THE USE OF INDIGENOUS PLANT MATERIAL BY LOCAL AUTHORITIES IN AMENITY HORTICULTURE IN THE CAPE PROVINCE OF SOUTH AFRICA

by

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ABSTRACT

This study is concerned with the use of indigenous plant material in Amenity horticulture by Cape local authorities.

From basic horticultural information a horticultural stratification of the 168 local authorities in the Cape Province was made. From this classification four local authorities were selected from each of the 4 strata for in-depth study.

The various uses to which plant material can be put by local authorities was grouped into 5 categories and information on each category was gathered in the field, by personal observation and means of an administered questionnaire.

An analysis is done of the species of indigenous plants used by each local authority and the purpose for which such species are used. A further analysis is done as to whether the plants used by the local authority are from the Biome in which the local authority is situated or whether plants are introduced from other Biomes.

The study includes a survey of the attitudes of the various local authorities to the use of indigenous plant material by their Parks Departments.

CHAPTER 1

INTRODUCTION

The purpose of this study is to investigate the current use of indigenous plant material in Amenity Horticulture by local authorities in the Cape Province. It focuses on the built-up and street environments, and includes public gardens, pavements, road verges, recreational grounds, walkways and car parks which fall under the jurisdiction of local authorities.

The study relates to the assertions by Bernatzky (1978), Poynton (1983), Dixon (1985), and Fairall (1970) that there is a heightened interest in the use of indigenous plant species in a number of countries. It investigates what Flint (1980) calls the growing awareness amongst contemporary landscape planners towards the use of indigenous plants in landscape design. He says that the movement toward landscaping with native plants has now spread widely but has not as yet reached its full potential. Its ultimate expression may be found in recreating natural associations of plants.

The study will also investigate the claim that there is a growing interest and awareness of conservation as well as a greater sensitivity towards the value of plants in the urban environment. Walterscheidt (1984) says that there is no more inexpensive, easy or satisfactory way to secure the comfort and attractiveness of a town than by extensive plantings of trees and shrubs and Arnold (1980) says that trees can mitigate some of the undesirable conditions in urban spaces, and should be planted wherever they will survive.

This study investigates the use of indigenous plant species in Amenity Horticulture by Cape local authorities in the so-called 'Urban Forest' which Hudson (1985) defines as;

"the planted environment within the fabric of a variety of man-made uses. Collectively, it is the overall green environment. It is a people-oriented forest designed to provide a quality living environment and to enhance the social, cultural, sensory and economic dimensions of urban life. The urban forest also has ecological value. It modifies the environment in a positive way by providing shade, wind protection, air filtering, noise reduction and soil protection."

Besides the normal functional uses of plants (shade, air purification, soil stabilization, and aesthetic values), the use of indigenous plants can add additional dimensions to these functions as their use, say Hermes et al (1984), can reduce the need for maintenance. They say that this important management strategy can be achieved by utilizing the ecosystem approach, by choosing and selecting plants ecologically adapted for the intended site.

A number of authors, Poynton and Roberts (1985) as well as Cohen and Hugo (1986) have pleaded for a biogeographical approach to planning the urban forest at local levels in South Africa. The former believe "that biogeographical guidelines require greater emphasis if open space systems are to be made ecologically resilient and diverse." They also say that by using indigenous species there will be no loss of amenity potential, but at the same time there will be economic gains, as indigenous vegetation is normally less costly to maintain. The use of indigenous vegetation will also enhance the recreational value of open spaces by transforming the amenity into an important educational and research facility. Poynton and Roberts (1985) observe that:

"a judicious development of information and interpretation centres and programmes can greatly enhance the amenity value of open space."

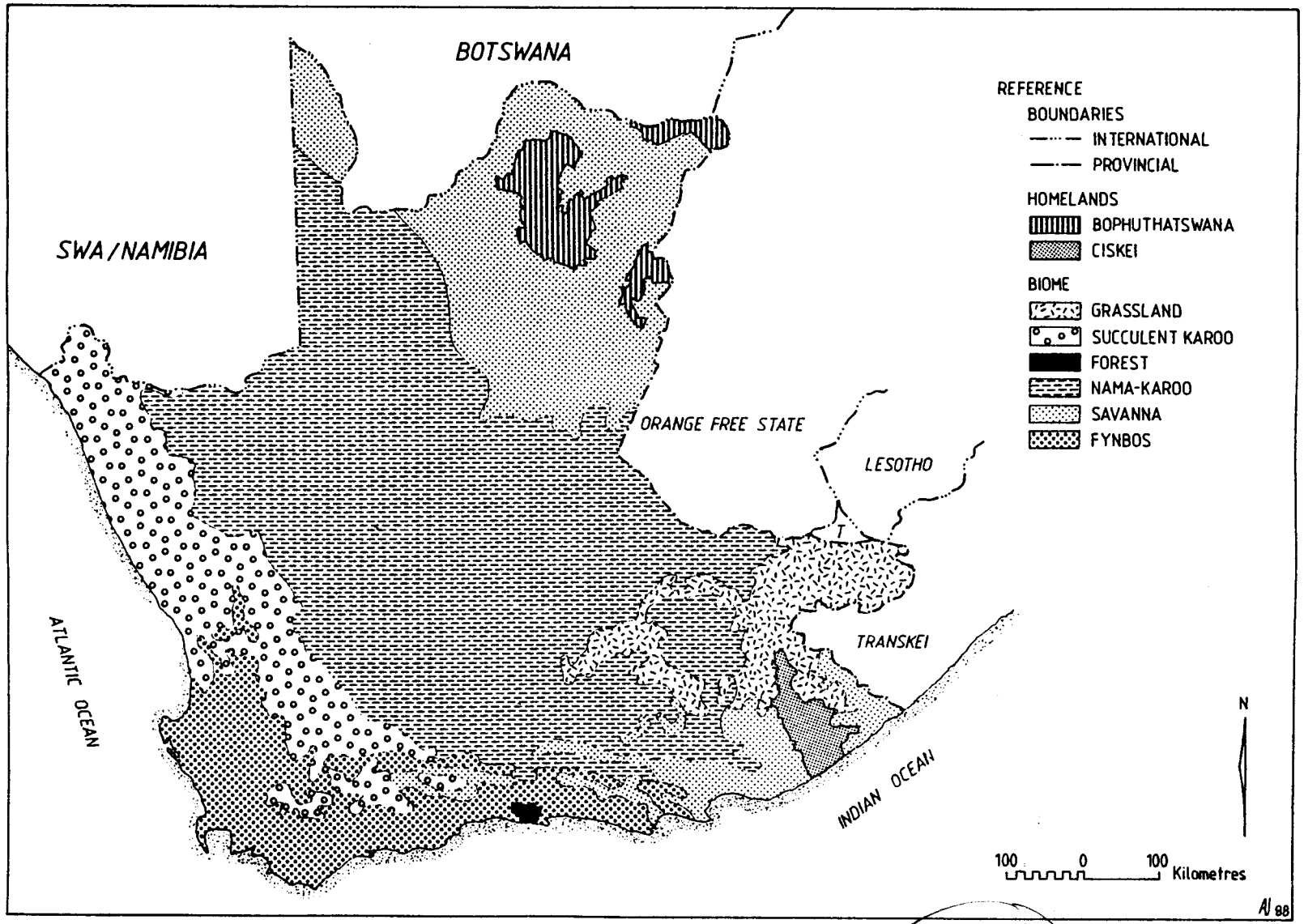
Cohen and Hugo (1986) say that a biogeographical approach would be a useful strategy for conservation in the urban complex and that:

"while not ignoring amenity value, the use of indigenous vegetation in the garden, urban park and pavement can function as important 'link-up' habitats between the natural veld and the inner city discrete open spaces."

