

ANNEXURE “D”

ENVIRONMENTAL GUIDELINES

for

Oakwood Cape Country Estate

Grotto Way - Hout Bay - Western Cape

MANAGEMENT PLAN FOR PRIVATE ERVEN

It must be brought to the attention of prospective buyers that certain guidelines must be adhered to when landscaping their erven. The emphasis of the guidelines being on environmental awareness i.e. use of water wise gardening methods, environmentally friendly disease and pest control methods, opting for indigenous plants and reducing hardened surfaces and subsequent stormwater runoff. Walls and fences are to adhere to guidelines included in the Architects Guideline Manual.

Landscape guidelines

More information is included in Appendix 3 with regard to the following guidelines.

- Homeowners must use waterwise gardening methods i.e. group plants according to their water needs, reduce lawn area, irrigate correctly, mulch and correct garden maintenance.
- The proposed list of plants found in Appendix 3 must be used. If other plants are wanting to be used these must be approved by the Developers Landscape Architect.
- Under no circumstances may plants described as 'Declared weeds and invaders under The Conservation of Agricultural Resources Act (Act No. 43 of 1983) be planted. According to the regulations the presence of declared weeds will not be condoned on and within an urban area. Several additional species have been proposed as declared weeds and invaders. As yet they are not subject to any regulations. All these species should be regarded as potentially harmful invaders and should not be planted. A list is attached in Appendix 2.
- Paved areas must be minimised to reduce hardened surface areas and blacktop paving must be avoided altogether. Brick and concrete block paving is favoured. Runoff from paving should be dispersed in the garden and not discharged into stormwater pipes.

Proposed plant list and guidelines
for
Landscaping of Private Erven
and
The Common Property

SPECIES

Eriocephalus africanus	Wild Rosemary/Kapokbos	1 m	1 m	sun	white
Euryops pectinatus	Wolharpuisbos	1 m	1 m	sun	yellow
Euryops speciosissimus	Harpuisbos	1,5 m	1 m	sun	yellow
Felicia filifolia	Draaibos	1 m	1 m	sun	mauve
Leucadendron salignum	Geelbos	1,5 m	1,5 m	sun	yellow
Leucospermum cordifolium	Pincushion/Speldekussing	1,5 m	2 m	sun	orange/ yellow
Metelasia muricata	Blombos	1,5 m	1 m	sun	white
Plumbago auriculata	Plumbago	3 m	3 m	sun	blue / white
Protea repens	Sugarbush/ Suikerbossie	3 m	3 m	sun	white/ pink
Rhus crenata	Duinekraalibessie	3 m	6 m	sun	green
Salvia africana-lutea	Wild Sage/ Bruinsalie	1,8 m	1,8 m	sun	yellow
Strelitzia juncea	Crane Flower	1,5 m	1,5 m	sun	orange
Tecomaria capensis	Cape Honeysuckle	3 m	3 m	sun	orange/ red / yellow

Trees / Bome

Acacia karroo	Sweet Thorn/ Soetdoring	8 m	8 m	sun	yellow
Brachyleana discolor	Coast Silver Oak	7 m	10 m	sun	cream
Cussonia paniculata	Klein Bergkiepersol	5 m	2 m	sun	green
Dais cotinifolia	Pompon Tree	5 m	3 m	sun	pink
Diospyros whyteana	Cape Ebony/ Swartbas	5 m	3 m	sun / ●	cream
Encephalartos altensteinii	Eastern Cape Cycad	1,5 m	1,5 m	sun	-
Erythrina lysistemon	Gewone Koraalboom	10 m	6 m	sun	red
Olea europea subsp. africana	Wild Olive/ Olienhout	8 m	6 m	sun	green
Rhus lancea	Karee	7 m	7 m	sun	green

Succulents / Vetplante

Aloe ferox	Bitter aloë/ Bitteraalwyn	up to 3 m	1 m	sun	orange/ red
Bulbine frutescens	Katstert	30 cm	40 cm	sun	yellow/ orange
Carpobrotus acinaciformis	Sour Fig/ Suurv	0.15 m	1 m	sun	pink
Cotyledon orbiculata	Varkore / Pig's Ears	1 m	0.5 m	sun	orange
Crassula coccinea	Klipblom	60 cm	40 cm	sun	red
Crassula multicaeva	Feetjie-crassula	20 cm	30 cm	● / ●	light pink

Climbers / Klimplante

Podranea ricasoliana	Port St.Johns Tecoma	6 m	4 m	sun	pink
Senecio tamoides	Canary Creeper	5 m	3 m	sun	yellow
Thunbergia alata	Black-eyed Susan	3 m	1,5 m	sun	orange/ yellow

Annuals / Jaarplante

Dimorphotheca pluviialis	Witmargriet	30 cm	30 cm	sun	white
Dorotheanthus bellidiformis	Bokbaai vygie	10 cm	25 cm	sun	various
Nemesia strumosa	Wilde leeubekkie	30 cm	30 cm	sun	various
Senecio elegans	Wild Cineraria	60 cm	30 cm	sun	purple / white
Ursinia cakilifolia	Calvinia-Ursinia	30 cm	30 cm	sun	orange

COMMON NAME

HEIGHT	SPREAD	SUN / SHADE	FLOWER COLOUR
1 m	1 m	sun	white
1 m	1 m	sun	yellow
1,5 m	1 m	sun	yellow
1 m	1 m	sun	mauve
1,5 m	1,5 m	sun	yellow
1,5 m	2 m	sun	orange/ yellow
1,5 m	1 m	sun	white
3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
3 m	6 m	sun	green
1,8 m	1,8 m	sun	yellow
1,5 m	1,5 m	sun	orange
3 m	3 m	sun	orange/ red / yellow

SUN / SHADE

FLOWER COLOUR

HEIGHT	SPREAD	SUN / SHADE	FLOWER COLOUR
1 m	1 m	sun	white
1 m	1 m	sun	yellow
1,5 m	1 m	sun	yellow
1 m	1 m	sun	mauve
1,5 m	1,5 m	sun	yellow
1,5 m	2 m	sun	orange/ yellow
1,5 m	1 m	sun	white
3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
3 m	6 m	sun	green
1,8 m	1,8 m	sun	yellow
1,5 m	1,5 m	sun	orange
3 m	3 m	sun	orange/ red / yellow

FLOWER COLOUR

HEIGHT	SPREAD	SUN / SHADE	FLOWER COLOUR
1 m	1 m	sun	white
1 m	1 m	sun	yellow
1,5 m	1 m	sun	yellow
1 m	1 m	sun	mauve
1,5 m	1,5 m	sun	yellow
1,5 m	2 m	sun	orange/ yellow
1,5 m	1 m	sun	white
3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
3 m	6 m	sun	green
1,8 m	1,8 m	sun	yellow
1,5 m	1,5 m	sun	orange
3 m	3 m	sun	orange/ red / yellow

FLOWER COLOUR

HEIGHT	SPREAD	SUN / SHADE	FLOWER COLOUR
1 m	1 m	sun	white
1 m	1 m	sun	yellow
1,5 m	1 m	sun	yellow
1 m	1 m	sun	mauve
1,5 m	1,5 m	sun	yellow
1,5 m	2 m	sun	orange/ yellow
1,5 m	1 m	sun	white
3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
3 m	6 m	sun	green
1,8 m	1,8 m	sun	yellow
1,5 m	1,5 m	sun	orange
3 m	3 m	sun	orange/ red / yellow

