	10	26.32
No specific tree budget/part of department budget	25	65.79
Receives money when needed for reactive maintenance	3	7.89
Total	38	

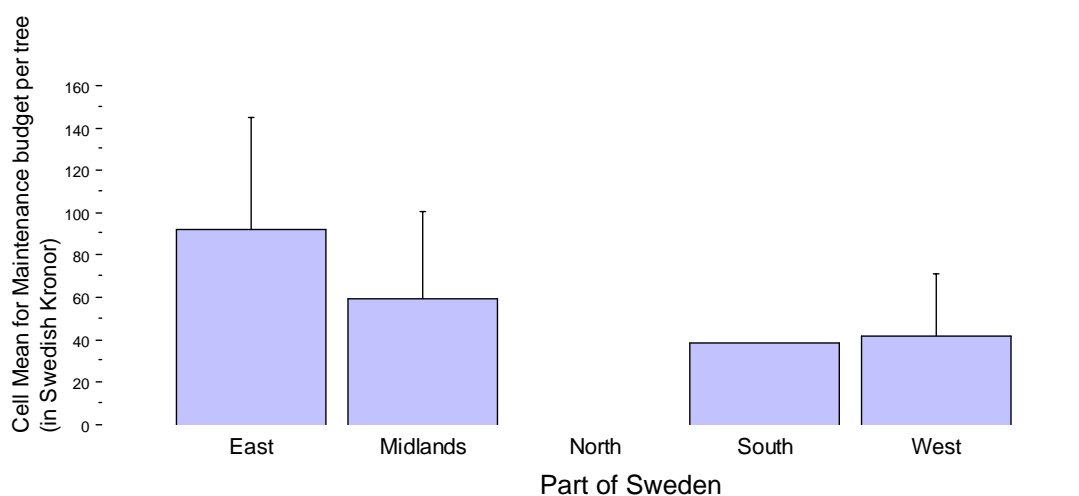
65.79 percent of the respondents stated that a specific tree budget does not exist, but that trees are allocated funding from a department budget that has to cover many other areas as well (table 3.27).

Table 3.28 - Maintenance amount per tree in 2004 per population class.

Population Class	Number of replies	Mean	SE of mean	Minimum	Maximum
Between 10 000 and 15 000	6	122.98	77.83	1.67	500.00
Between 15 001 and 20 000	2	9.40	8.10	1.30	17.50
Between 20 001 and 50 000	3	57.79	35.32	20.00	128.36
Between 50 001 and 100 000	2	10.64	6.03	4.60	16.67
Between 100 001 and 150 000	2	81.29	17.65	63.64	98.94
More than 150 000	1	38.58	n/a	38.58	38.58
Total	16	72.03	30.48	1.25	500.00

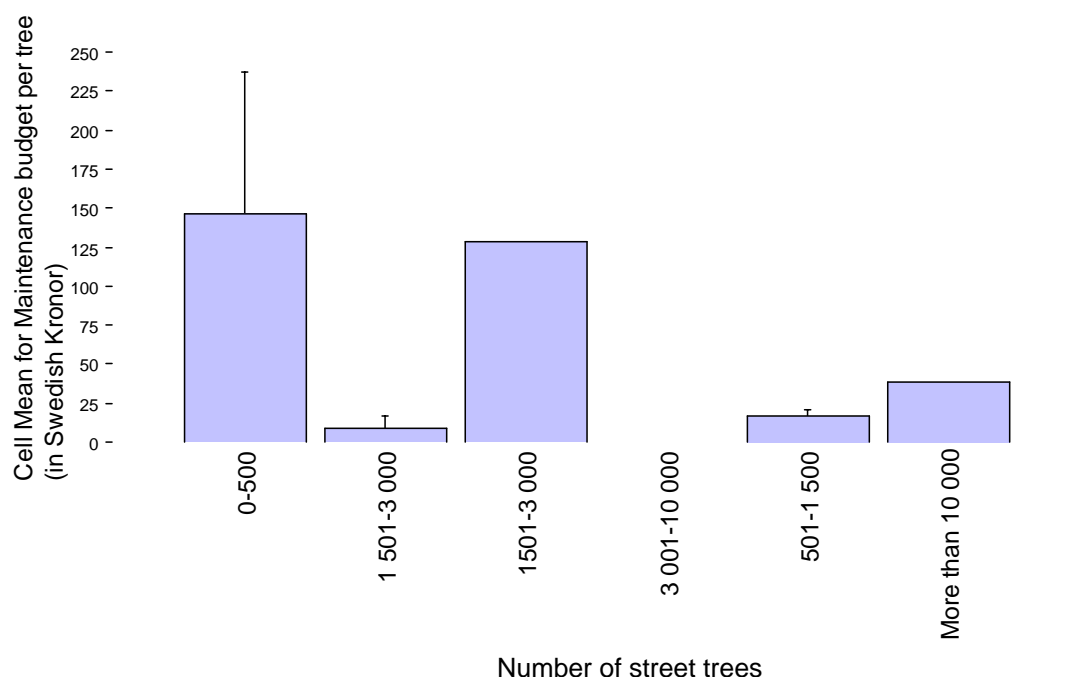
The mean amount spent per tree was 72.03SEK, with a minimum amount of 1.30 and a maximum amount of 500.00 (table 3.28).

Fig. 3.15 – Maintenance amount per tree in 2004 in relation to the location of the local authority (± Standard Error).



Amount spent per tree on maintenance varied according to the location of the local authority (fig. 3.15).

Fig. 3.16 - Mean maintenance budget per tree in 2004 in relation to the number of street trees under local authority ownership (\pm Standard Error).



The amount spent on maintenance per tree varied considerably according to the number of street trees in each local authority (fig. 3.16).

3.4.4 Planned Management

Table 3.29. Number of replies stating accurate record or estimate for the number of street trees, per population class

Population Class	Accurate record	Estimate	Percentage of class indicating Accurate record
Between 10 000 and 15 000	2	9	18.2
Between 15 001 and 20 000	2	1	66.7
Between 20 001 and 50 000	1	6	14.3
Between 50 001 and 100 000	1	1	50
Between 100 001 and 150 000	-	-	-
More than 150 000	1	1	50
Total	7	18	
Percentage of total replies	28.00	72.00	

Only 28 percent stated having accurate records of the number of street trees in the local authority (table 3.29).

Table 3.30 – Number of replies stating accurate record or estimate for the number of park trees, per population class.

Population Class	Accurate record	Estimate	Percentage of replies in class indicating Accurate record
Between 10 000 and 15 000	1	9	10.0
Between 15 001 and 20 000	2	1	66.7
Between 20 001 and 50 000	1	7	12.5
Between 50 001 and 100 000	0	2	0
Between 100 001 and 150 000	0	0	n/a
More than 150 000	1	1	50
Total	5	20	
Percentage of total replies	20.0	80.0	

Only 20 percent of the respondents stated having accurate records of the number of park trees (table 3.30).

Table 3.31 – Test for independence between population size of local authorities and stating accurate record or estimate for the number of street trees.

Population	Observed		Expected	
	Accurate	Estimate	Accurate	Estimate
10 000 – 50 000	5	16	5.88	15.12
More than 50 001	2	2	1.12	2.88
			Total	25
			x² P-value	1.14

There was no significant association between population and having or not having accurate records for the number of street trees (table 3.31).