They say that the creation of 'habitat islands' in the form of parks and open spaces in the urban complex has brought about a general reduction of species richness. Poynton and Roberts (1985) say that the use of indigenous vegetation would provide a necessary food source for a variety of birds and other animals. This would then also provide, say Cohen and Hugo (1986) "effective dispersal corridors for at least a fair proportion of our natural fauna and flora."

South Africa is endowed with more than 24 000 indigenous plant species (Gibbs Russell 1985). About 8 500 of these occur in the Fynbos Biome (Bond and Goldblatt 1984) which approximates the Cape Floristic Kingdom. This, despite its relatively minuscule size [an area of about 70 000 km^2 (Rutherford and Westfall 1986)] has been recognized as one of the worlds six floristic kingdoms (Good 1964). According to Rutherford and Westfall (1986), the Cape Province has represented within it six of the seven Biomes recognized in southern Africa. The only Biome not occurring in the study area is the Desert Biome. (See Map No.1).

The aims of the study are to determine how many species of indigenous plants are used in amenity horticulture in the Cape Province; the purpose for which species are used; and, in which areas of the Cape Province particular species are utilized. The study also investigates the attitude of local authorities towards using indigenous plant material, and determines whether attention has been given to the call for a biogeographical approach to planning the plantings in the towns and cities of the Cape Province.



MAP NO 1 BIOMES OF THE CAPE PROVINCE

CHAPTER 2

METHODOLOGY

2.1 INTRODUCTION

An initial postal survey (see Appendix 1) was conducted amongst the 168 local authorities of the Cape Province. The purpose being to obtain information on which a stratification could be based in order to achieve selection criteria for further in-depth investigation.

The postal survey served to establish:

a) which local authorities had their own nursery facility for propagating plants;

b) which local authorities propagated plants for their own use;

c) what their 1985 annual budget was for plant propagation.

From this survey it was established that 50 of the 168 local authorities in the Cape Province had a nursery facility which propagated plants for their own use (see Appendix 2). Three local authorities (Nieu Bethesda, Plettenberg Bay and Touwsriver) are excluded from the study as it was not possible to obtain information from them.

According to their 1985 budget for plant propagation, the local authorities were stratified into 4 groups:

Group I	Budgets greater than	R50 000
Group II	Budgets	R15 001 - R50 000
Group III	Budgets	R 5 001 - R15 000
Group IV	Budgets less than	R5 000

The grouping of local authorities with a nursery facility grouped according to their 1985 budget for plant propagation is given in Appendix 3.

The following local authorities within these groupings were selected for in-depth investigation. (See Map No.1)

GROUP I

Cape Town
East London
Kimberley
Port Elizabeth

GROUP II

Grahamstown
Stellenbosch
Queenstown
Worcester

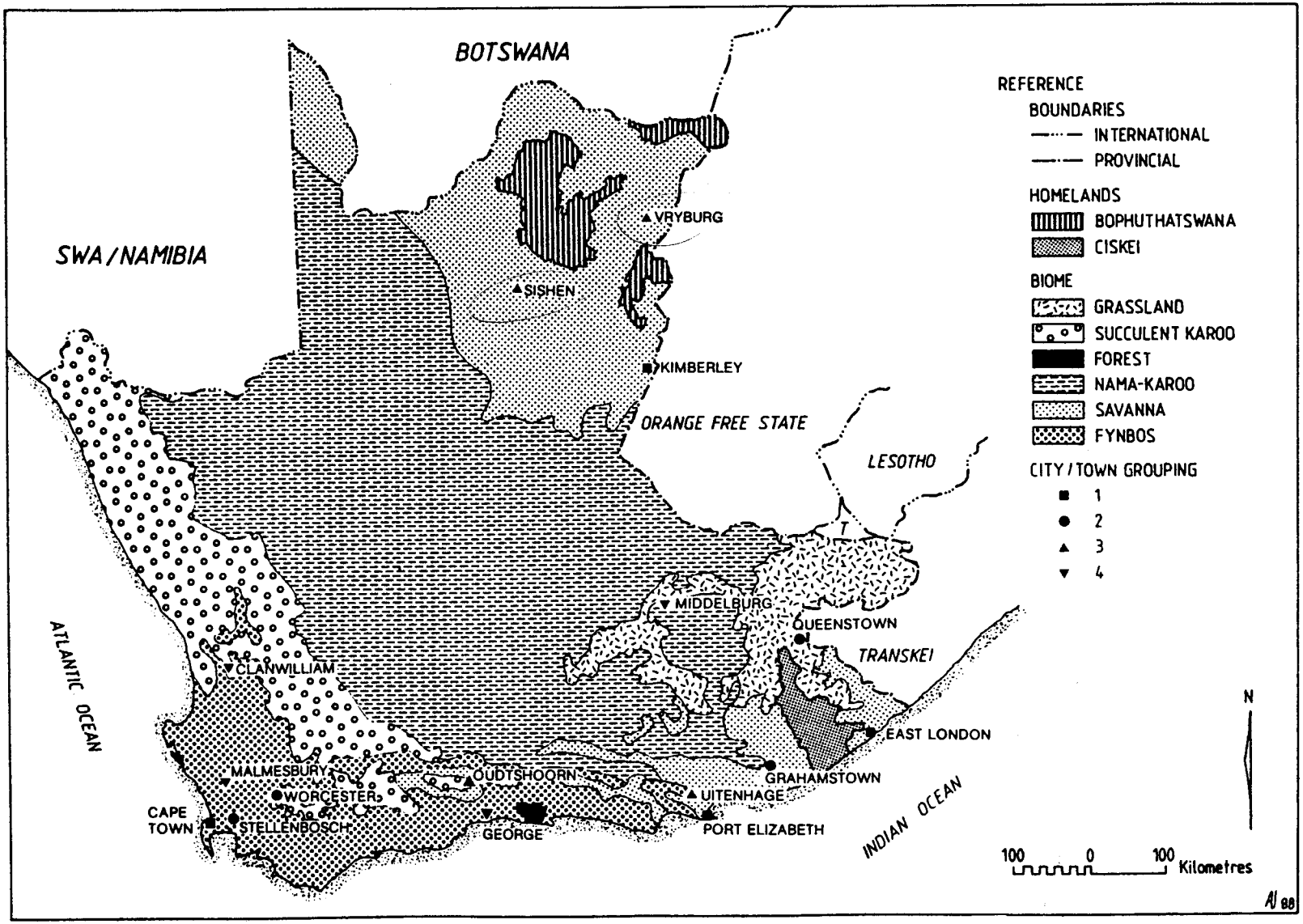
GROUP III

Oudtshoorn
Sishen
Uitenhage
Vryburg

GROUP IV

Clanwilliam
George
Malmesbury
Middelburg

These local authorities were selected to obtain a distribution throughout the Province, as well as throughout the various climatic, edaphic and vegetation components, i.e. the six Biomes in the Cape Province as defined by Rutherford and Westfall (1986). (See Map No.2)



MAP NO 2 LOCATION OF LOCAL AUTHORITIES STUDIED

Local authorities which either occur within a city complex or in close proximity to a city, were not considered for further study as they would probably reflect a similar pattern to the adjoining city.

The in-depth investigation of the 16 local authorities was conducted by means of an administered questionnaire (Appendix 4). This method of data collection was preferred because it provided an opportunity for personal observation in the field, as well as opportunity to discuss various aspects of the questionnaires with the persons concerned. This method also allowed the opportunity of seeing the natural vegetation around the city or town which is being surveyed.

2.2 CATEGORIZATION OF PLANT USAGE

In order to simplify the data gathering process, it was necessary to categorize into sections the various uses to which local authorities were putting indigenous plants. This categorization would enable one to determine which plants were used for a particular purpose, as well as the reason why the specific plant was being used for that purpose.

This study deals with public plantings, or plantings in public places within the jurisdiction of the local authorities.