FLOWER COLOUR

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1 m	1 m	sun	mauve
1,5 m	1,5 m	sun	yellow
1,5 m	2 m	sun	orange/ yellow
1,5 m	1 m	sun	white
3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
3 m	6 m	sun	green
1,8 m	1,8 m	sun	yellow
1,5 m	1,5 m	sun	orange
3 m	3 m	sun	orange/ red / yellow

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1,5 m	1 m	sun	yellow
1 m	1 m	sun	mauve
1,5 m	1,5 m	sun	yellow
1,5 m	2 m	sun	orange/ yellow
1,5 m	1 m	sun	white
3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
3 m	6 m	sun	green
1,8 m	1,8 m	sun	yellow
1,5 m	1,5 m	sun	orange
3 m	3 m	sun	orange/ red / yellow

FLOWER COLOUR

HEIGHT	SPREAD	SUN / SHADE	FLOWER COLOUR
1 m	1 m	sun	white
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1 m	1 m	sun	mauve
1,5 m	1,5 m	sun	yellow
1,5 m	2 m	sun	orange/ yellow
1,5 m	1 m	sun	white
3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
3 m	6 m	sun	green
1,8 m	1,8 m	sun	yellow
1,5 m	1,5 m	sun	orange
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1 m	1 m	sun	mauve
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1,5 m	2 m	sun	orange/ yellow
1,5 m	1 m	sun	white
3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
3 m	6 m	sun	green
1,8 m	1,8 m	sun	yellow
1,5 m	1,5 m	sun	orange
3 m	3 m	sun	orange/ red / yellow

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1 m	1 m	sun	mauve
1,5 m	1,5 m	sun	yellow
1,5 m	2 m	sun	orange/ yellow
1,5 m	1 m	sun	white
3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
3 m	6 m	sun	green
1,8 m	1,8 m	sun	yellow
1,5 m	1,5 m	sun	orange
3 m	3 m	sun	orange/ red / yellow

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1 m	1 m	sun	mauve
1,5 m	1,5 m	sun	yellow
1,5 m	2 m	sun	orange/ yellow
1,5 m	1 m	sun	white
3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
3 m	6 m	sun	green
1,8 m	1,8 m	sun	yellow
1,5 m	1,5 m	sun	orange
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1,5 m	2 m	sun	orange/ yellow
1,5 m	1 m	sun	white
3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
3 m	6 m	sun	green
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1,5 m	1 m	sun	white
3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
3 m	6 m	sun	green
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3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
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3 m	3 m	sun	white/ pink
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3 m	3 m	sun	white/ pink
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3 m	3 m	sun	blue / white
3 m	3 m	sun	white/ pink
3 m	6 m	sun	green
1,8 m	1,8 m	sun	yellow
1,5 m	1,5 m	sun	orange
3 m	3 m	sun	orange/ red / yellow

FLOWER COLOUR

FLOWER COLOUR
white
yellow
yellow
mauve
yellow
orange/ yellow
white
blue / white
white/ pink
green
yellow
orange
orange/ red / yellow

SPECIES

Bulbs / Bolle

Agapanthus praecox	Agapanthus	up to 1,5 m	0.7 m	sun/☀	blue / white
Amaryllis belladonna	March Lily	50 cm	50 cm	sun	pink
Chasmanthe floribunda	Suurkanol	1 m	0.3m	sun	orange
Clivia miniata	Boslêlie / Flame Lily	75 cm	75 cm	☀ / ●	orange
Dietes grandiflora	Wild Iris	1 m	1 m	sun/☀	white
Freesia alba	Duine-aandblom	20 cm	15 cm	sun	white
Tulbaghia violacea	Wild Garlic / Wildeknoffel	40 cm	25 cm	sun	mauve
Watsonia borbonica	Watsonia	up to 1,5m	0.3 m	sun	pink / white

Herbaceous / Kruidagtig

Anchusa capensis	Kaapse vergeet-my-nie	60 cm	30cm	sun	blue
Arctotis stoechadifolia	Witgousblom	15 cm	40cm	sun	pink/ orange
Asparagus densiflorus "Meyersii"	Cat's Tail Asparagus	30 cm	30cm	☀ / ●	white
Felicia aethiopica	Bloumagriet	30 cm	30cm	sun	blue
Felicia echinata	Felicia	30 cm	30 cm	sun	mauve
Gazania krebsiana	Botterblom	25 cm	30cm	sun	orange
Gazania rigens var uniflora	Gazania	15 cm	30cm	sun	yellow
Geranium incanum	Bergtee	30 cm	30cm	sun	mauve
Helichrysum cymosum	Goue tapyt	10 cm	30cm	sun	yellow
Helichrysum petiolare	Kooigoed	1 m	1.5 m	sun/☀	white
Leonotis leonurus	Wild Dagga	up to 2 m	60cm	sun	orange / white
Pelargonium capitatum	Rose-scented pelargonium	30 cm	60cm	sun	pink
Pelargonium cucullatum	Wildemalva	1 m	60cm	sun	purple
Pelargonium peltatum	Kolsuring	30 cm	60cm	sun	pink
Plectranthus neochilus	Spur flower	30 cm	60cm	sun	mauve
Scabiosa africana	Koringblom	60 cm	60cm	sun	mauve
Sutera cordata	Sutera	15 cm	15 cm	sun	white

Shrubs / Struik

Agathosma ovata "Kluitjieskraal"	False Buchu	60 cm	60cm	sun	pink
Agathosma glabrata	Buchu / Boegoe	1 m	0.5m	sun	pink/ mauve
Anisodonteia scabrosa		1 m	1 m	sun	pink
Barleria obtusa	Bosvioletjie	1.5 m	1m	sun / ☀	purple / pink
Bauhinia galpinii	Pride of de Kaap	3 m	4 m	sun	orange
Buddleja auriculata	Treursalie/ Weeping sage	4 m	4 m	sun	cream
Carissa macrocarpa	Grootnoem-noem	3 m	2 m	sun / ☀	white
Chondropetalum tectorum	Dakriet / Restio	1 m	1 m	sun	brown
Coleonema album	Confetti Bush / Aasbossie	1 m	0.75m	sun / ☀	white
Dovyalis caffra	Kei apple	4 m	3 m	sun	cream
Erica baccans	Bessieheide / Berry heath	1 m	0.6 m	sun	pink
Erica cerinthoides	Hairy heath/ Roothaartjie	30 cm	20 cm	sun	red
Erica mammosa	Rooiklossieheide	1,5 m	1 m	sun	cream/ red

COMMON NAME

HEIGHT

SPREAD

SUN / SHADE

FLOWER COLOUR

President Nelson Mandela is patron of the National Water Conservation Campaign of South Africa, the aim of which is to promote the sustainable, efficient, and equitable supply and use of water in the country. This includes the need to enlighten all South Africans so that their attitudes, knowledge, and lifestyles support the campaign's aim.