Table 3.32 – Test for independence between population size of local authorities and stating accurate record or estimate for the number of park trees.

Population	Observed		Expected	
	Accurate	Estimate	Accurate	Estimate
10 000 – 50 000	4	17	4.20	16.80
More than 50 001	1	3	0.80	3.20
			Total	25
			x² P-value	0.79

There was no significant association between population and having or not having accurate records for the number of park trees (table 3.32).

Table 3.33 – Test for independence between having or not having a tree strategy document and stating accurate records for the number of street trees.

Tree strategy	Observed		Expected	
	Accurate	Estimate	Accurate	Estimate
Yes	3	7	2.61	7.39
No	3	10	3.39	9.61
			Total	23
			x² P-value	0.71

There was no significant association between having or not having a tree strategy document and stating accurate records for the number of street trees (table 3.33).

Table 3.34 – Test for independence between having or not having a tree strategy document and stating accurate records for the number of park trees.

Tree strategy	Observed		Expected	
	Accurate	Estimate	Accurate	Estimate
Yes	2	8	2.17	7.86
No	3	10	2.83	10.17
			Total	23
			x² P-value	0.86

There was no significant association between having or not having a tree strategy and stating accurate records for the number of park trees (table 3.34).

Table 3.35 - Percentage tree cover of urban area per population class.

Population Class	Number of replies	Mean	SE of mean	Minimum	Maximum
Between 10 000 and 15 000	6	10.00	3.42	0.001	20.00
Between 15 001 and 20 000	4	3.75	0.75	2.00	5.00
Between 20 001 and 50 000	6	12.67	5.71	0.50	34.50
Between 50 001 and 100 000	0	n/a	n/a	n/a	n/a
Between 100 001 and 150 000	1	3.00	n/a	3.00	3.00
More than 150 000	1	20.00	n/a	20.00	20.00
Total	18	9.67	2.34	0.001	34.50

The mean tree cover of the urban area was 9.67 percent (table 3.35). None of the replies indicated accurate records for this data.

Table 3.36 - Percentage of total tree covered urban area in local authority ownership per population class.

Population Class	Number Of replies	Mean	SE of mean	Minimum	Maximum
Between 10 000 and 15 000	5	54.00	14.35	10.00	90.00
Between 15 001 and 20 000	4	62.25	20.91	4.00	95.00
Between 20 001 and 50 000	6	42.00	16.31	2.00	100.00
Between 50 001 and 100 000	1	90.00	n/a	90.00	90.00
Between 100 001 and 150 000	0	n/a	n/a	n/a	n/a
More than 150 000	1	15.00	n/a	15.00	15.00
Total	17	51.53	8.82	2	100

The mean tree covered area under local authority ownership was 51.53 percent (table 3.36). None of the replies indicated accurate records for this data.

Table 3.37 - Number of local authorities with and without strategy and policy documents relevant to trees, per population class.

Population class	Tree strategy		Tree policy		Greenspace strategy		Urban woodland strategy		Other	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Between 10 000 and 15 000	4	14	5	13	5	12	7	10	2	8
Between 15 001 and 20 000	2	4	3	3	4	2	3	3	3	1
Between 20 001 and 50 000	8	7	3	12	7	6	6	7	2	4
Between 50 001 and 100 000	5	3	3	4	6	1	5	2	0	1
Between 100 001 and 150 000	0	2	1	1	2	0	2	0	1	1
More than 150 000	2	0	2	1	2	0	1	0	0	0
Total	21	30	18	34	28	22	26	21	6	15
Total of Yes and No replies	51		52		50		47		21	
Percentage of replies in group indicating Yes	41.17		34.62		56.00		55-32		28.57	

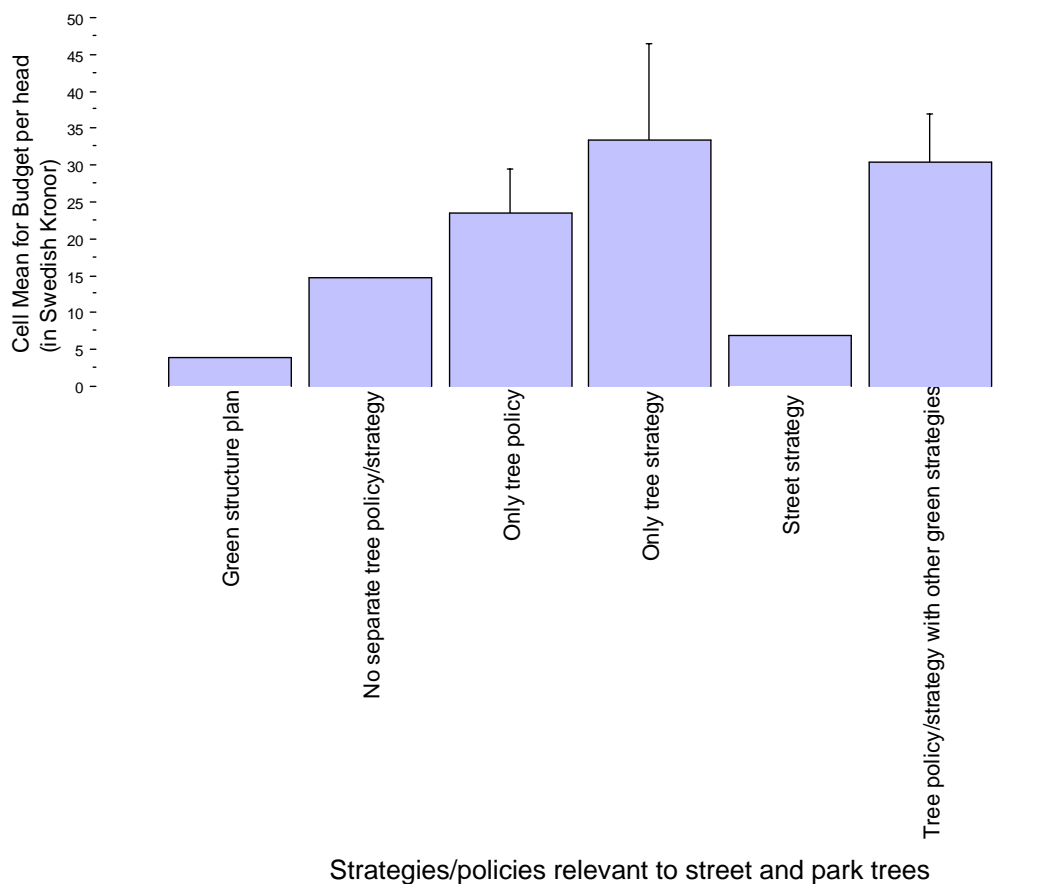
41.17 percent stated that they had a separate tree strategy document, and 34.62 percent indicated that they had a separate tree policy document (table 3.37). Out of the respondents that replied having a tree strategy and/or tree policy document, 6 replies indicated that there were also other strategy documents in use within the local authority that relate to street and park trees. 8 respondents had indicated which strategy document was regarded as the most important in relation to trees. 6 of these indicated the tree strategy to be the most important document, 1 indicated the avenue policy and 1 indicated the green space strategy.

Table 3.38 – Test for independence between population size of local authorities and tree strategy/policy documents.