A "public place" is defined in Municipal Ordinance No.20 of 1974 as meaning:

"any square, park, recreation ground, sports ground, sanitary lane or open space which has been reserved for use by the public."

The ordinance further defines a "public street" as being:

a) Any street which has at any time been dedicated to the public;

b) Any land, with or without buildings or structures thereon, which is shown as a street on any plan or subdivision or diagram approved by a council or other competent authority.

From the above, and from discussions (R. Jamieson, Cape Town City Council and R. de Kock, Bellville) and from personal observation, the five functional divisions for investigation were categorized as follows;

Parks and Gardens
Roadside Plantings
Car Park
Plazas and Malls
Sportsfields and Playgrounds

2.2.1 Parks and Gardens

The Oxford Dictionary of Natural History (1985) defines a park as: "an area of land set aside for public enjoyment and designed to resemble semi-natural land."

Thus, any areas which the local authority has set aside for passive public use and on which indigenous plant material has been used, is dealt with in this category.

2.2.2 Roadside Plantings

Bernatzky (1978) states:

> "Trees have always lined streets. Napoleon planted trees along all his supply routes across Europe and right into Russia to make them recognizable."

This category will deal with all public plantings associated with roads or streets within the local authority's jurisdiction. The category includes street trees, traffic median plantings, plantings in road reserves, verge and embankment plantings.

2.2.3 Car Parks

This category includes plantings in municipal caravan parks and any parking area provided by the local authority which is not street parking.

2.2.4 Plazas and Malls

Included in this category are all malls, walkways and squares occurring in the urban complex. Container plantings are included in this category.

2.2.5 Playgrounds and Sportsfields

All municipal recreation areas where active recreation takes place. Children's playgrounds, sportsfields and swimming pools, are included in this category.

These five categories cover most of the functional usages to which local authorities put plants. Other uses they may have for plants that are not included in this study are:

i) plantings in cemetries

ii) plantings in nature reserves, and

iii) decorative material.

2.3 ATTITUDINAL SURVEY

In addition to the questionnaires on plant material a separate questionnaire was used to gauge the attitudes of local authorities towards the use of indigenous plant material. This questionnaire gives an indication of the present and future trends in the use of plant material by Cape local authorities in amenity horticulture.

The attitudinal survey was completed at the same time as the usage questionnaires and was also in the form of an administered interview questionnaire. (Appendix 5).

2.4 BIOGEOGRAPHICAL APPROACH

In order to investigate the biogeographic approach to plant usage in amenity horticulture as proposed by Poynton and Roberts (1985) as well as Cohen and Hugo (1986) the Rutherford and Westfall (1986) delineation of the Biomes of southern Africa is required. The Rutherford and Westfall (1986) delineation (see Map No.2) gives 7 Biomes as occurring in southern Africa of which 6 are represented in the Cape Province. They are the Savanna, Grassland, Nama-Karoo, Succulent-Karoo, Fynbos and Forest Biomes. As has been stated earlier, the only Biome not represented in the study area is the Desert Biome.

Of the 16 local authorities used in this study a number occur either within transition areas between Biomes or are situated close to the boundaries of specific Biomes. Clanwilliam, Kimberley, Uitenhage, Oudtshoorn, Grahamstown and Port Elizabeth are regarded as being in transition areas and cognisance is taken of this in the allocation of Biome types to specific local authorities.

2.5 QUESTIONNAIRE DESIGN

2.5.1 Plant Usage Questionnaires

A separate questionnaire was designed for each of the five categories of plant usage (see Appendix 4). Although the general layout is the same for each category there are a number of differences in detail, for example, in the Roadside Plantings category, one of the usage options given is safety. Bernatzky(1978) says,

> "objects along the street must be familiar to the driver so that he can react to them without too much thought. The more easily this can be done the safer the ride will be. If the objects along the road are completely new, the driver's attention is diverted from the actual driving activity. This reduces driving safety. A very familiar biological reference point is the tree along the border of the road."

Plantings in any of the other four categories are rarely intended for safety, and this detail therefore only appears under Roadside Plantings. On the other hand, in the Car Park category it is unlikely that plants are used as focal plants, and this use category is therefore omitted here.

For each of the five categories (Parks and Gardens, Roadside Plantings, Car Parks, Plazas and Malls, Sportsfields and Playgrounds) the columns of the questionnaires are divided into two sections: (See Appendix 4)

1) Use Categories

2) Attributes

2.5.1 Use Categories

This category is subdivided into 12 columns in which all the uses to which a plant could reasonably be put, in each of the five categories, are listed (R.Jamieson, personal communication and personal observation). This simplifies recording of the main use to which a plant is being put by the specific local authority.

In six of the use categories (screen, shade, ornamental, animal habitat, colour and scale) it was necessary to sub-divide them in order to obtain more precise information. Thus, for example, if a plant's main use was to provide colour in the landscape, it would be further categorized into whether the colour is provided by the:

a) Foliage

b) Flower

c) Bark

A column in Use Categories was also left open in case a unique application of a plant was encountered.

The final column in Use Categories is labelled Origin. This refers to whether a plant occurs naturally in the Biome in which it is being used, or whether it has been introduced from another Biome.

2.5.2 Plant Attributes

This section was included to determine the chief reasons why a plant is being used for a specific purpose in a particular city or town. The attributes are rated on a scale of 1 - 5, where 5 has the greatest importance and 1 the least.

The first portion of these columns is to determine whether a plant's chief attribute is its resistance (or hardiness) to a variety of common problems in amenity horticulture (Poynton, 1984).

Two columns were left open in this section should unique attributes be encountered.

A further column was allocated to Amount Used. This was to get an idea of the quantity of the specific plant used during a 5-year period, i.e. 1982 - 1986.

The final column was allocated to General in which any comments that were not provided for could be recorded.

2.5.3 Attitudinal Questionnaire

The questionnaire to gauge the attitudes of the local authorities is in the form of an interview questionnaire (see Appendix 5). It was used as a tool to determine the attitude of the representative of the specific local authority (usually the Head of the Parks Department) to the use of indigenous plant material in his specific situation.

The questions are not open-ended in order to obtain uniformity in response and also to obtain some basic information from the respondents. Data was gathered chiefly during 1986 and was done when time became available to visit the different authorities which are spread throughout the Cape Province.

CHAPTER 3

FINDINGS

3.1 INTRODUCTION

When viewing the results of this study there are various factors which should be borne in mind. These relate chiefly to a number of practical considerations in the data gathering process. Data are gathered by means of administered interview questionnaires and also by observation in the field. All of the information was compiled with the aid and co-operation of the local authorities listed in Appendix 6.

When recording plant usage in the larger, and often not so large, urban complexes there are variations in topographic, edaphic and climatic conditions. This results in certain species being ideally suited to one part of a city/town and being totally unsuited for use in another part of the same city or town. For example, Curtissia dentata (Assegaai) is ideally suited and used in the Tamboerskloof suburb of Cape Town, but the same species is seldom used in the sandier areas of the City. This study has not made a differentiation between the different parts of an urban area except where it has affected the attributes relating to the plant.

The plants recorded have usually been identified by the author and a representative of the local authority concerned. These identifications were sometimes made from a moving vehicle as it was at times difficult to stop at individual plantings to verify every identification. In larger centres it was impossible to personally visit every plant and reliance was made of the information supplied by the individuals of the Parks Department concerned.

In certain groups of plants it is not possible to be positive of identifications to species level as natural hybridization is fairly common in genera such as **Pelargonium** and **Aloe**. Other genera are difficult to identify positively unless they are in flower. In these instances plants are therefore identified to genera level only. These include **Pelargonium, Aloe, Agapanthus, Watsonia, Veltheimia** and **Albuca**.

Where recordings are made of *Ficus natalensis*. This identification includes the species *F. petersii, F. thongingii* which are in that group but are not easy to differentiate.