Water wise gardening is undoubtedly a step in the right direction, and does not require government legislation, formal infrastructure nor the allocation of massive funding on the part of government or individual gardeners. All it requires is a commitment to gardening as if water really mattered.

Water is taken for granted by those who are not directly affected by water shortages. South Africa is a hot, dry country, with an average rainfall of less than 500 mm per year. The occasional wet year is an exception, and the low rainfall years we are currently experiencing should not be viewed as a crisis but

a limit to the number of dams we can build, and to the amount of water we can draw, without destroying our rivers.

In an article by Philip Ivey (see *Veld & Flora* 81(1), March 1995), 'Are all the south-western Cape's rivers to be dammed?', he comments on a prediction by the Department of Water Affairs and Forestry that Cape Town will run short of water

as the year 1998 if the current water supply is not augmented. Philip concludes by saying that in order to relieve the water crisis and reduce the demand on our water supply we can choose to modify our patterns of water use, thereby taking responsibility for the environmental costs of our lifestyles.

Considering the fact that an average of 12% of available water in South Africa is

WATER WISE GARDENING

consumed by individual households, and that between 30% and 50% of this water is used in the garden, water wise gardening is an obvious, and beautiful, response!

What is water wise gardening? It is a simple, practical concept which encompasses a few basic points.

Use low water demand plants that are adapted to the climatic conditions of your garden. Indigenous plants are better than most alien (exotic) plant species. However, contrary to popular belief, not all indigenous plants are drought resistant and water wise.

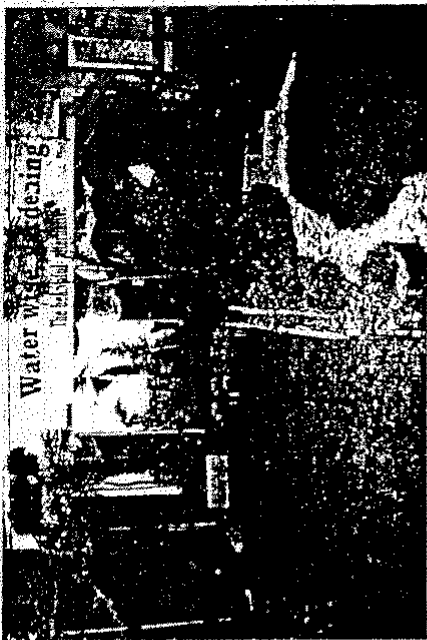
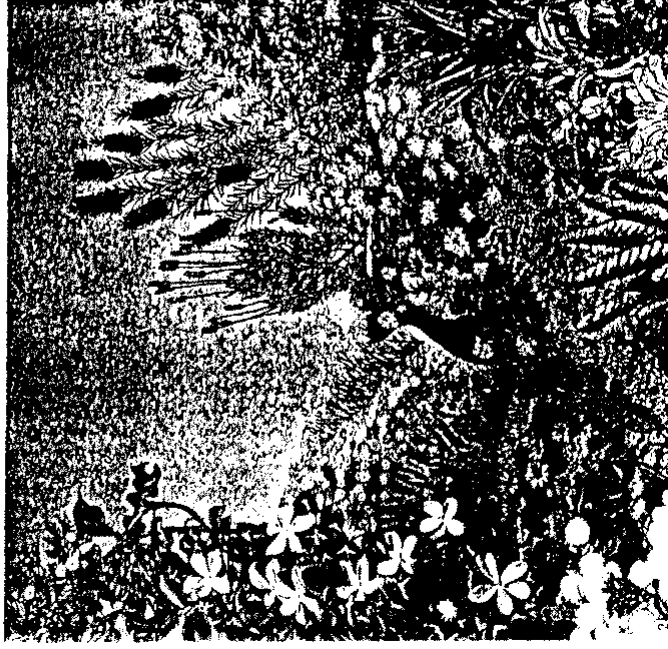
The resistance depends on the conditions in which the plant grows naturally, for example, plants from a high rainfall area like the Natal Drakensberg will use more water than plants from the dry Karoo. Similarly, not all exotic plants are necessarily water guzzlers, although the majority of the common, exotic garden varieties do tend to use more water than locally adapted species.

South Africa's vegetation is one of the most diverse in the world, and we have an enormous variety of plants to choose from when it comes to selecting indigenous, locally adapted species that do not need extra watering. An added bonus is that indigenous plants have low maintenance requirements, and attract wildlife to the garden - birds, butterflies, frogs, chameleons - which in turn act as natural predators for undesirable pests.

Enclosed in this issue of *Veld & Flora* is a water wise gardening pamphlet, including a list of water wise plants. The list is by no means complete, and although most are indigenous it does contain some exotic plant varieties. Copies of the water wise gardening poster, size A1, are available from the Botanical Society at R11.50 (or R24.50 if laminated) including VAT and postage.

For further information please contact the Conservation Officer at the Botanical Society tel (021) 797 2098 or fax (021) 797 2476.

Veld & Flora March 1996



WATER WISE GARDENING METHODS

Group plants according to their water needs. Be aware of how much water different plant species require, and group them accordingly. Eliminating mixed beds where drought tolerant species are interspersed with water guzzlers. If you are particularly fond of exotic, water loving species such as azaleas, camelias, hydrangeas and fuchsias, you could consider grouping them together in a small but prominent bed.

Reduce lawn area and maintain your lawn correctly. Lawns are notorious guzzlers of water. By replacing areas of lawn with plant beds, drought resistant groundcovers, gravel, rocks, or mulched pathways (using anything from wood chips to stone chips, pebbles, or shells), you could save yourself a great deal of water and maintenance.

Avoid the extremely thirsty Kikuyu and use one of the many low maintenance water wise grass types adapted to the climatic conditions of your area. In order to reduce run-off and allow for more effective water penetration, you could aerate your lawn with a good spiking with a hollow tined tool. Allow your lawn to grow a little longer during the growing season as this will encourage deeper root growth. Excessive watering of lawns results in shallow root growth and encourages fungal and other diseases.

Irrigate correctly. Water less frequently, but deeply and thoroughly, to encourage strong rooting. Water during times of low evaporation (early morning or evening), and on less windy days. Do not over water and avoid watering pathways and roads. Dig basins around trees to collect water near the roots.

An efficient irrigation system could ultimately save you a fortune in both quantity and cost of water. Water saving technology such as low pressure nozzle sprinklers, drip irrigation and moisture sensors are now available in South Africa. More simple water saving techniques include the use of porous clay bowls which are filled with water and distributed throughout the garden, thereby slowly releasing water as it is needed. Drip irrigation systems can also be made at home without great expense.

Mulching. This is a simple yet nutritious tactic that can save up to 50% of a plant's water consumption! One only has to go back to the open veld or the forests and wonder at how these plant systems survive the dry seasons. The answer lies in and on the soil! Nature has provided a mechanism whereby the plant takes what it needs from the soil and then returns it to the soil. Organic matter such as leaves and wood, returned to the soil by the plant, not only helps reduce water evaporation from the soil but also improves the soil structure, provides the soil with the necessary component for water retention, provides valuable nutrients and trace elements, enables essential microbial and worm activity, and assists in moderating soil temperature. In your garden a layer of mulch will also help suppress weed growth.