Population	Observed		Expected	
	Yes	No	Yes	No
10 000 – 50 000	14	25	16.06	22.94
More than 50 001	7	5	4.94	7.06
			Total	51
			x² P-value	0.17

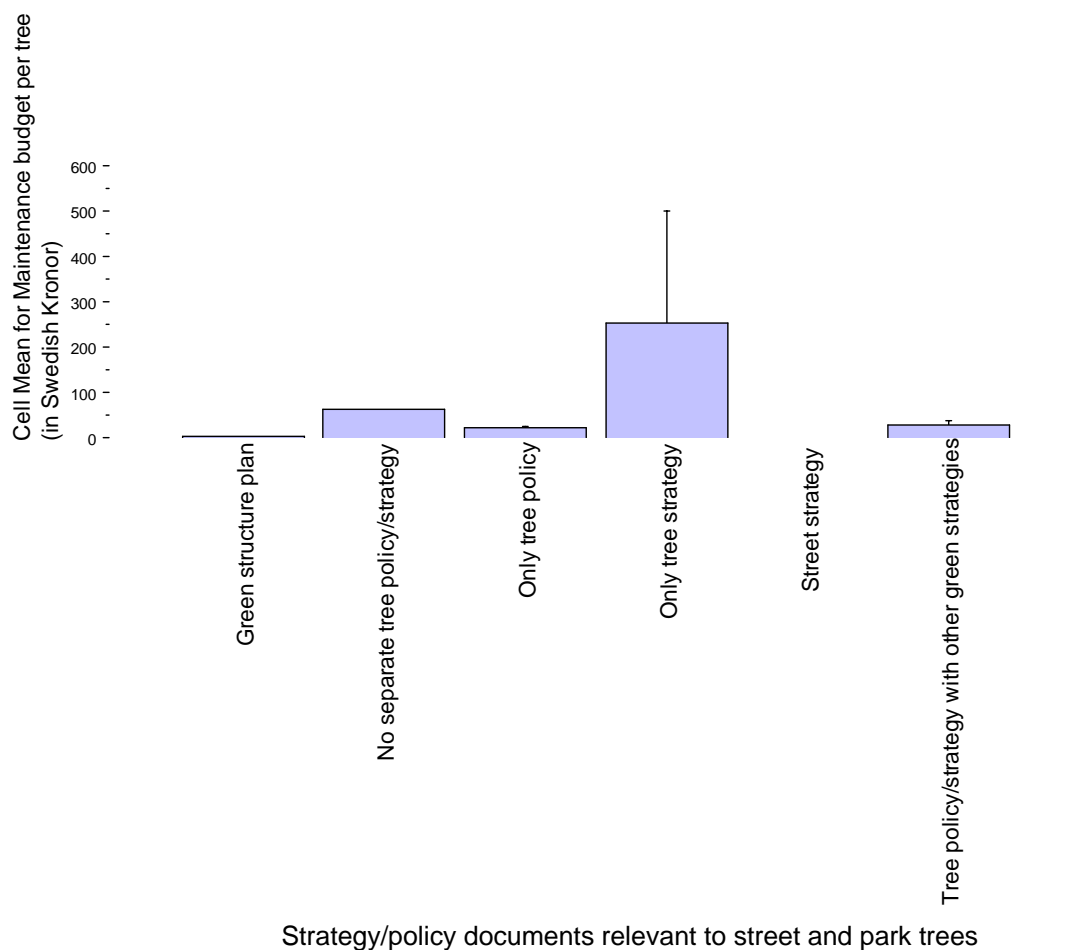
There was no significant association between population and having or not having a tree strategy/policy document (table 3.38).

Fig. 3.17 - Budget per head of population in relation to strategy/policy documents relevant to street and park trees (± Standard Error).



Budget per head of population varied considerably according to the various relevant strategy/policy documents (fig. 3.17).

Fig. 3.18 - Mean amount spent on maintenance per tree in 2004 in relation to strategy/policy documents relevant to street and park trees (± Standard Error).



Amount spent on maintenance per tree varied according to the various relevant strategy/policy documents (fig. 3.18).

Table 3.39 - Number of replies per population class stating launch year of strategy/ policy document relevant to street and park trees.

Population Class	Years pre- 1990	Year 1990-1995	Year 1996-2000	Year 2001-2005
Between 10 000 and 15 000	0	0	1	0
Between 15 001 and 20 000	0	0	0	2
Between 20 001 and 50 000	1	1	3	1
Between 50 001 and 100 000	0	2	0	2
Between 100 001 and 150 000	0	0	0	0
More than 150 000	0	2	0	0
Total	1	5	4	5

A majority of the local authorities launched their tree strategies from 1996 and onwards (table 3.39). The two local authorities with the largest population launched their tree strategies between 1990 and 1995.

Table 3.40 - Number of replies per population class stating job title categories of those involved in developing the most relevant strategy/policy relating to street and park trees.

Population Class	Landscape			
	Horticulturist	Architect	Arboriculturist	Ecologist
Between 10 000 and 15 000	2	1	-	-
Between 15 001 and 20 000	3	1	-	-
Between 20 001 and 50 000	3	5	-	-
Between 50 001 and 100 000	1	1	-	-
Between 100 001 and 150 000		1	-	-
More than 150 000	1	2	1	1
Total	10	11	1	1
Percentage of total replies	43.48	47.83	4.35	4.35

Only one respondent stated that an arboriculturist had been involved in developing the most relevant strategy/policy (table 3.40). A majority of the respondents stated that Horticulturists and Landscape architects had been involved.

3.4.5 Systematic Management

Table 3.41 - Estimated percentage maintenance carried out on a systematic, regular cycle; per population class.

Population Class	Number of replies	Mean	SE of mean	Min.	Max.	Mode
Between 10 000 and 15 000	8	58.84	9.72	10.0	90.0	80.0
Between 15 001 and 20 000	4	92.55	4.31	80.0	100.0	95.0
Between 20 001 and 50 000	12	46.73	9.11	0.0	80.0	80.0
Between 50 001 and 100 000	7	60.72	11.02	25.0	85.0	85.0
Between 100 001 and 150 000	2	72.54	22.55	50.0	95.0	n/a
More than 150 000	1	90.01	n/a	90.0	90.0	90.0
Total	34	60.62	5.23	0.00	100.00	80.00

The mean percentage of systematic maintenance was 60.62 for all the responding local authorities (table 3.41).

Table 3.42– Test for independence between population size of local authorities and percentage systematic maintenance.

Population	Observed		Expected	
	Less than 60%	More than 60%	Less than 60%	More than 60%
10 000 – 50 000	11	13	10.59	13.41
More than 50 001	4	6	4.41	5.59
			Total	34
			x² P-value	0.76

There was no significant association between population and local authorities carrying out more or less than sixty percent of their maintenance on a systematic cycle (table 3.42).

Table 3.43 – Test for independence between number of street trees and local authorities carrying out more or less than sixty percent on a systematic cycle.