In most cases a survey was done of the plants in stock in the local authorities' Nursery or of their stock lists. Often the final destination of these plants (ie. in which section of the Parks Department they would be used) is not always definite and the information provided by the representative of the specific local authority had to be relied upon.

In some cases (especially Cape Town) different authorities (eg. Divisional Council or Provincial Council) are responsible for the plantings along different sections of the same freeway through a city. This study has only been concerned with the plantings made by the local authorities listed in Appendix 5.

3.2 Findings on Plant Usage

The initial questionnaire (See Appendix 1) to the 168 local authorities in the Cape Province established that 50 or 33,6% of them have nurseries for propagating plants to be used in their town or city. In 1985 five of these nurseries were newly established. (See Appendix 2)

By personal observation in the field and the personal interview questionnaires (See Appendix 4) it was established that the 16 local authorities used in this study are using a total of 271 indigenous plant species in amenity horticulture.

Table 1 gives a breakdown of the number of species used by each local authority as well as the percentage of the total which are specific to the Biome in which they are situated.

Table No. 1

MUNICIPALITIES	BIOME	TOTAL NO. OF INDIGENOUS SPP. RECORDED	NO. SPECIFIC TO THE BIOMES	%
GROUP I				
Cape Town	Fynbos	136	101	74
East London	Savanna	62	62	100
Kimberly	Savanna	18	18	100
Port Elizabeth	Savanna	88	88	100
GROUP II				
Grahamstown	Nama-Karoo	8	8	100
Queenstown	Grassland	25	21	84
Stellenbosch	Fynbos	15	12	80
Worcester	Succ.-Karoo	37	21	57
GROUP III				
Oudtshoorn	Succ.-Karoo	32	22	69
Sishen	Savanna	19	17	89
Uitenhage	Grassland	39	35	80
Vryburg	Savanna	35	33	94
GROUP IV				
Clanwilliam	Succ.-Karoo	1	0	0
George	Forest	44	38	86
Malmesbury	Fynbos	43	28	65
Middelburg	Nama-Karoo	2	0	0

The study established that the greatest variety of plant species (261 species) are used for Parks and Gardens. For Roadside Plantings 99 different species are used.

The following plants are used in at least four of the five categories of plant usage (ie. Parks and Gardens, Roadside Plantings, Plazas and Malls, Car Parks and Sportsfields and Playgrounds):

Celtis africana
Olea europaea subsp. *africana*
Podocarpus falcatus
Trichelia emetica

The most commonly used species is *Olea europaea* subsp *africana* (Wild Olive) which is used by 81% of the local authorities in this study. Furthermore 62% of the local authorities use;

Agapanthus sp
Celtis africana
Ekebergia capensis

and 56% use:

Harpephyllum caffrum
Strelitzia reginae

3.2.1 Parks and Gardens

In this category a total of 261 species of indigenous plants were recorded and 61% of these were recorded on one occasion only. Of the 261 species, 124 are used only in Parks and Gardens. The rest are duplicated in one or more of the other use categories.

The species most commonly used in this category is *Olea europaea* subsp. *africana*. This plant is used in Parks and Gardens by 69% of the local authorities surveyed.

Furthermore, it was established that in the Parks and Gardens category 63% of the local authorities use *Agapanthus* sp. while 56% use *Celtis africana* and *Strelitzia reginae*.

The list of indigenous species used in Parks and Gardens by more than 30% of the local authorities surveyed is given in Appendix 7.

3.2.2 Roadside Plantings

In this category it was found that a total of 99 species of indigenous plants are used by the local authorities surveyed. This constitutes 36% of the total number of species recorded.

Of the 99 species, 53% are recorded on a single occasion only and 11% of the total are used only in Roadside Plantings.

The most commonly used species in this category is *Olea europaea* subsp. *africana* and it is used by 62% of the local authorities surveyed. Furthermore, 56% of the local authorities use *Ekebergia capensis* and 44% use *Harpephyllum caffrum*.

Appendix 8 gives the list of indigenous species used by more than 30% of the local authorities for Roadside Plantings.

3.2.3 Other Categories

In the three remaining categories (Plazas and Malls, Sportsfields and Playgrounds and Car Parks) it was found that very few indigenous plants are used. The list of the plants used in these section is given in Appendix 9.

The chief reason for this is that only the larger cities have developed Plazas and Malls and very few indigenous plants are used in these categories.

The same applies to Car Parks. Often local authorities cease to control Car Parks after they have been established. In some of the smaller centres there are often conflicting interests between the Town Engineer and the Parks Department as to whether such areas should be planted or not.

3.3 Findings on Attitudes

The questionnaire to gauge the attitudes (see Appendix 5) of local authorities to the use of indigenous plant material in amenity horticulture was completed at the same time as the other questionnaires on plant usage.

The first question was to determine at which level of authority in the Municipality the decision is made as to what type of plant material should be used by the specific local authority, ie. whether indigenous material should be used or not.

All local authorities said that this decision was the responsibility of the Head of the Parks Department concerned. In the case of the larger local authorities (Group 1,see Appendix 6) where there are fairly large staff structures, the decision is usually a joint one between the Head of the Department and the person responsible for a specific section (see discussion p 26).

The second question was to determine if there is a shortcoming in the availability of indigenous plant material or of information on the characteristics of the material. 66% of the respondents said they would make a greater use of the material if it was more readily available. 26% said there was a lack of information on its characteristics, and 8% required more information on it's propagation.

The third question was to determine whether local authorities would use more indigenous material if they could. The response was an unqualified 100% in favour of greater use.

The fourth question was to determine whether any particular factor may have caused a swing towards a greater use of indigenous material: 53% ascribed such a swing to the Recent Drought Conditions (1985 and 1986.), 40% to National Pride and 7% to the Conservation Lobby.

The fifth question was to determine the main difficulty involved in the use of indigenous material: 53% said it was obtaining material, 27% said it was too slow growing, and 10% said there were no difficulties involved.

The sixth question was to determine which category of usage took the major expenditure in the Parks Department of the local authority investigated: 60% gave Parks and Gardens as their major expenditure, 20% said Roadside Plantings and 20% indicated Sportsfields and Playgrounds.

Possibly the most significant finding to come from this questionnaire is that all of the local authorities investigated would like to make a greater use of indigenous plant material in their specific city or town and that the main obstacle to a greater use of such material is it's non-availability.

3.4 Findings on the Biogeographical Approach

As stated previously a number of the local authorities used in this study are situated in transition areas between the biomes as defined by Rutherford and Westfall (1986). Map No.2 shows the local authorities used and their position with regard to the various biomes.

When allocating biome types to the various plant species congnisance is taken of these various transition areas. In the case of the Nama-Karoo and Succulent-Karoo biomes where the relatively high percentage of indigenous species introduced from other biomes is 50 and 58% respectively (see

Figure 1) it was found that within these two biomes the plant material introduced is chiefly trees and shrubs. The reason for this is explained by Edwards (1983) who describes the vegetation of the Nama-Karoo biome as a grassy, dwarf shrubland. Rutherford and Westfall (1986) describe the Succulent-Karoo biome vegetation as being very rich in succulent plant species belonging mainly to the Mesembryanthemaceae and Crassulaceae families. They say "that the high succulent plant species diversity of this biome is unparalleled elsewhere in the world." The reason for the relatively high percentages of tree and shrub introductions is therefore necessity.

It was also found that the local authorities in the Savanna biome (see Table No.1) introduced only 4% of their indigenous material from other biomes. Those in the Fynbos biome use 27% of their indigenous material from other biomes. Although this figure of 27% seems high for local authorities situated in the biome with perhaps the richest floristic diversity in the world (Kruger and Taylor 1980) and which contains 65% of the threatened and rare plants of the entire southern African Region (Hall et al. 1980), Arnold (1980) does say that "urban designs do not conform to the principle of wild communities with their diversity and symbiotic independence."