Mulching is nothing more than the spreading of a blanket of material on the soil surface around the plants. The basic principle is to have as little exposed soil as possible. Almost anything - organic or inorganic - will do the trick - compost, leaves, manure, straw, grass clippings, pine needles, sawdust, wood or bark chips, nut shells, stone chips, pebbles or gravel. The addition of a layer of compost or well rotted manure, applied below inorganic mulching material such as stone chips and organic mulching material such as straw, grass clippings, sawdust and wood chips, will greatly benefit plant growth.

Correct garden maintenance. A few basic principles include regular composting which improves soil structure and water retention, regular weeding, correct pruning to maintain vigour and eliminate unnecessary growth, and avoiding over-fertilising which can damage plants and increase water consumption. ☺

Water wise gardening

How to prepare your garden for the beautiful alternative.

Water - the dwindling resource

South Africa is a dry country, with an average rainfall of less than 500mm per annum and even in the higher rainfall regions, that rain is not reliable. Regularly, too little rain brings crippling droughts and too much brings devastating floods. Added to this is an increasing population with legitimate claims to an adequate supply of fresh water to drink, to cook with and for sanitation.

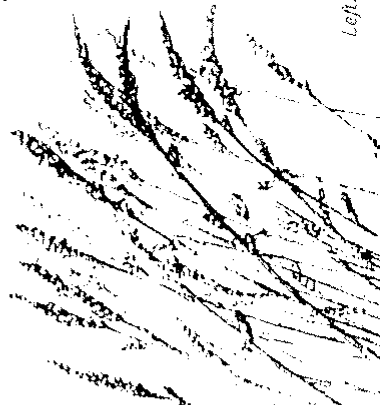
As the demand for this precious resource grows, so will its price as well as legislation to discourage excessive use.

The sad fact is that, although gardens are very often singled out for water restrictions and bans, many people overwater their gardens. That is one of the reasons why gardens consume between 30% and 50% of all domestic water used.

Water wise gardening cuts down on that waste, while preserving the beauty of the garden, the diversity of plants, and the value an established garden adds to property.

The garden of the future

Water wise gardening must become a way of life and not an emergency measure.



Left: *Chondropetalum tectorum*

It will result in a beautiful garden - not a moonscape with a few cacti.

An established garden can be made Water wise with a little effort and a little thought. If you are planning a new garden, the more Water wise you make it from the start, the easier and cheaper it will be to keep it beautiful.

Once you have made the decision to concentrate on Water wise plants for your garden, and discussed them with your local nursery, the following principles will help you create and maintain the garden of the future:

Group plants with similar water requirements in the same beds

Many sought after plants may need regular watering, these should be grouped together in the most prominent part of your garden, where they are frequently seen and admired. Plants which may need watering only once a month, should be considered for the rest of your garden. While most plants require regular watering after planting, once Water wise plants are established, you can reduce watering dramatically.

Bedding plants and annuals require regular watering. Ask your nursery which of them are Water wise, and enquire about mulching and water retention granules which reduce the need for water.

Plant South African Water wise plants.
We are blessed with a vast diversity - over 24 000 - many of which are Water wise and very beautiful.

Reconsider your lawns

Lawns guzzle water. Assess how much lawn you actually need for entertaining, children playing and pet exercising, and then consider reducing the area without reducing your enjoyment. If some areas of lawn are used as patios, maybe they would be better paved. Would narrow strips of grass look better as flower beds of mulched walkways? Do not cut your lawn too short during the growing season.

Automatic sprinklers should irrigate lawns (and not the surrounding paths) early morning in Summer and late afternoon in Winter. If it rains, override the system and remember, too much water results in shallow root growth and encourages fungal and other attacks on the grass.

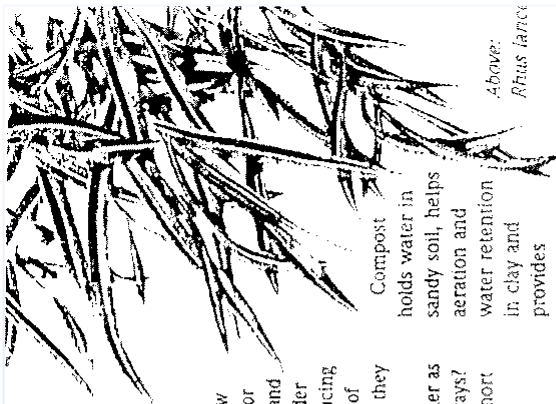
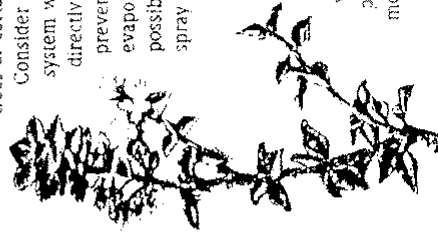
Light fertilising will reduce a lawn's need for water considerably and hollow tining compacted lawns allows more effective penetration and reduced run-off.

Ask your nursery about Water wise grass types and think about replacing your existing grass if it is a water guzzler. It may take time to establish a new lawn but it will be worth it.

Improve your soil's water retention

The easiest way is to add compost, which, in some areas, can be bought from your nursery, or municipal suppliers, or you can make your own from garden and biodegradable household refuse.

Right: *Thyme*



Above:
Rhynchospora lanceolata

Compost holds water in sandy soil, helps aeration and water retention in clay and provides valuable nutrients to your plants.

Ask your nursery about various wetting agents and water storing granules which facilitate the spread of water and form 'reservoirs' of water which the roots can penetrate.

Irrigate correctly

An efficient irrigation system is becoming more and more essential and it should be set to irrigate at times of low evaporation; early in the morning or late in the evening. It should deliver long soaking irrigation at optimum times.

Sprinklers are not the most Water wise way to water shrubs, trees or certain vegetables.

Consider a drip irrigation system which delivers water directly to the roots and prevents loss by evaporation, as well as possible damage caused by spray on leaves and stems. Thorough, less frequent watering encourages deep root growth, whilst light, frequent watering promotes plants, makes them more prone to dry out

more prone to dry out

and lazy about reaching deep into the soil to find water and nutrients.

Reduce the evaporation rate of your increasingly costly water by mulching wherever possible. Your nursery will advise you where and supply you with mulching materials such as: straw, bark,

gravel, pebbles, compost, nut shells and leaves.

Included with this leaflet is a brief list of Water wise plants. Please look for the Water wise label on plants at your nursery and enquire about their availability and suitability for your particular area.



RAND WATER

Rand Water and Manzi, who is the symbol for their water conservation campaign.



Department of Water Affairs and Forestry and the symbol for their water conservation campaign.



SANA, the South African Nurserymen's Association.



Water wise gardening is an initiative of the Botanical Society of South Africa.