Population	Observed					Expected					
	0-500	501-1500	1501-3000	3001-10000	More than 10000	0-500	501-1500	1501-3000	3001-10000	More than 10000	
Less than 60%	2	2	2	0	0	2.00	1.60	1.60	0.40	0.40	
More than 60%	3	2	2	1	1	3.00	2.40	2.40	0.60	0.60	
										Total	15
										x² P-value	0.79

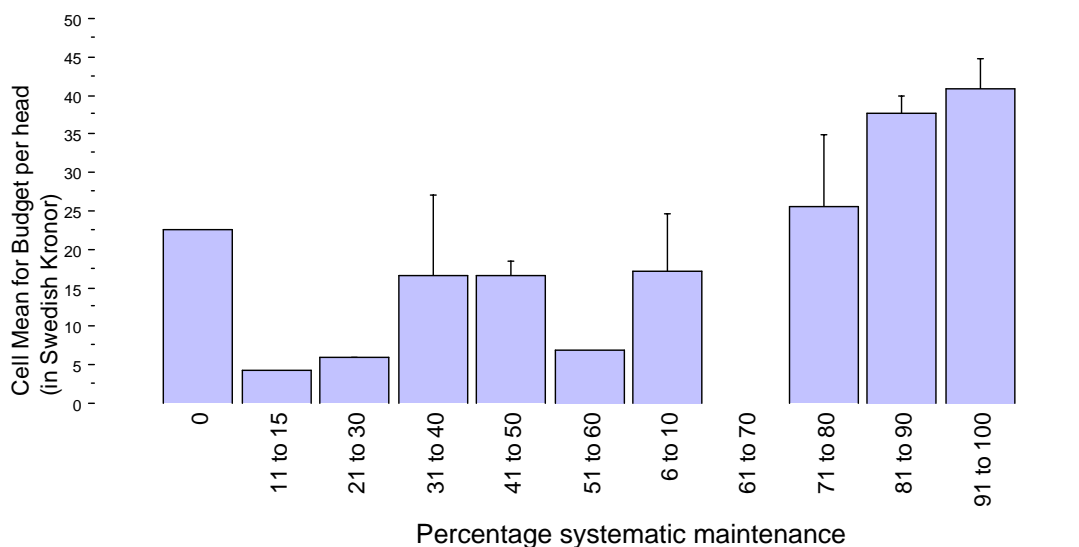
There was no significant association between number of street trees and local authorities carrying out more or less than sixty percent on a systematic cycle (table 3.43).

Table 3.44 – Test for independence between number of park trees and local authorities carrying out more or less than sixty percent on a systematic cycle.

Population	Observed			Expected		
	0-3 000	3 001-10 000	More than 10 000	0-3 000	3 001-10 000	More than 10 000
Less than 60%	5	1	0	4.29	0.86	0.86
More than 60%	5	1	2	5.71	1.14	1.14
Total						14
x² P-value						0.42

There was no significant association between number of park trees and local authorities carrying out more or less than sixty percent on a systematic cycle (table 3.44).

Fig. 3.19 - Budget per head of population in 2004 in relation to the percentage of tree maintenance carried out on a systematic, regular cycle (± Standard Error).



Budget per head of population varied according to percentage systematic maintenance (fig. 3.19).

Table 3.45 - Number of replies per population class stating systematic inspections of street trees.

Population Class	Yes	No	Percentage of replies in class indicating Yes
Between 10 000 and 15 000	6	6	50.00
Between 15 001 and 20 000	6	-	100.00
Between 20 001 and 50 000	8	6	57.14
Between 50 001 and 100 000	7	2	77.78
Between 100 001 and 150 000	-	1	0
More than 150 000	-	3	0
Total	27	18	
Percentage of total replies	60.0	40.0	

60 percent of the local authorities inspected their street trees on a regular basis (table 3.45). None of the local authorities with more than 100 000 residents inspected their street trees regularly.

Table 3.46 - Number of replies per population class stating systematic inspections of park trees.

Population Class	Yes	No	Percentage of replies in class indicating Yes
Between 10 000 and 15 000	4	8	33.33
Between 15 001 and 20 000	5	-	100.00
Between 20 001 and 50 000	9	5	64.29
Between 50 001 and 100 000	3	5	37.50
Between 100 001 and 150 000	-	1	0
More than 150 000	-	3	0
Total	21	23	
Percentage of total replies	47.73	52.27	

47.73 percent of the local authorities inspected their park trees on a regular basis (table 3.46). None of the local authorities with more than 100 000 residents inspected their park trees regularly.

Table 3.47 – Test for independence between population size of local authorities and systematic inspections of street trees.

Population	Observed		Expected	
	Yes	No	Yes	No
10 000 – 50 000	20	12	19.20	12.80
More than 50 001	7	6	7.80	5.20
			Total	45
			x² P-value	0.59

There was no significant association between population and carrying out or not carrying out systematic inspections of street trees (table 3.47).

Table 3.48 – Test for independence between population size of local authorities and systematic inspections of park trees.

Population	Observed		Expected	
	Yes	No	Yes	No
10 000 – 50 000	18	14	15.27	16.73
More than 50 001	3	9	5.73	6.27
			Total	44
			x² P-value	0.65

There was no significant association between population and carrying out or not carrying out systematic inspections of park trees (table 3.48).

Table 3.49 – Test for independence between number of street trees and local authorities inspecting their street trees regularly.

Regular inspections	Observed					Expected				
	0-500	501-1500	1501-3000	3001-10000	More than 10000	0-500	501-1500	1501-3000	3001-10000	More than 10000
No	4	2	2	0	2	4.55	2.27	1.82	0.46	0.91
Yes	6	3	2	1	0	5.46	2.73	2.18	0.56	1.10
Total										22
x² P-value										0.49

There was no significant association between number of street trees and local authorities inspecting their street trees regularly (table 3.49).

Table 3.50 – Test for independence between number of park trees and local authorities inspecting their park trees on a regular cycle.

Regular inspections	Observed			Expected		
	0-3 000	3 001-10 000	More than 10 000	0-3 000	3 001-10 000	More than 10 000
No	5	2	2	6.14	1.64	1.23
Yes	10	2	1	8.86	2.36	1.77
Total						22
x² P-value						0.52

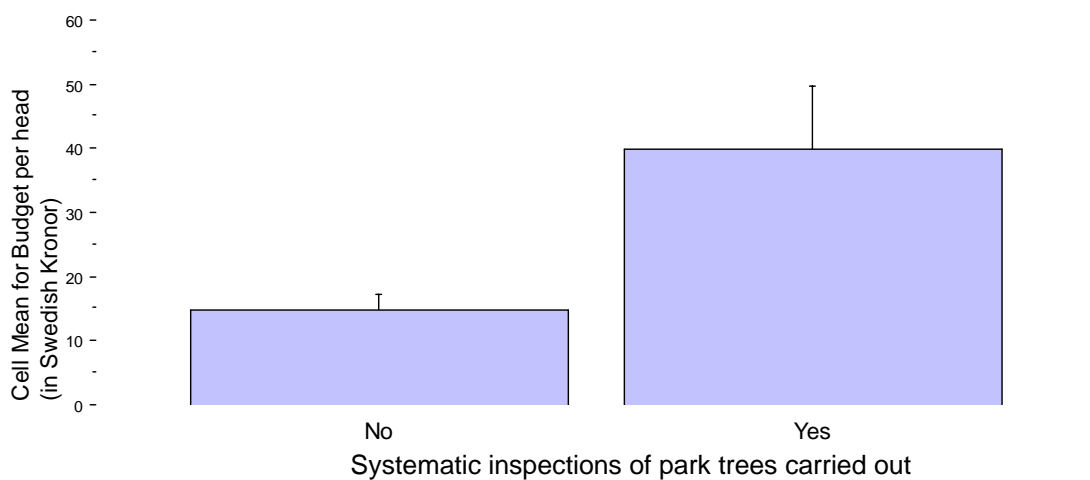
There was no significant association between number of park trees and local authorities inspecting their park trees regularly (table 3.50).