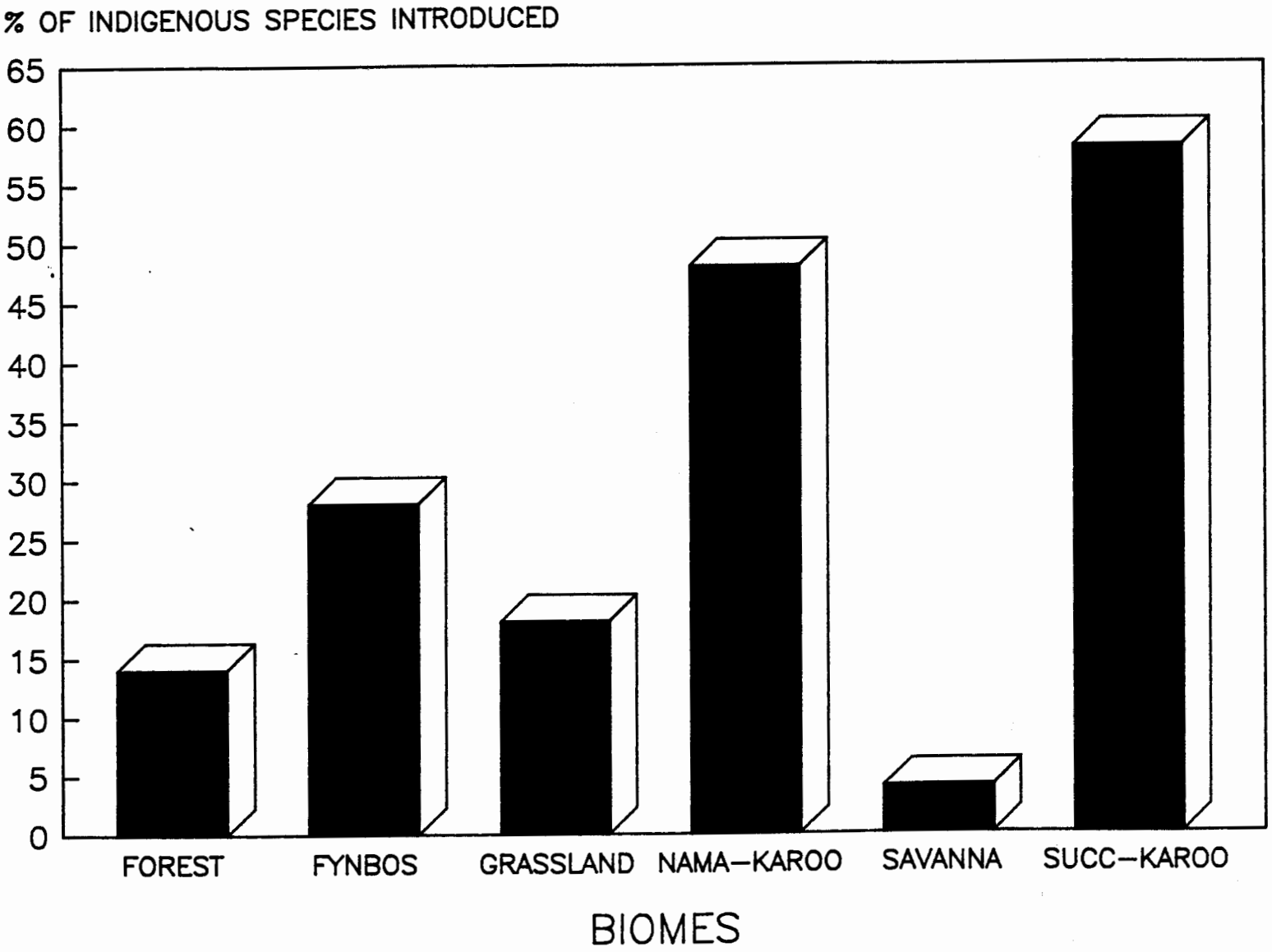


Figure 1 – Percentage of plants introduced from other biomes

CHAPTER 4

Discussion of Findings

The initial questionnaire established that 50 (33,6%) of the local authorities in the Cape Province have a nursery facility for plant propagation under their jurisdiction. Tate (1984) in a similar study in the north eastern States of the USA found that 10,3% of the 233 Local Authorities reported the existence of a nursery facility. This relatively high percentage of nurseries in the Cape Province indicates that these Parks Departments should, in theory, have a greater variety of plant material they could use. It should mean that they are not restricted in their selection of plant species by what is available from commercial growers. It should also provide them with the facility to introduce different species on an experimental basis for trial in their specific regions.

In response to the attitudinal question about which influence had caused the greatest swing to the use of indigenous material, 53% of the respondents ascribed this to recent drought conditions. Dixon (1985) says that the use of native plants in Western Australia is very much in its infancy. He says that "the upsurge in their use began with the introduction of water restrictions during the mid 1970's." A list of indigenous plants which are used by local authorities in the Cape Province specifically for their resistance to drought is given in Appendix 10.

It was found that certain climatic factors determine, to a large extent, what can be used in a specific area. Thus for example, in places such as Queenstown and Middelburg the chief consideration when selecting plant material is for material that is frost resistant. A list of indigenous plants used for their resistance to frost is given in Appendix 11. So too, is wind a major factor in certain parts of Cape Town, Port Elizabeth and East London. The list of wind resistant indigenous plants is given in Appendix 12.

As far as the selection of the type of material to be used by a local authority is concerned it was found that the choice of material in all cases rests with the Head of the specific Parks Department. The local authorities in Group 1 (see Appendix 6) usually make joint decisions as they have a certain depth in suitably qualified staff. Very often local authorities in Groups 2 to 4 left the decision entirely to the Head of the Parks Department, as he is very often the only member of staff suitably qualified to make such decisions.

Poynton and Roberts (1985) say that Cape Town is placed in a uniquely natural area "where the preferential planting of indigenous species could be seen as particularly desirable in view of the Geographical siting of the city in the Cape Floral Kingdom." The question say Cohen and Hugo (1986) is "whether we wish to create a rich and varied habitat with complementary natural communities as an integral part of the urban environment." This they say would make the whole matrix of the urban complex more suitable "for at least a fair proportion of our natural fauna and flora." They say that "Parks and Gardens are too often planned in isolation of the surrounding natural areas" and that "exotic plant species are often established and while they may be attractive to look at they are unable to support a viable and diverse fauna community."

During this study it was found that in both Cape Town and Stellenbosch problems were experienced with the fruit production of the indigenous trees *Podocarpus falcatus, P. latifolius* and *Ekebergia capensis*. At certain times of the year complaints are received from the public about birds and bats using these fruits as a food source and the subsequent messing on cars, houses and garden walls. The same complaint is made about the use of certain exotic species, such as *Melia azedarach* (Seringa) which is used extensively by both of these local authorities. Seringa provides an alternative food source for natural fauna, thus not only are natural feeding processes interfered with but the spread of exotic plants is also enhanced (Personal observation.)

The Plant material used by local authorities is often also a controversial matter and public sentiments might become involved. With the development of the new St Georges Street Mall in the centre of Cape Town, the City Council has chosen to use *Platanus acerifolia* which is the exotic London Plane Tree. Their reasons for this choice are given by Mr Peter de Tolly (Director of Town Planning in the City Planner's Department) in a reply to the Cape Argus of 3 November 1986. He says "most importantly, because of the tall buildings and wide

spaces, the trees must have scale (height when fully grown of 15m plus and spreading). They must also be deciduous so as not to cast deep shade for pedestrians in winter, have a long life, be vigorous growers with erect bole and wide open crown, not lose branches in high winds, be pollution resistant because of nearby traffic and tolerate poor soils and reflective pavement heat."