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SANA NATAL

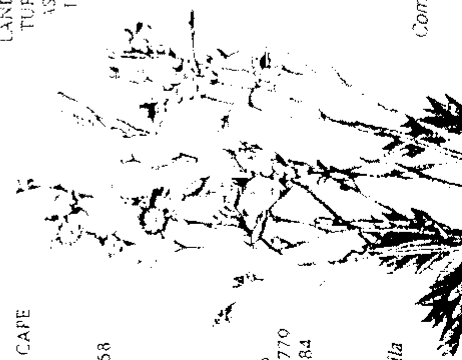
Colly Stuart

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Right: Heliophila

Dermod Judge Communications. 1995

Waterworks

By the time we reach the 21st century, water-saving will have to become a way of life for gardeners in this country

TEXT AND PHOTOGRAPHS BY JULIA LLOYD AND MARIANNE ALEXANDER

THE 21ST CENTURY might seem a long way off, but gardeners should start taking the bleak rainfall predictions very seriously. With current water shortages we must make every effort to save this precious commodity wherever possible. For some, the incentive will be the impact that the use of excessive quantities of water will have on our environment in the future, while others will be more concerned at being out of pocket as water costs soar.

There are, however, countless ways to use water wisely in the garden.

SOIL PREPARATION

The first step is to ensure a well-cultivated and fertile medium for your plants:

- Hard and compacted soil causes too much run-off of water. So, the deeper you till your soil, the better it is for water penetration.
- Add plenty of compost to the soil. Organic matter, dug in well, retains water. One of the best things you can do is to trench your soil, particularly in the veggie patch. This allows good water penetration. Also, with nutrients deeper down, you'll be able to position plants closer together, saving more water.
- Add fertilizers which help condition the soil. The healthier the soil, the greater the penetration and retention of water.

PLANTING

- Dig large holes for shrubs and trees – the larger the better. Placing plenty of organic matter at the base will help the plant to retain moisture. Remember to dig a square hole to encourage roots to grow down.
- Dig a basin around the bases of trees and shrubs to collect water.
- Always make sure that beds are level after planting, as this will prevent water run-off.

MULCHING

There are many benefits to mulching:

- It reduces water evaporation and run-off
- It acts as a temperature regulator, keeping soil cool in summer, warm in winter

- Mulch suppresses weeds
- It helps prevent hardening and compacting of soil.
- Organic mulches slowly decompose, providing additional nutrients.
- Inorganic mulches, such as pebbles or gravel, can look attractive.

Types of Mulches

Inorganic – gravel, pebbles. Organic – bark chips, sawdust, pine needles (acidic), leaf mould, lawn clippings, straw, manure, compost.

WATERING

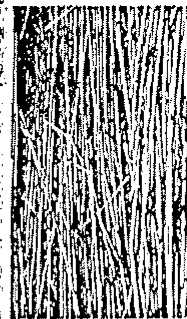
- In spring and summer, never water in the middle of the day.

MULCHES

Mulches form a very important part of any gardener's water-saving drive.



Bark chips



Straw

spending up new areas or replacing plants in established gardens, tremendous long-term savings can be made by choosing water-thrifty plants right from the beginning.

While there are some very greedy plants, there are those that are happy on a stricter diet of water. Indigenous plants that are suited to your area are generally less thirsty than the exotic types. However, there are a number of exotic varieties that don't need that much water.

LAWNS

Lawn is always welcome in the garden, especially if you have children or enjoy entertaining outdoors. However, most lawns, and especially Kikuyu, are great guzzlers of water.

There are many alternatives to choose from, and these can save enormous amounts of water and look most attractive. Here are some suggestions to guide you in your choice:

- Your lawn could be replaced by a 'hard' garden – paving, sleepers, pebbles and pathways. A mixture of 'hard' textures can be as interesting as those of the leafy kind.
- Ground covers are a useful substitute and look very pretty grown amongst paving stones.

LAWN CARE

- If you have an area of lawn, you don't only have to water it to keep it healthy:
- Cut it very close in spring, then keep it at a height of 5cm throughout the season. The shorter the blades of grass, the shorter the roots and the quicker they dry out. By allowing your grass to grow a little longer, it will have deeper and stronger roots.
- Don't let the lawn get longer than 5cm, as this will prevent the penetration of any rainfall.

- Apply a healthy top-dressing in spring and then again in summer.

QUESTIONS AND ANSWERS

Question 1

Few of the nurseries I frequent can tell me which plants are water-thrifty or drought-tolerant. Can you give me some guidelines?

The secret to identifying drought-tolerant plant material is to look at:

- The physical characteristics of the plant. As plants have evolved over the centuries, they have developed many tactics to enable them to cope with little or no rain. Some have grey foliage – the result of a protective, waxy coating such as on rue and many succulent plants. Some have a layer of hairs, as found on lavenders and our indigenous silver trees, while others have reduced the size of their leaves so that less water is lost by transpiration, as in the tamarisk. A number of plants store water in their roots, stems or leaves, as in succulents, or some bulbs and plants like streptocarpus and agapanthus, while some grow in the rainy season and lie dormant when it is dry.
- The plant's place of origin. Although some of these plants come from summer-rainfall areas, and a number come from areas which experience drought conditions, a large proportion originate in regions which experience a Mediterranean climate – cool, wet winters and dry, hot summers. They include Western Australia, California, Mediterranean lands such as the south of France, Spain, Italy and Greece, and of course our own Western Cape.
- The plant's natural habitat. Many plants have become acclimatized to the areas in which they live. However, even within these areas there are often microclimates where plants may receive more or less rain, sun or wind

than others. A plant growing in a very hot, dry area – such as in the lee of a rock or on a well-drained north-facing slope – will be better adapted to a water-wise garden than one from a sheltered, moist gully.

Question 2

I seem to be placed under tremendous pressure to grow indigenous plants because I am constantly being told they are minimal water-users. Is this true?

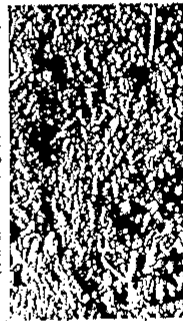
Indigenous versus exotic

Yes, some indigenous plants certainly are more drought-tolerant than exotic plants. You often see pictures of our native plants, like streptocarpus, dieters and agapanthus, growing en masse in water-wise gardens in Australia, America and Europe, but there are also many attractive exotic, water-thrifty plants which you can use as well. Remember that just because a plant is indigenous it doesn't mean it is drought-tolerant.

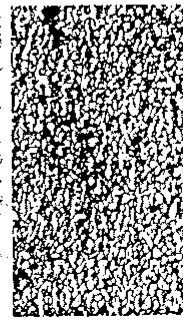
A plant's rating as a low water user depends, as seen above, not only on where it comes from, but also under what conditions it was growing in the wild. For instance, not all plants from the Western Cape, with its Mediterranean climate, are drought-tolerant – some plants growing on top of a Cape mountain will not adapt to life in an average suburban garden with minimal watering, because their water requirements are supplemented by the clouds in which they are often enveloped. Similarly, a shade-loving fern found in a moist gully will struggle in a dry garden, although you may have success with the Pelletia ferns. Found on the northern slopes of the same mountain, they cope with the lack of water by dying back, or becoming dormant, during the summers. This applies to any plant, exotic or native. ➤



Pebbles

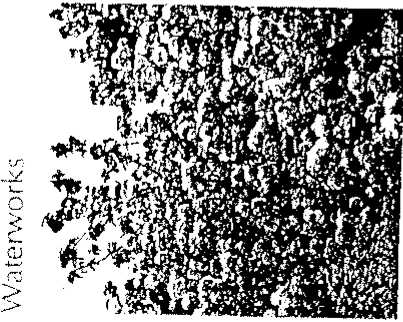


Compost

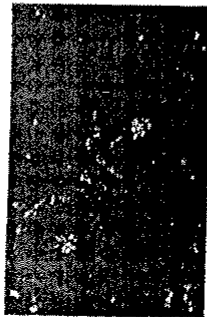


Gravel

Waterworks



The deciduous *Viburnum opulus* or snowball tree not only provides a glorious spring show of flowers but has colourful autumn foliage.