Fig. 3.20 - Budget per head of population in 2004 in relation to systematic inspections of street trees (\pm Standard Error).



Budget per head of population varied considerably according to systematic inspections being carried out or not (fig. 3.20).

Fig. 3.21. Budget per head of population in 2004 in relation to systematic inspections of park trees (\pm Standard Error).



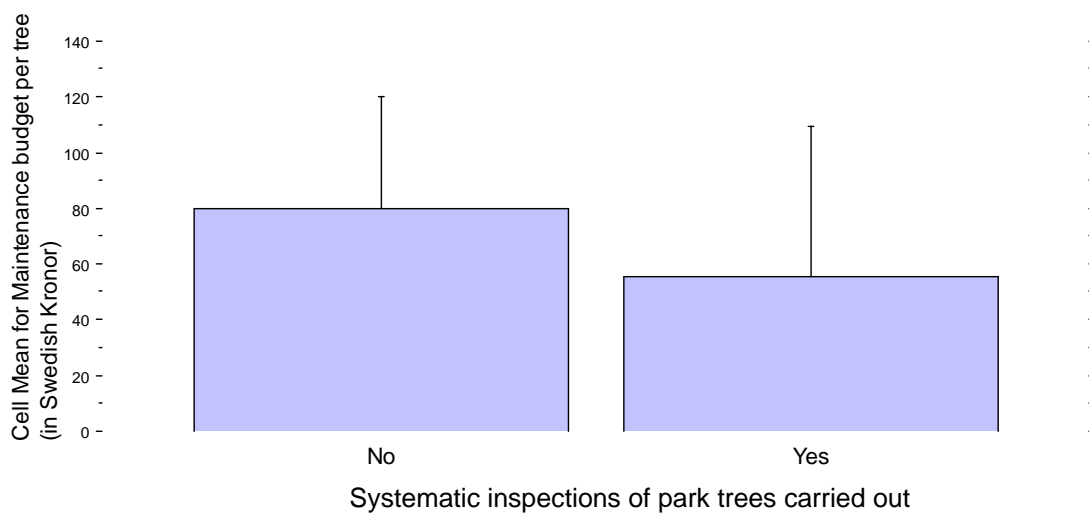
Budget per head of population varied significantly according to systematic inspections being carried out or not (fig. 3.21)

Fig. 3.22 - Amount spent on maintenance per tree in 2004 in relation to systematic inspections of street trees (\pm Standard Error).



Amount spent on maintenance per tree varied considerably according to systematic inspections being carried out or not (fig. 3.22).

Fig. 3.23 - Amount spent on maintenance per tree in 2004 in relation to systematic inspections of park trees (\pm Standard Error).



Amount spent on maintenance per tree varied according to systematic inspections being carried out or not (fig. 3.23).

Table 3.51 - Frequency of inspections (in months) of individual street trees, per population class.

Population Class	Number of replies	Mean	SE of mean	Min.	Max.	Mode
Between 10 000 and 15 000	6	10.67	3.33	2	24	12
Between 15 001 and 20 000	6	18.17	8.56	1	60	12
Between 20 001 and 50 000	8	11.42	1.76	0.5	12	12
Between 50 001 and 100 000	4	27.00	9.00	12	48	12
Between 100 001 and 150 000	-					
More than 150 000	-					
Total	24	14.56	2.93	0.50	60.00	12

Mean number of months between inspections of street trees was 14.56 for all local authorities that stated the frequency (table 3.51).

Table 3.52 - Frequency of inspections (in months) of individual park trees, per population class.

Population Class	Number of replies	Mean	SE of mean	Min.	Max.	Mode
Between 10 000 and 15 000	4	10	5.23	2	24	2
Between 15 001 and 20 000	5	20.60	10.23	1	60	12
Between 20 001 and 50 000	8	9.75	1.49	2	12	12
Between 50 001 and 100 000	2	30	18.00	12	48	n/a
Between 100 001 and 150 000	0					
More than 150 000	0					
Total	19	14.78	3.47	1	60	12

Mean number of months between inspections of park trees was 14.78 for all local authorities stating frequency (table 3.52).

Table 3.53 - Number of replies per population class stating using or not using a computerised management system for street and park trees.

Population Class	Yes	No	Percentage of replies in class indicating Yes
Between 10 000 and 15 000	4	14	22.22
Between 15 001 and 20 000	3	3	50.00
Between 20 001 and 50 000	5	11	31.13
Between 50 001 and 100 000	8	1	88.89
Between 100 001 and 150 000	2	-	100.00
More than 150 000	2	1	66.67
Total	24	30	
Percentage of total replies	44.44	55.56	

44.44 percent of the local authorities used a computerised management system (table 3.53). Out of the replies indicating Yes, 23 named the software in use. The software most often used was Tekis (8 replies), followed by Geosecma (6) and Mapinfo (3).

Table 3.54 – Test for independence between population size of local authorities and computerised management system.

Population	Observed		Expected	
	Yes	No	Yes	No
10 000 – 50 000	12	28	17.78	22.22
More than 50 001	12	2	6.22	7.78
			Total	54
			x² P-value	0.003

There was a significant association between population and using or not using a computerised management system (table 3.54). The larger the population the more likely it is that the local authority is using a computerised management system for street and park trees.

Table 3.55 – Test for independence between number of street trees and local authorities using a computerised management system for trees.

Computer system	Observed					Expected				
	0-500	501-1500	1501-3000	3001-10000	More than 10000	0-500	501-1500	1501-3000	3001-10000	More than 10000
No	8	4	2	0	1	7.50	3.13	2.50	0.63	1.25
Yes	4	1	2	1	1	4.50	1.88	1.50	0.38	0.75
Total										24
x² P-value										0.59

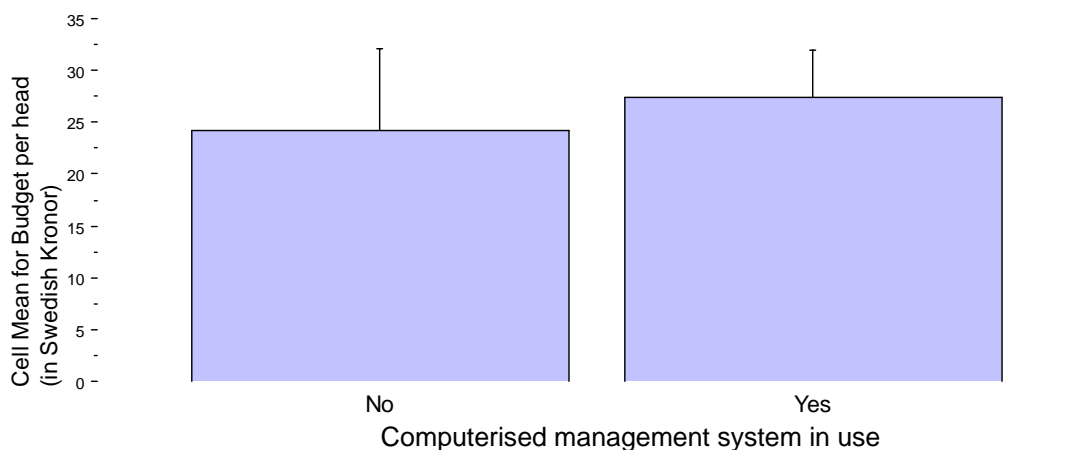
There was no significant association between number of street trees and local authorities using a computerised management system (table 3.55).