As far as the vegetation of the Cape Peninsula is concerned, Moll and Scott (1981) say that; "the Cape Peninsula has a rich flora with an estimated 3000 species." They say that there are less than 100 tree species on the Peninsula and only about 100 species of shrubs which exceed 1,5m in height occur.

It is interesting to note that *Celtis africana* (White Stinkwood) used on Thibault Square in Lower Central Cape Town creates a maintenance problem because of shearing off of branches during high winds (R. Jamieson, personal communication).

Indigenous plantings have recently (1986) been done by the Public Works Department on Stalplein in Upper Central Cape Town. The indigenous trees they have used are *Rauvolfia caffra* (Quinine Tree) and *Celtis africana* (White Stinkwood) These trees have unfortunately been severely handicapped by poor staking methods, these plants will none the less be an interesting planting to observe in future.

It would seem that Bernatzky's (1985) statement that "Trees for every site just do not exist" and that advice given "is applicable only to a very specific site" applies in the case of Cape Town.

CHAPTER 5

CONCLUSION

The findings show that 271 different species of indigenous plants are used in amenity horticulture by the 16 Cape local authorities used in this study. Of these 271 species more than 60% were recorded only on a single occasion.

From these findings it can be said that to date (1986) not much emphasis or imagination has been placed on the use of indigenous plant material by local authorities in the Cape Province.

The attitudinal questionnaire shows that 100% of the respondents would like to make a greater use of indigenous material in their Town or City. This finding confirms the assertion made by Bernatzky (1978), Poynton (1983), Dixon (1985), Fairall (1970) and Flint (1980), that there is a heightened interest in the use of indigenous plant material.

The chief reason for this tendency is ascribed by the respondents to the recent (1985/86) drought conditions. This bears out the findings in Australia by Dixon (1985). The findings also shows that 53% of the respondents say that the greatest obstacle to the use of indigenous material is in the availability of suitable material. Cohen and Hugo (1986) have stated that a strategy involving both governmental and non-government bodies is required to ensure an adequate supply of indigenous material.

The larger local authorities (Groups 1 and 2) have the financial means to employ suitably qualified staff to have a balanced approach to the use of plant material in areas under their control. The smaller local authorities (Groups 3 and 4) and especially Group 4 are in need of guidance on what plant material is available and for

which purposes it is best suited. These smaller local authorities usually have only one person who can make an informed decision about what material to use in their particular situation.

In the sections of the questionnaires dealing with plant usage it is found that plantings are chiefly done for ornamental purposes. This is especially so in Parks and Gardens and Roadside Plantings. Although Bernatzky (1985) says that trees improve safety as "they serve as optical guides along the driving lane" this study has found that the chief reason for plantings is usually ornamental. Factors such as safety, animal habitat and the biogeographical approach are regarded as secondary factors and these functions are probably more focidental than planned.

Similarly, the acoustic quality of a city street is not much affected by trees; however the visual quality is improved significantly. It is also said that vegetation significantly affects peoples expectations about the acoustic quality of the environment, they expect lower levels of sound in vegetated settings whether these are natural areas or city neighbourhoods. Thus although the questionnaires allowed for the respondents to list plantings for safety, screening against sound, animal habitat, etc. these reasons were seldom completed as the primary purpose for the plantings has been ornamental.

CHAPTER 6

RECOMMENDATIONS

Good (1983), Ware (1984) and Dixon (1985) all recommend that selections be done for material suitable for use in the urban environment from the full range of habitats and distribution of natural species. Ware (1984) says about plants that have extensive natural ranges that "it appears that those populations of plants indigenous to the most climatically rigorous parts of the range may provide the best urban trees." Dixon (1985) says "we need to select from our native plants for disease resistance, growth habit, and flowering characteristics".

This study has shown that all local authorities surveyed are in favour of the greater use of indigenous material and that the greatest obstacle to the use of indigenous material is it's non-availability. It is thus also thus recommended, as suggested by Cohen and Hugo (1986), that a strategy be implemented to ensure an adequate and sustained supply of suitable indigenous plant material. This strategy should, as suggested, involve both governmental and non-governmental bodies.

It is further recommended that a vigorous State aided selection programme be launched to collect material from the greatest range of the more suitable indigenous plants for experimental plantings (Provenance Trials) from which selections can be made for trial plantings, which could be undertaken and monitored with the help of various selected local authorities.

It is further recommended that an advisory committee be formed under the auspices of the Provincial Administration which would be available to assist the smaller local authorities in plant selection where they do not have the necessary expertise.

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Richard Jamieson of the Parks and Forest branch of the Cape Town City Council.

The following persons of the relevant Local Authority have been of invaluable assistance;

Group A:

Cape Town	Peter Rist John Bennet Richard Jamieson
East London	Mike Bentle Keith Kühn
Kimberley	Orlando Mazzoncini

Port Elizabeth	Peter Gibbs Nick Walton

Group B:

Grahamstown	Garth Timm
Queenstown	Ronel van Wyk
Stellenbosch	Piet Heunis
Worcester	Mike Robertson

Group C:

Oudtshoorn	Lol Stander
Sishen	Louis van der Berg
Uitenhage	Albert Farrington
Vryburg	Tiaan Boshoff

Group D:

Clanwilliam	Louis Swart
George	Resby Donion
Malmesbury	Marius Roelofse
Middelburg	Theuns van der Merwe

My wife, Manya who has been supportive as well as patient.

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APPENDIX 1

INITIAL QUESTIONNAIRE

NATIONAL BOTANIC GARDENS OF SOUTH AFRICA
NASIONALE BOTANIESE TUINE VAN SUID-AFRIKA

Privaatsak
Claremont
7735
Tel: 77-1166
Telex: 5-21812 SA
Enquiries/Navrae:
P R Kruger

The Town Clerk / Die Stadsklerk

16/8/85

Dear Sir

I am doing a post-graduate study at the University of Cape Town on Plant Usage by Local Authorities in the Cape Province.

It would be appreciated if you could supply me with the following information and return this letter in the enclosed stamped envelope to me by 15 September 1985.

1. Does your town/city have its own Municipal Nursery? Yes / No
2. Does it propagate its own plants? Yes / No
3. Are the plants propagated for your own use? Yes / No
4. What is your annual budget spent on plant propagation? .....
5. Who is in charge of your Parks Department? .....
.....

Your co-operation would be of great value to me.

Yours sincerely

P R Kruger
RESEARCHER

Geagte Meneer

Ek is besig met 'n nagraadse studie aan die Universiteit van Kaapstad oor die gebruik van plante deur Plaaslike Owerhede in the Kaapprovinsie.

Dit sal baie waardeer word indien u die volgende inligting aan my kan verskaf en hierdie brief voor 15 September 1985 in die ingeslote koevert aan my kan terugbesorg.

1. Het u dorp/stad sy eie Munisipale Kwekery? Ja / Nee
2. Kweek u Munisipaliteit sy eie plante? Ja / Nee
3. Word die plante gekweek vir u eie gebruik? Ja / Nee
4. Wat is u jaarlikse begroting wat aan die kweek van plante bestee word? .....
5. Wie is in beheer van u Parke Afdeling? .....
.....

U samewerking sal van groot waarde vir my wees.

Die uwe

P R Kruger
NAVORSER

APPENDIX 2

LOCAL AUTHORITIES WHICH HAVE A NURSERY FACILITY FOR PLANT PROPAGATION

Appendix 2

Local authorities in the Cape Province who have a nursery facility propagating plants for own use (1985)

(Listed alphabetically)

Aberdeen*	Kraaifontein
Beacon Bay*	Kuilsrivier
Beaufort West	Kuruman
Bellville	Malmesbury
Brackenfell	Middelburg
Caledon	Milnerton
Cape Town	Montagu
Ceres	Mossel Bay
Clanwilliam	Oudtshoorn
Colesberg	Paarl
Durbanville	Parow
East London	Pinelands
Fort Beaufort*	Port Elizabeth
George	Queenstown
Gonubie	Robertson
Goodwood	Sedgefield
Gordons Bay	Simonstown
Graaf-Reinet	Sishen
Grahamstown	Somerset West
Hermanus	Stellenbosch
Jan Kempdorp*	Uitenhage
Keimoes*	Upington
Kimberley	Vryburg
Kingwilliamstown	Vredenburg - Saldanha
Knysna	Worcester

(* Indicates newly started nurseries)

— (stopped by budgets ? Appendix 3 | overlap ?