Convolvulus grow easily from seed and can be used to climb trellises and fences, or as a ground cover.



Prunus sp. # - Flowering plum/peach. *Punica granatum* # - Pomegranate. *Rosmarinus officinalis* # - Rosemary. *Salvia leucantha* # - Tamarisk.



The delicate-looking, crinkled petals of *Dianthus* rose are unimpaired in a drought-tolerant plant.



Irises and blue *sanicle*, *Limnium petzeli*, make a good combination.



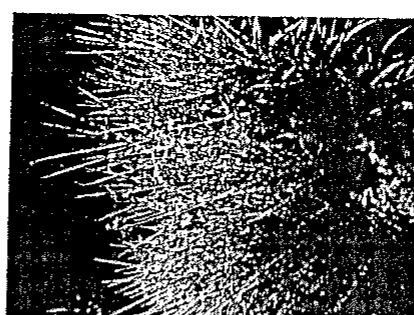
Succulents and cacti are drought-tolerant as is the ground cover snow in summer (*Ceratium lomentosum*), seen here.



Dianthus, the indigenous wild iris, will tolerate periods without water yet still produces flowers.



Antennaria is a useful succulent ground cover with pretty flowers.



Many grasses, like this *Setaria* grass, are water-thrifty.

PERENNIALS AND BULBS

INDIGENOUS

- Agapanthus africanus* # - Wild iris
- Crocus* sp. # - Orange River lily/Cape
- Coast lily/Mel lily* # - Berg lily
- Galliotia condicans* # - Sea lavender/Siaca
- Strelitzia reginae* # - Crane flower/Bird of Paradise
- Tulbaghia* # - Wild sweet garlic

EXOTIC

- Achillea* # - Yarrow
- Aster non-belgi* # - Michaelmas daisy
- Centaurea ruber* # - Valerian
- Coreopsis* sp. #
- Echium fastuosum* # - Pride of Madeira
- Echinacea purpurea* # (rhubarb)
- Coneflower*
- Gaillardia* # - Blanket flowers
- Gaura lindheimeri* # - Wind flower
- Nierembergia violacea* #
- Oenothera* sp. # - Evening primrose

SUCCULENT-TYPE PLANTS

- Romneya coulteri* # - Tree poppy
- Salvia* sp. #
- Agave* sp. # - Century plant
- Aloe* sp. #
- Sedum* sp. # - Jelly bean plant
- Crassula* sp. #
- Yucca* sp. #
- Euphorbia* sp. #
- Aeonium* #

GROUND COVERS

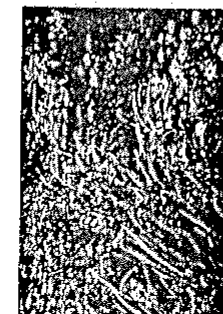
- Mecynanthemum* sp. # - Mead and vicia
- Antennaria* #
- Arctostaphylos* sp. # - Creeping marguerite
- Protaspargus* sp. # - Asparagus fern

EXOTIC

- Ceratium lomentosum* # - Snow in summer
- Convolvulus mauritanicus* # - Morning glory
- Eriogonum karwinskianum* #
- Juniperus horizontalis* # - Creeping juniper
- Lantana montevidensis* #
- Trechloperium patrinoides* # - Star jasmine
- Tradescantia* sp. # - Wandering Jew
- Veronica* sp. # - Pennywort



Dombeya burgessiae, the pink wild pear from the Transvaal, can tolerate periods without water.



Crocus aurea, *C. paniculata* (Falling Star) or *monticola*, indigenous bulbous plants which die back in the dry season, grow well with drought-tolerant *rubricauda*, *glaberrima* daisies and the variegated *pernivalis* seen in the background.



Baccharis salicifolia, *Pride of De Kaap*, from the *Burmannian* area, is well-suited to water-rich gardens.



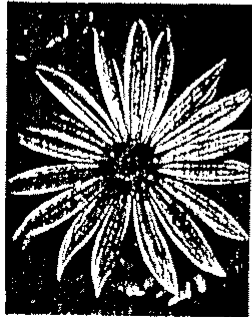
The fruits of the small *rum-rum* *Curtia* shrubs, are edible.



Buddleia salicifolia can tolerate very cold winters and, as an evergreen, provides an excellent screen.



Sedum, *veronica* and *erigeron* are useful ground covers for water-thrifty gardens.



Oenothera biennis bears flowers year after year and is an extremely useful ground cover as it can be cut at any time about its planting position.



Strelitzia reginae are tough, indigenous plants with fleshy roots. A yellow form is also available.



The self-sowing *Euphorbia pulcherrima* or Californian poppy, seeds very little to drink, and will grow anywhere in the garden. A seed that finds its way into a pathway can produce a healthy plant, its roots wedged in between the bricks.



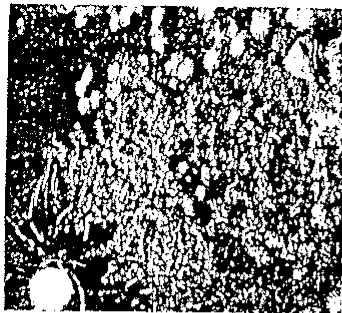
The yellow Cape honeysuckle, *Tecoma capensis*, is more compact and shrubby than the other colour forms.



Have of the evergreen salvia, which come in shades of blue, pink, red and white, have aromatic leaves. All grow easily from seed.



Achillea millefolium, the aromatic herb yarrow, bears pink flowers in spring and summer, making it a useful addition to the perennial border.



Portulacaria afra, succulent from the Eastern Cape, look at home in suburban gardens. Pretty pink flowers appear in summer.



Chamaenerion, the Japanese quince, will brighten even the coldest winter gardens with its red flowers.



Several species of bulbous scilla are suitable for dry gardens.

WATER-SAVING PLANTS

Here is a guide to help you choose wisely.

NOTE: All plants need water. Once established, most will cope with short periods of drought. When selecting, ensure all are suitable for your area, particularly with regard to frost, soil and wind.