Table 3.56 – Test for independence between number of park trees and local authorities using a computerised management system for their trees.

Computer system	Observed			Expected		
	0-3 000	3 001-10 000	More than 10 000	0-3 000	3 001-10 000	More than 10 000
No	10	2	2	8.96	3.36	1.68
Yes	6	4	1	7.04	2.64	1.32
Total						25
x² P-value						0.44

There was no significant association between number of park trees and local authorities using a computerised management system (table 3.56).

Fig. 3.24 - Budget per head of population in 2004 in relation to local authorities using or not using a computerised management system for street and park trees (\pm Standard Error).



Budget per head of population varied according to local authorities using or not using a computerised management system for trees (fig. 3.24).

Table 3.57 - Current percentage mortality within the establishment phase for all newly planted street and park trees, per population class.

Population Class	Number of replies	Mean	SE of mean	Min.	Max.	Mode
Between 10 000 and 15 000	15	4.43	0.72	0.0	10.0	5.0
Between 15 001 and 20 000	6	6.75	1.60	0.5	10.0	10.0
Between 20 001 and 50 000	15	8.73	1.54	1.0	25.0	10.0
Between 50 001 and 100 000	7	6.29	1.41	1.0	10.0	10.0
Between 100 001 and 150 000	2	3.75	3.75	0.0	7.5	n/a
More than 150 000	3	3.33	1.67	0.0	5.0	5.0
Total	48	6.24	0.66	0.0	25.0	5

The most frequently stated mortality rate was 5 percent, but the mean percentage for all respondents was 6.24 (table 3.57).

Table 3.58 - Estimated percentage of tree-related work performed by in-house staff, per population class.

Population Class	Mean	SE of mean	Minimum	Maximum	Mode
Between 10 000 and 15 000	79.8	7.76	1	100	100
Between 15 001 and 20 000	90.8	6.38	60	100	100
Between 20 001 and 50 000	85.0	5.83	10	100	100
Between 50 001 and 100 000	78.8	11.52	10	100	100
Between 100 001 and 150 000	85.0	15.00	70	100	n/a
More than 150 000	35.0	15.00	5	50	50
Total	80.23	3.97	1	100	100

A majority of the local authorities with a population between 10 000 and 100 000 indicated that 100 percent of all tree-related work was performed by in-house staff (table 3.58). A majority of the local authorities in the population class *More than 150 000* indicated that only 50 percent was performed by in-house staff.

Table 3.59 - Number of hours charged by private consultant for having performed tree-related consultancy work in 2004, per population class.

Population Class	Number of replies	Mean	SE of mean	Minimum	Maximum
Between 10 000 and 15 000	1	560	n/a	560	560
Between 15 001 and 20 000	1	20	n/a	20	20
Between 20 001 and 50 000	2	70	15	40	100
Between 50 001 and 100 000	1	40	n/a	40	40
Between 100 001 and 150 000	2	50	10	40	60
More than 150 000	2	525	275	250	800
Total	9	211.20	93.51	20	800

The minimum number of hours was 20 and the maximum 800, with a mean number of 211 hours charged (table 3.59).

Table 3.60 – Test for independence between the percentage of work being undertaken by in-house staff and the number of hours charged by private consultants.

Work	Observed		Expected	
	Less than 100 hours	More than 100 hours	Less than 100 hours	More than 100 hours
Less than 50%	0	3	1.88	1.13
More than 50%	5	0	3.13	1.88
			Total	8
			x² P-value	0.047

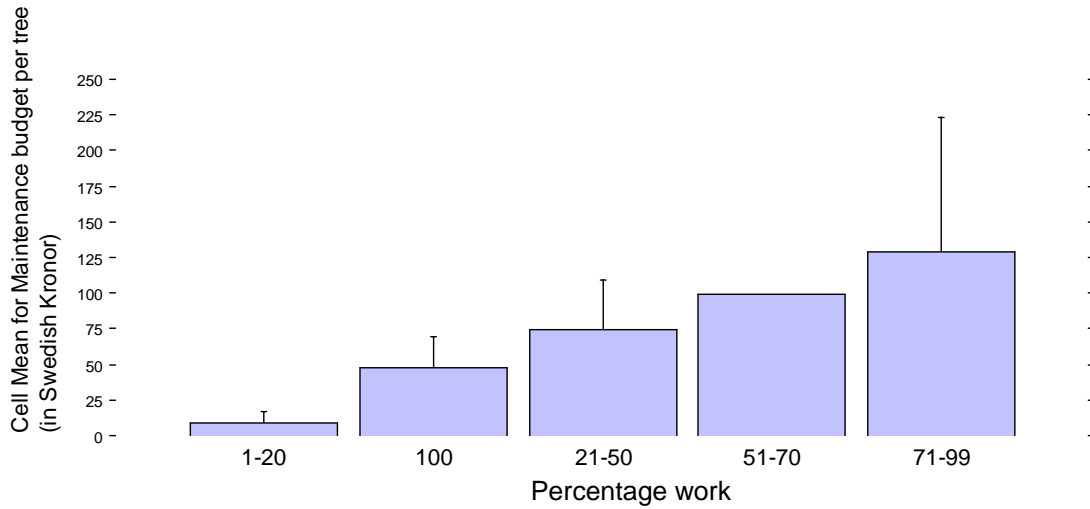
There was a significant association between the percentage of work being undertaken by in-house staff and the number of hours charged by private consultants (table 3.60). The larger the amount of work carried out by in-house staff, the less likely it is that arboricultural consultants perform tree-related consultancy work.

Table 3.61 – Test for independence between population size of local authorities and percentage tree-related work performed by in-house staff.

Population	Observed					Expected					
	1-20%	21-50%	51-70%	71-99%	100%	1-20%	21-50%	51-70%	71-99%	100%	
10 000 – 50 000	3	2	1	17	17	3.77	3.77	1.51	15.10	15.85	
More than 50 001	2	3	1	3	4	1.23	1.23	0.49	4.91	5.15	
										Total	53
										x² P-value	0.19