APPENDIX 3

GROUPING OF LOCAL AUTHORITIES
WITH A NURSERY FACILITY

Appendix 3

Grouping of local authorities with a nursery facility in accordance with to their 1985 budget for plant propagation

Group I (Budget greater than R50 000)

Bellville
Cape Town
East London
Kimberley
Port Elizabeth

Group II (Budget R15 001 - R50 000)

Caledon
Grahamstown
Parow
Queenstown
Somerset West
Stellenbosch
Worcester

Group III (Budget R5 001 - R15 000)

Ceres
Kraaifontein
Milnerton
Oudtshoorn
Paarl
Sishen
Uitenhage
Upington
Vredenburg/Saldanha
Vryburg

Group IV (Budget less than R5 000)

Aberdeen*
Beacon Bay*
Beaufort West
Brackenfell
Clanwilliam
Colesberg
Durbanville
Fort Beaufort*
George
Gonubie
Goodwood
Gordons Bay
Graaf-Reinet
Hermanus
Jan Kempdorp*
Keimoes*
King Williams Town
Knysna
Kuilsrivier
Kuruman
Malmesbury
Middelburg
Montagu
Mossel Bay
Pinelands
Robertson
Sedgefield
Simonstown

(* Indicates newly started nurseries 1985)

APPENDIX 4

PLANT USAGE QUESTIONNAIRES

PARKS AND GARDEN

SCREEN	:	A - Noise B - Visual C - Wind
SHADE	:	A - Pedestrians B - Seating C - Shade beds
ORNAMENTAL + ANIMAL HABITAT	:	A - Foliage B - Flower C - Fruit

COLOUR	:	A - Foliage B - Flower C - Bark
PROVIDE SCALE	:	A - Horizontal B - Vertical
ORIGIN	:	A - Local B - Not local

* RATING: 1 - Most negative
5 - Most positive

	USE CATEGORIES												* ATTRIBUTES																		GENERAL
													RESISTANCE TO:																		
SPECIES	SCREEN	SHADE	ORNAMENTAL	ANIMAL HABITAT	PROVIDE COLOUR	PROVIDE TEXTURE	PROVIDE FORM	PROVIDE SCALE	FOCAL PLANT	BACKGROUND		ORIGIN	DISEASE	DROUGHT	FROST	WIND	POLLUTION	MAN		AVAILABILITY	PROPAGATION	MAINTENANCE	ROOT SYSTEM	GROWTH RATE	LIFE EXPECTATION	CROWN SIZE	DECIDUOUS	EVERGREEN		AMOUNT USED	

<u>SCREEN</u>	:	A - Noise B - Visual C - Wind
<u>SHADE</u>	:	A - Parking B - Pavements C - Road
<u>SAFETY</u>	:	A - Prevents boredom B - Defines the road C - Anti-dazzle D - Catch fence

<u>ORNAMENTAL + ANIMAL HABITAT</u>	:	A - Foliage B - Flower C - Fruit
<u>ORIGIN</u>	:	A - Local B - Not local

ROADSIDE PLANTINGS

* <u>RATING:</u> 1 - Most negative
5 - Most positive

SPECIES	USE CATEGORIES												* ATTRIBUTES																		GENERAL
													RESISTANCE TO:																		
	SCREEN	SHADE	SAFETY	SOIL STABILIZER	ORNAMENTAL	ANIMAL HABITAT	PROVIDES COLOUR	PROVIDES TEXTURE	PROVIDES FORM			ORIGIN	DISEASE	DROUGHT	FROST	WIND	POLLUTION	MAN		AVAILABILITY	PROPAGATION	MAINTENANCE	ROOT SYSTEM	GROWTH RATE	DECIDUOUS	EVERGREEN	LIFE EXPECTATION	CROWN SIZE	HISTORICAL	AMOUNT USED	

CAR PARKS

SCREEN	:	A - Noise B - Visual C - Wind
SHADE	:	A - Motor cars B - Shade beds C - Seating
ORNAMENTAL + ANIMAL HABITAT	:	A - Foliage B - Flower C - Fruit

PROVIDE SCALE	:	A - Horizontal B - Vertical
ORIGIN	:	A - Local B - Not local

* RATING: 1 - Most negative
5 - Most positive

	USE CATEGORIES												ATTRIBUTES *																		GENERAL
													RESISTANCE TO:																		
SPECIES	SCREEN	SHADE	ORNAMENTAL	ANIMAL HABITAT	PROVIDE SCALE							ORIGIN	DISEASE	DROUGHT	FROST	WIND	POLLUTION	MAN		AVAILABILITY	PROPAGATION	MAINTENANCE	ROOT SYSTEM	GROWTH RATE	LIFE EXPECTATION	CROWN SIZE	DECIDUOUS	EVERGREEN		AMOUNT USED	

PLAZAS AND MALLS

SCREEN	:	A - Noise B - Visual C - Wind
SHADE	:	A - Pedestrians B - Seating C - Shade beds
ORNAMENTAL + ANIMAL HABITAT	:	A - Foliage B - Flower C - Fruit

COLOUR	:	A - Foliage B - Flower C - Bark
PROVIDE SCALE	:	A - Horizontal B - Vertical
ORIGIN	:	A - Local B - Not local

* RATING: 1 - Most negative
5 - Most positive

SPECIES	USE CATEGORIES												* ATTRIBUTES																	GENERAL
													RESISTANCE TO:																	
	SCREEN	SHADE	ORNAMENTAL	ANIMAL HABITAT	PROVIDE COLOUR	PROVIDE TEXTURE	PROVIDE FORM	PROVIDE SCALE	FOCAL PLANT	BACKGROUND		ORIGIN	DISEASE	DROUGHT	FROST	WIND	POLLUTION	MAN		AVAILABILITY	PROPAGATION	MAINTENANCE	ROOT SYSTEM	GROWTH RATE	LIFE EXPECTATION	CROWN SIZE	DECIDUOUS	EVERGREEN		AMOUNT USED	

SPORTSFIELDS AND PLAYGROUNDS

SCREEN : A - Noise
B - Visual
C - Wind
D - Barrier

SHADE : A - Seating
B - Parking
C - Play Areas

ORNAMENTAL + ANIMAL HABITAT : A - Foliage
B - Flower
C - Fruit

ORIGIN : A - Local
B - Not local

* **RATING**: 1 - Most negative
5 - Most positive

	USE CATEGORIES												* ATTRIBUTES																		GENERAL
													RESISTANCE TO:																		
SPECIES	SCREEN	SHADE	ORNAMENTAL	ANIMAL HABITAT								ORIGIN	DISEASE	DROUGHT	FROST	WIND	POLLUTION	MAN		AVAILABILITY	PROPAGATION	MAINTENANCE	ROOT SYSTEM	GROWTH RATE	DECIDUOUS	EVERGREEN	LIFE EXPECTATION	CROWN SIZE		AMOUNT USED	

APPENDIX 5

ATTITUDINAL QUESTIONNAIRE

NATIONAL BOTANIC GARDENS

ATTITUDES TOWARDS THE USE OF INDIGENOUS PLANT MATERIAL

A. Who decides what plant material should be used by your Parks Department?

- [ ] 1. The Town Clerk
- [ ] 2. The Town/City engineer
- [ ] 3. The Mayor
- [ ] 4. Town Councillors
- [ ] 5. Head of the Parks Department
- [ ] 6. The Horticulturist in charge

B. Would you use more indigenous material if:

- [ ] 1. There was more information available on its characteristics.
- [ ] 2. There was more information available on its propagation.
- [ ] 3. Material was more readily available.