SHRUBS AND CREEPERS

INDIGENOUS

- Atriplex* sp. • Saltbush
- Barleria*
- Carissa* sp. • Num-num
- Colsonia* sp. •
- Eurotia* sp. •
- Viburnum tinus* • - Laurustinus
- Leucosiphon* sp. • Wild tamar

KEY: Tolerance to frost

Hardy • Half hardy • \$ Tender

- Acacia* sp. •
- Bauhinia galeata* • - Pride of De Kaap
- Celtis africana* • - White stinkwood
- Olea europaea* subsp. *africana* • - Olive
- Rhus lancea* • and *R. viminalis* • - Karoo

TREES

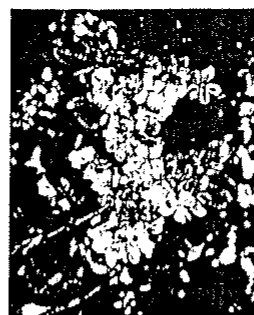
- Acacia* sp. •
- Bauhinia galeata* • - Pride of De Kaap
- Celtis africana* • - White stinkwood
- Olea europaea* subsp. *africana* • - Olive
- Rhus lancea* • and *R. viminalis* • - Karoo



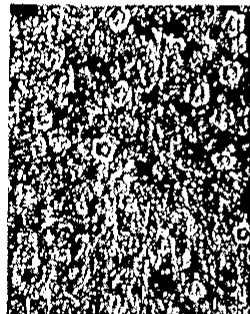
Callistemon - these Australian shrubs and trees with bottle-brush-like flowers in shades of red and pink have a low water requirement but do equally well when watered.



The tough, leathery leaves of *Lagerstroemia indica* prevent the loss of excess moisture.



Raphanistrum have leathery leaves which prevent the loss of too much water.



Nierembergia, available in violet and white, make excellent plants for the rockery, and self-sow very easily.



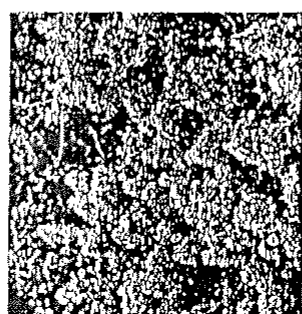
Plumbago is a good stand-by for dry gardens. Look out for the dark blue form, 'Royal Cape'.



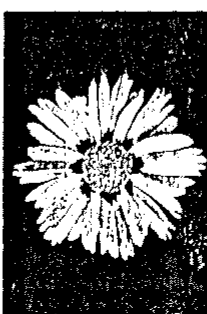
Anemone, the *Nemophila* daisy, with their orange and yellow flowers, also come in pastel shades and will grow in very poor soil.



Agapanthus will grow almost anywhere and can tolerate both full sun and semi-shade.



Lagerstroemia, with its magnificent summer flowers, is generally regarded as a tree but can be pruned to become a bush.



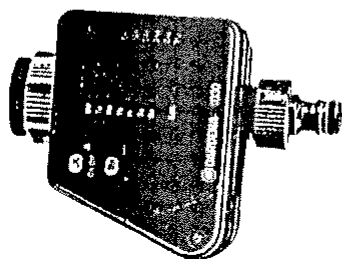
Coreopsis are available as annuals and perennials.

- Plumbago auriculata* • - Cape plumbago
- Pyracantha* sp. • - Fire thorn
- Tecomaria capensis* • - Cape honeysuckle
- Ceanothus* sp. • - Wild lilac
- Cistus* sp. •
- Chaenomeles* sp. • - Japanese quince
- Cistus* sp. • - Rock rose
- Convolvulus cneorum* • - Silver bush
- Cytisus* sp. •
- Abelia* sp. •
- Bougainvillea* •
- Buddleia davidii* • - Butterfly bush
- Callistemon* sp. • - Bottle-brush
- Caesalpinia* sp. • - Bird of Paradise
- Hypericum* sp. • - St John's wort
- Lagerstroemia indica* • - Pink of India
- Lavandula* sp. • - Lavender
- Lobelia latifolia* • - Lobelia
- Melaleuca* sp. • - Australian myrtle
- Myoporum laetifolium* • - Manuka
- Nandina domestica* • - Japanese bamboo
- Nerium oleander* • - Oleander
- Ochna serrulata* • - Mickey Mouse plant
- Philadelphus fruticosus* • - Jerusalem sage

25 Water-wise Tips

Good ideas to help gardeners make every drop of water count

COMPILED BY JULIA LLOYD



1 If you forget to turn off your irrigation system, 1 000 litres of water will be wasted every hour. So install a timer or computer, and the mistake will never be made. The Gardena Water Computer is easy to use and will control sprinkler and drip systems automatically.

2 Saturaid rewetting granules not only allow the soil to retain water for a longer period, but also improve water penetration, so your watering time will be reduced.



3 Look at neglected gardens in your area and see which plants have survived. It'll give you a very good idea of what can tolerate drought conditions.



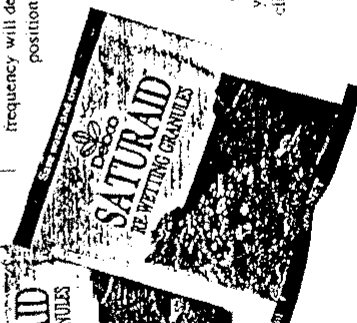
4 Stop weeds from revelling in the food and water that belong to precious plants by hoeing regularly.

5 Group plants with similar water requirements together. Much water is wasted watering a bed of low water users just because it contains one or two 'waterholics'.

6 Place drums under your roof and you'll be surprised how much rainfall can be collected.

7 Remember that although plants are termed drought-tolerant, they will need some watering until they are well-established. The amount and frequency will depend on their position or aspect in the garden, the water-retention capacity of the soil, and their exposure to sun and drying winds.

8 Choose plants which are suitable for your particular climate.



9 Place a circular tin of any size under your garden spray or irrigation system when watering, and time how long it takes for 3cm of water to be collected - this is sufficient for vegetables, perennials and annuals.

10 Place a rain gauge in your garden and, when it rains, check to see how much has fallen. What might seem a light shower could very well be sufficient for your garden and no additional watering will be necessary.

11 If you have narrow garden beds alongside a pathway, don't waste water on the paving. Instead of sprinklers, use a drip system.

12 Collect the backwash water from your swimming-pool by digging a hole and lining it with inexpensive plastic. Let the water stand for a few days to allow the chlorine to dissipate in the sun, and then recycle the water into the garden.



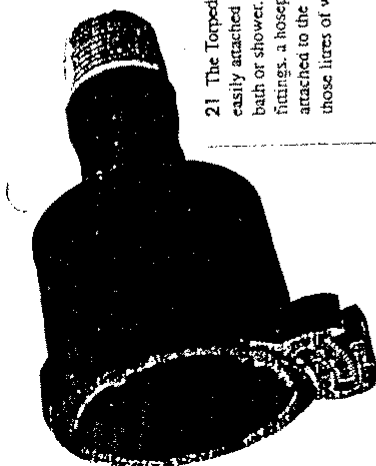
13 Keep a bucket in the shower and collect those first icy seconds of water.

14 If you have a fish tank, use a length of hose and syphon the water onto the garden when it needs changing.

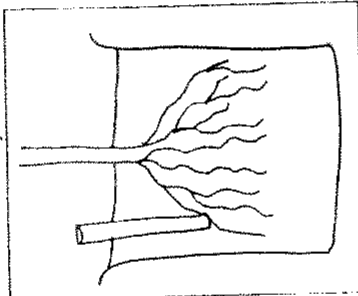
15 Once flowers in the vase are spent, give their water to those in the garden.

16 Prevent overwatering by using a moisture meter. It is easily inserted into the soil and will immediately tell you when to turn off the hose.