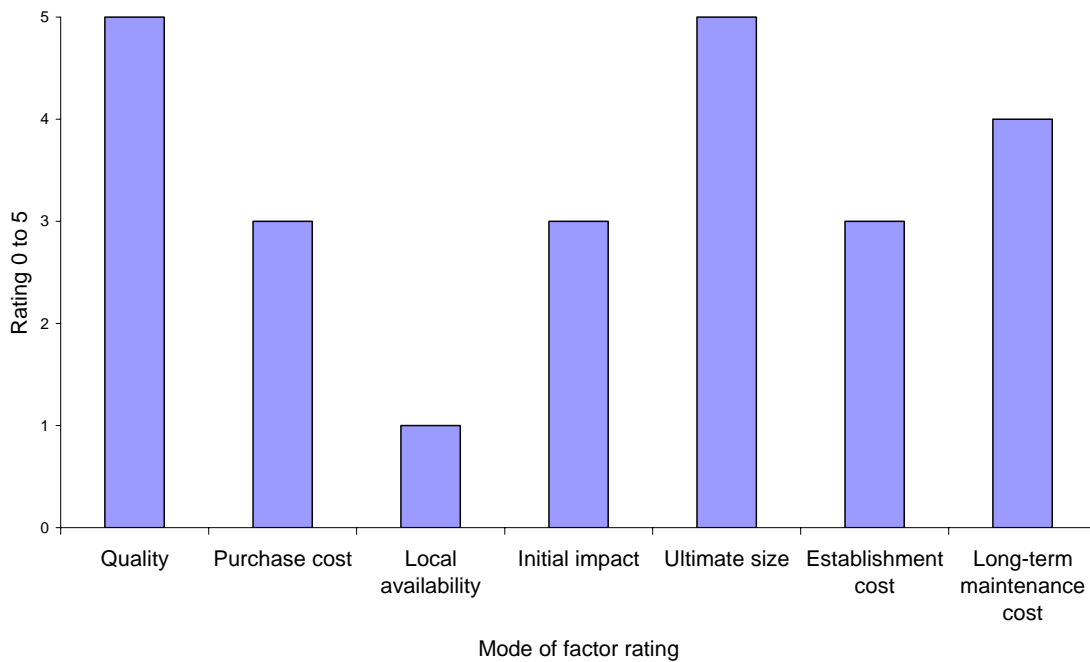
There was no significant association between population and the percentage tree-related work performed by in-house staff (table 3.61).

Fig. 3.25 - Amount spent on maintenance per tree in 2004 in relation to the percentage of tree-related work carried out by in-house staff (± Standard Error).



The amount spent on maintenance per tree varied considerably according to the percentage of work being carried out by in-house staff (fig. 3.25).

Fig. 3.26 - Mode of priority ratings of factors that may be considered when selecting trees for a planting scheme (0= not a priority; 1= very low priority and; 5= very high priority).



‘Quality’ and ‘Ultimate Size’ were the highest rated factors, followed by ‘Long-term maintenance cost’ (fig. 3.26).

3.4.6 Integrated Management

Table 3.62 - Number of replies per population class stating co-operation with the public in tree-related issues.

Population Class	Yes	No	Percentage of replies in class indicating Yes
Between 10 000 and 15 000	4	12	25.00
Between 15 001 and 20 000	3	3	50.00
Between 20 001 and 50 000	8	7	53.33
Between 50 001 and 100 000	6	2	75.00
Between 100 001 and 150 000	-	2	-
More than 150 000	2	1	66.67
Total	23	27	
Percentage of total replies	46.00	54.00	

46 percent of the respondents stated involving the public (table 3.62).

Table 3.63 – Test for independence between population size of local authorities and involving the public in the tree programme.

Population	Observed		Expected	
	Yes	No	Yes	No
10 000 – 50 000	15	22	17.02	19.98
More than 50 001	8	5	5.98	7.02
			Total	50
			x² P-value	0.19

There was no significant association between population and local authorities involving the public in the tree programme (table 3.63).

Table 3.64 – Test for independence between budget per head of population in 2004 and involving the public in the tree programme.

Budget per head	Observed		Expected	
	Yes	No	Yes	No
0-10	5	8	5.61	7.39
11-20	4	6	4.32	5.68
21-40	7	8	6.48	8.52
More than 40	3	3	2.59	3.41
			Total	44
			x² P-value	0.95

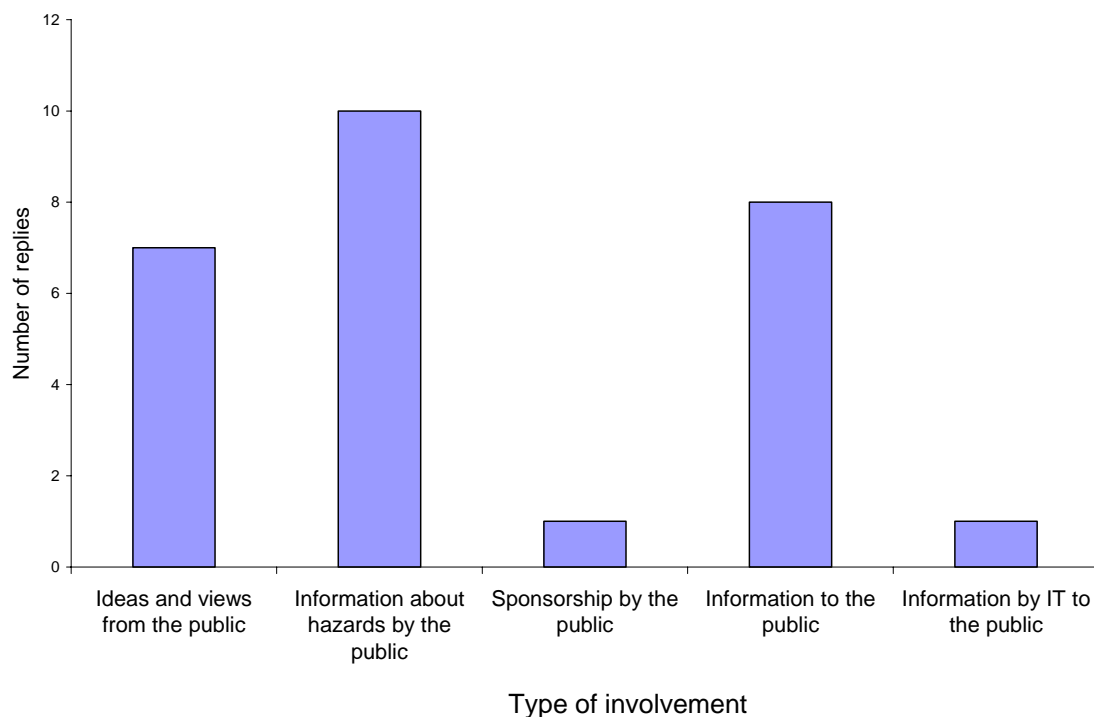
There was no significant association between budget per head of population and local authorities involving the public in the tree programme (table 3.64).

Table 3.65 – Test for independence between involving the public and tree strategies.

Involvement	Observed		Expected	
	Yes	No	Yes	No
Yes	11	9	8.51	11.49
No	9	18	11.49	15.51
			Total	47
			x² P-value	0.14

There was no significant association between the local authorities that involve the public in the tree program and those that have tree strategy documents (table 3.65).

Fig. 3.27 - Type of involvement with the public (n=19).



The most frequently mentioned type of involvement with the public was receiving information from the public about hazardous situations (fig. 3.27).

Table 3.66 - Number of replies per population class stating involvement with organisations outside the local authority in tree-related issues.

Population Class	Yes	No	Percentage of replies in class indicating Yes
Between 10 000 and 15 000	3	13	18.75
Between 15 001 and 20 000	2	4	33.33
Between 20 001 and 50 000	8	6	57.14
Between 50 001 and 100 000	4	2	66.67
Between 100 001 and 150 000	-	2	0
More than 150 000	2	0	100.00
Total	19	27	
Percentage of total replies	41.30	58.70	

41.30 percent of the respondents stated involving organisations in the tree programme (table 3.66).

Table 3.67 – Test for independence between population size of local authorities and involving organisations outside the local authority in the tree programme.