C. If you had the choice, would you use more indigenous material? If your answer is yes, what percentage more would you use?

NO [ ] YES [ ] PERCENTAGE [ ]

D. What has influenced you the most to use indigenous material?

- [ ] 1. Drought or water rationing
- [ ] 2. The conservation lobby
- [ ] 3. Cost effectiveness
- [ ] 4. Adds character to your Town/City
- [ ] 5. National pride

E. What are the chief disadvantages in using indigenous plant material?

- [ ] 1. It grows too slowly
- [ ] 2. It does not have enough colour
- [ ] 3. They are difficult to cultivate
- [ ] 4. They are difficult to obtain

F. What is the major expenditure in your Parks Department?

- [ ] 1. Plazas and Malls
- [ ] 2. Roadside plantings
- [ ] 3. Car parks
- [ ] 4. Parks and gardens
- [ ] 5. Sportsfields and playgrounds

* * *

PRK/ss
21-4-86

APPENDIX 6

LIST OF LOCAL AUTHORITIES USED FOR IN-DEPTH INVESTIGATION

Appendix 6

List of Local Authorities used for in-depth investigation

Group 1

Cape Town
East London
Kimberley
Port Elizabeth

Group 2

Grahamstown
Stellenbosch
Queenstown
Worcester

Group 3

Oudtshoorn
Sishen
Uitenhage
Vryburg

Group 4

Clanwilliam
George
Malmesbury
Middelburg

APPENDIX 7

LIST OF INDIGENOUS PLANTS USED IN PARKS AND GARDENS

BY MORE THAN 30% OF THE

LOCAL AUTHORITIES SURVEYED

Appendix 7

List of indigenous plant species used in the category Parks and Gardens by more than 30% of the Local Authorities surveyed

No. of times recorded:

1.	*Olea europaea* subsp. *africana*	11
2.	*Agapanthus* sp	10
3.	*Celtis africana*	9
4.	*Strelitzia reginae*	9
5.	*Harpephyllum caffrum*	7
6.	*Plumbago capensis*	7
7.	*Tecomaria capensis*	7
8.	*Aloe arborescens*	6
9.	*Aloe bainsii*	6
10.	*Clivia miniata*	6
11.	*Ekebergia capensis*	6
12.	*Erythrina caffra*	6
13.	*Euryops virgineus*	6
14.	*Leonotis leonurus*	6
15.	*Acacia karoo*	5
16.	*Aloe ferrox*	5
17.	*Cotyledon* sp	5
18.	*Euryops pectinatus*	5
19.	*Felicia echinata*	5
20.	*Podocarpus latifolius*	5
21.	*Portulacaria afra*	5
22.	*Rhus lancea*	5

APPENDIX 8

LIST OF INDIGENOUS PLANTS USED IN ROADSIDE PLANTINGS BY MORE THAN 30% OF THE LOCAL AUTHORITIES SURVEYED

Appendix 8

List of indigenous plant species used in the category Roadside Plantings by more than 30% of the local authorities surveyed

		No. of times recorded
1.	*Olea europaea* subsp. *africana*	10
2.	*Ekebergia capensis*	9
3.	*Harpephyllum caffrum*	7
4.	*Celtis africana*	6
5.	*Rhus lancea*	6
6.	*Rhus pendulina*	6
7.	*Trichelia emetica*	6
8.	*Dais cotinifolia*	5
9.	*Podocarpus falcatus*	5
10.	*Podocarpus latifolius*	5

APPENDIX 9

ALPHABETIC LIST OF INDIGENOUS PLANTS USED

IN THE FOLLOWING CATEGORIES

Appendix 9

Alphabetic list of indigenous plants used in the following categories

Plazas and Malls

Acacia nigrescens
Celtis africana
Cussonia spicata
Euryops pectinatus
Protasparagus densiflorus
Strelitzia nicolai

Sportsfields and playgrounds

Celtis africana
Dovyalis caffra
Erythrina caffra
Erythrina lysistemon

Harpephyllum caffrum
Leonotis leonurus
Nuxia floribunda

Olea europaea subsp. *africana*
Podocarpus falcatus
Rhus lancea
Trichelia emetica
Vepris undulata

Car Parks

Bauhinia galpinii
Ekebergia capensis
Olea europaea subsp. *africana*
Podocarpus falcatus
Podocarpus latifolius
Rauvolfia caffra
Rhus viminalis
Trichelia emetica

APPENDIX 10

INDIGENOUS PLANTS USED SPECIFICALLY FOR THEIR RESISTANCE TO DRAUGHT

Appendix 10

List of indigenous plants used by local authorities in the Cape Province specifically for their resistance to draught

Acacia karroo
Agapanthus sp
Aloe arborescens
A. ferrox
A. thraskii
Aptenia cordifolium
Arctotis auriculata
A. stoechadifolia
Bauhinia galpinii
B. petersii
Bolusanthos speciosus
Buddleja saligna
B. salviifolia
Carissa macrocarpa
Chrysanthemoides incana
Coleonema pulchellum
Combretum erythrophyllum
Dais cotinifolia
Diospyros whyteana
Dodonea viscosa
Ekebergia capensis
Eriocephalus africanus
Euryops pectinatus
E. virgineus
Felicia echinata
Gazania uniflora
Hypoestes aristata
Lampranthus spp
Leonotis leonurus
Leucadendron argenteum
L. laureolum
L. salignum
Millettia grandis
Ochna natalitia
Olea europaea subsp. *africana*
Osteospermum jucundum
Othonna capensis
Pelargonium peltatum
Peltophorum africanum
Phoenix reclinata
Plumbago auriculata
Portulacaria afra
Protasparagus densiflorus
Rhigozum obovatum
Rhus lancea
R. pendulina
Salvia aurea
S. lanceolata
Schotia afra
Senecia tamoides
Sideroxylon inerme
Tarchonanthus camphoratus
Tecomaria capensis
Vepris undulata

APPENDIX 11

INDIGENOUS PLANTS USED SPECIFICALLY FOR THEIR RESISTANCE TO FROST

Appendix 11

List of indigenous plants used by local authorities in the Cape Province specifically for their resistance to frost

Acacia karroo
Buddleja saligna
Carissa macrocarpa
Celtis africana
Combretum erythrophyllum
Cussonia paniculata
Dais cotinifolia
Dodonea viscosa
Ehretia rigida
Euryops virgineus
Felicia echinata
Grewia occidentalis
Leonotis leonurus
Olea europaea subsp. *africana*
Osteospermum jucundum
Rhigozum obovatum
Rhus lancea
Rhus pendulina
Sutherlandia frutescens
Zizyphus mucronata

APPENDIX 12

INDIGENOUS PLANTS USED SPECIFICALLY FOR THEIR RESISTANCE TO WIND

APPENDIX 12

List of indigenous plants used by local authorities in the Cape Province specifically for their resistance to wind

Arctotis auriculata
Aloe arborescens
A. bainsii
A. ferrox
A. thraskii
Barleria obtusa
Brachylaena discolor
Carissa macrocarpa
Cassine peragua
Chrysanthemoides monilifera
Clerodendrum glabrum
Cliffortia ferruginea
Coleonema pulchellum
Dietes grandiflorus
Ekebergia capensis
Erythrina caffra
Euryops pectinatus
Ficus natalensis
Gazania uniflora
Helichrysum argenteum
H. cymosum
H. splendidum
Osteospermum jucundum
Plumbago auriculata
Sideroxylon inerme
Strelitzia junea
S. reginae
Syzigium cordatum
Tarchonanthus camphoratus
Vepris undulata
Watsonia densiflorus