Population	Observed		Expected	
	Yes	No	Yes	No
10 000 – 50 000	13	23	14.87	21.13
More than 50 001	6	4	4.13	5.87
			Total	46
			x² P-value	0.18

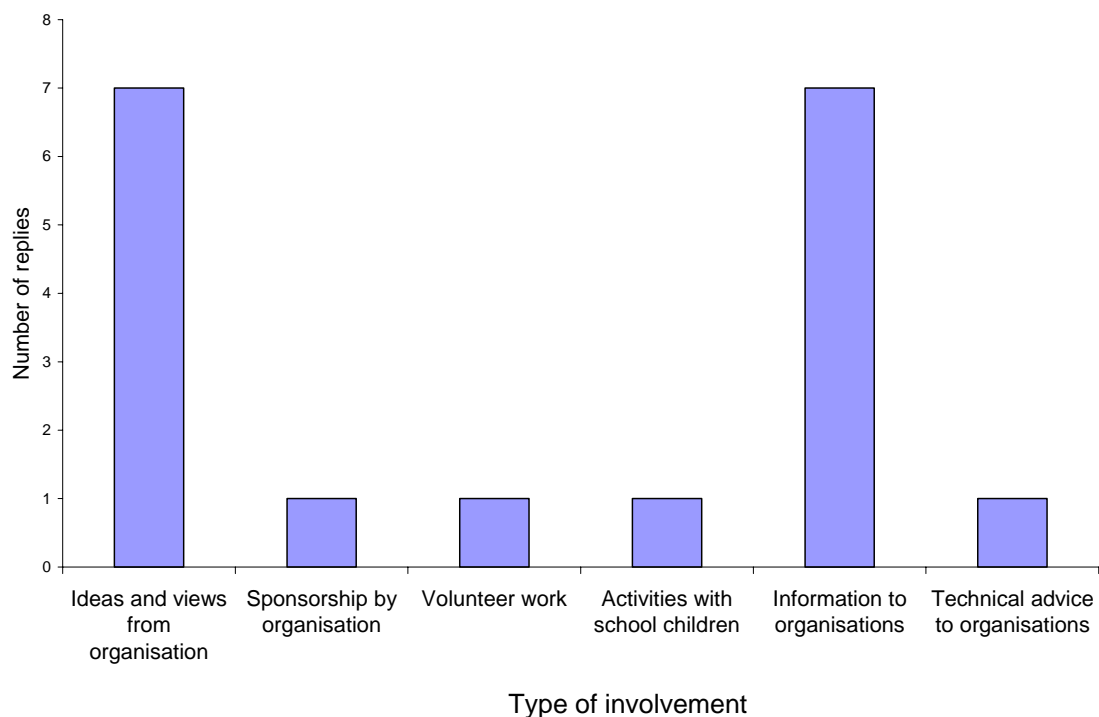
There was no significant association between population and local authorities involving organisations in the tree programme (table 3.67).

Table 3.68– Test for independence between involving organisations outside the local authority and tree strategies.

Involvement	Observed		Expected	
	Yes	No	Yes	No
Yes	11	6	7.34	9.66
No	8	19	11.66	15.34
			Total	44
			x² P-value	0.02

There was a significant association between involving organisations and having a tree strategy document (table 3.68). If a tree strategy document is in place the likelihood of involving organisations in the tree program is greater.

Fig. 3.28 – Type of involvement with organisations outside the local authority (n=11)



The most frequently stated types of involvement were receiving ideas and views from the organisations and giving information to the organisations (fig. 3.28).

Table 3.69 - Number of replies per population class stating co-operation with private companies in tree-related issues.

Population Class	Yes	No	Percentage of replies in class indicating Yes
Between 10 000 and 15 000	7	9	43.75
Between 15 001 and 20 000	3	3	50.00
Between 20 001 and 50 000	7	7	50.00
Between 50 001 and 100 000	5	1	83.33
Between 100 001 and 150 000	0	2	0
More than 150 000	3	-	100
Total	25	22	
Percentage of total replies	53.19	46.81	

53.19 percent of the respondents stated involving private companies in the tree programme (table 3.69).

Table 3.70 – Test for independence between population size of local authorities and involving private companies in the tree programme.

Population	Observed		Expected	
	Yes	No	Yes	No
10 000 – 50 000	17	19	19.15	16.85
More than 50 001	8	3	5.85	5.15
			Total	47
			x² P-value	0.14

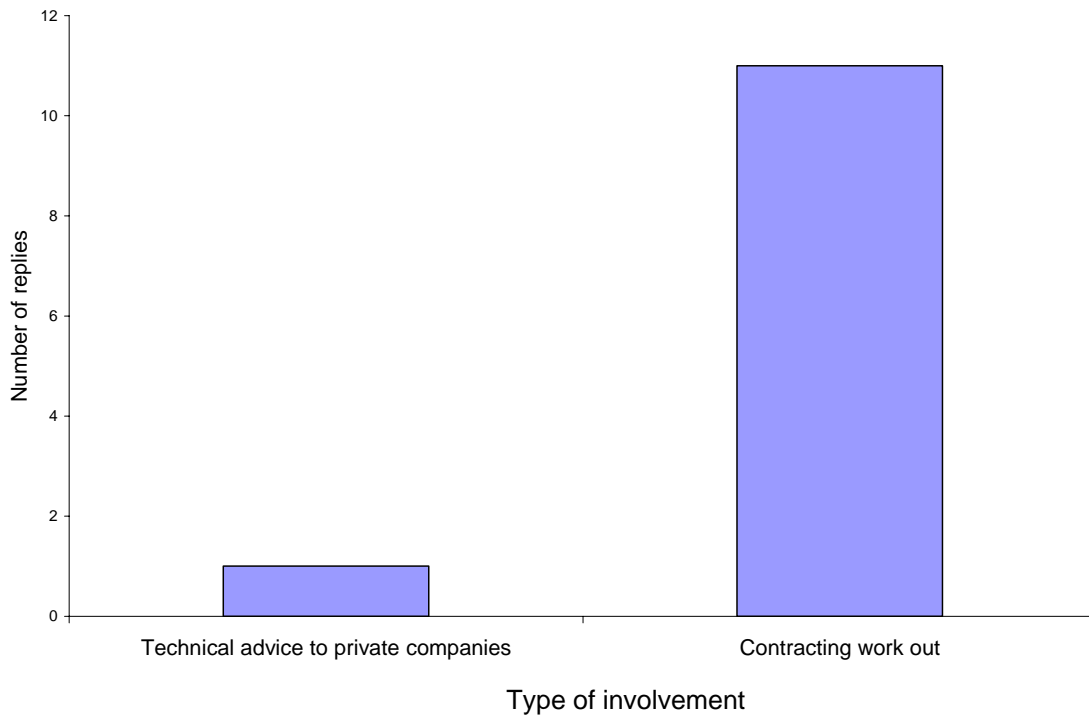
There was no significant association between population and local authorities involving private companies in the tree programme (table 3.70).

Table 3.71 – Test for independence between involving private companies and tree strategies.

Involvement	Observed		Expected	
	Yes	No	Yes	No
Yes	10	12	9.50	12.50
No	9	13	9.50	12.50
			Total	44
			x² P-value	0.76

There was no significant association between involving private companies and tree strategies (table 3.71).

Fig. 3.29 - Type of involvement with private companies (n=12).



The most frequently stated type of involvement was to provide private companies with work (fig. 3.29).