20 Plant plants in the correct position - keep shade-lovers together in a cool, shady area and group sun-lovers in warm, north-facing beds.



21 The Torpedo 'Water Saver' is easily attached to the outer pipe of a bath or shower. With ordinary garden fittings, a hosepipe can then easily be attached to the orange end and all those litres of water can be recycled



17 In some circumstances it is a good idea to make a basin around the newly planted plants. However, do not have the lowest portion next to the stem; rather, slope the soil away from the stem towards the rim of the basin where it can filter into the surrounding soil. Not only is this where the young feeder roots are, but one wants to encourage the plant to send roots out into the surrounding soil in search of water and not rely on that in the root ball.

18 In areas where drying winds are prevalent, protect plants by establishing winds-breaks.

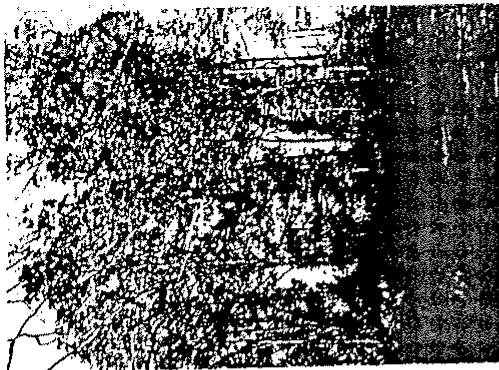
19 Grow annuals or bedding plants - which are shallow-rooted and need more frequent watering - in containers near the house. Replace them in flower-beds with ground covers.



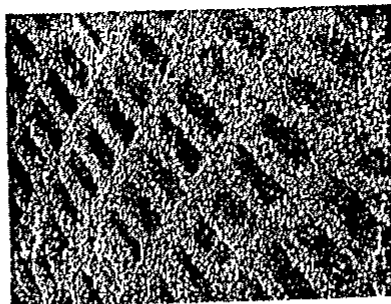
22 Place a piece of plastic pipe or hose into the hole where a tree or large shrub is planted, so that it leads from just above the soil line to the root ball. This way you'll be able to water your plants well and deeply, using much less water.

24 If you want to grow wondertown in between bricks, keep the gaps between the bricks very small. This keeps the soil cool and damp in summer and protects the roots from frost in winter.

25 Feed plants with a balanced fertilizer. Too much nitrogen will result in lush, leafy growth, making the plant more susceptible to drought conditions. High-potash feeds promote root growth and thicker cell walls, making the plant more drought-tolerant.

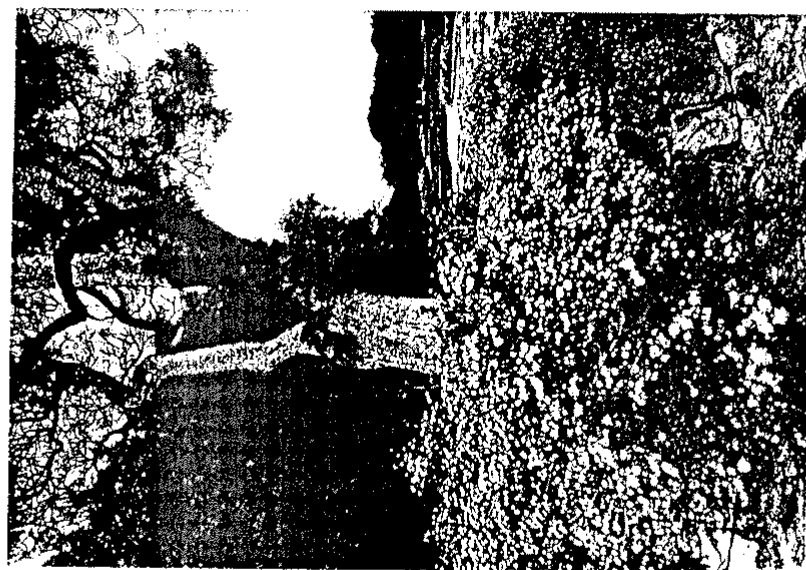


23 Remove any gum trees or poplars from your garden as they are great water guzzlers.



WILD GARDENING IN SOUTH AFRICA

Ernst van Jaarsveld explains how you can create a spectacular indigenous garden using simple ecological principles.



Many boesie (Rutaceae) species are grown for their flowers but texture and aroma. Here *Acridodendron macrocarpum* is grown with a fynbos type, *Leucosiphon multiflorus*, on a stone-dressed wall. The tree is the boesie, *Acridodendron macrocarpum*. Photo: SAH.

The richness of South Africa's vegetation and its horticultural potential is well known and a reflection of our diverse climate and habitats. Differing ecological conditions require different gardening methods, and if you take an ecological approach to gardening, not only indigenous species but also those native to your region, but taking into consideration other ecological principles such as the natural plant succession (referring to the garden with fast-growing pioneer species intermingled with more permanent plants) can be achieved.

Eight South African garden types have been identified and divided into two main subtypes: the winter and summer rainfall garden. The Cape or winter rainfall garden has three main garden types: the fynbos garden, the succulent Karoo garden, and the strandveld garden. The summer rainfall garden includes the forest garden, which can be subdivided into a semi-arid forest garden and a high rainfall forest garden.

late inland regions). Each type of garden will be dealt with in separate issues of *Veld & Flora*, starting with the fynbos garden in this issue.

For each garden type suitable trees, shrubs, climbers, herbaceous plants, annuals, bulbs, perennials, freestones, grasses, reeds and aquatic plants have been selected. In addition, plants that have been successfully grown outside their particular region have also been included. This is to accommodate for locally indigenous trees that are lacking in the fynbos, strandveld and succulent Karoo regions.

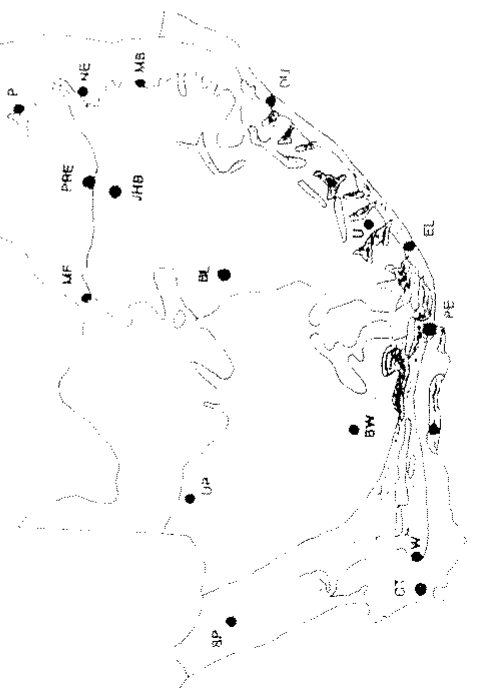
Affirmative action in our gardens

The emphasis on gardening in South Africa is shifting from the traditional 'exotic' gardening (European-style) to a more natural indigenous African style. A lot of gardeners are taking an affirmative action in the garden, planting indigenous plants, and using aggressive, self-sustaining plants to prevent the loss of indigenous plants. This is a very important step in the conservation of our indigenous flora and fauna.

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However, although this indigenous garden has created an increased demand for indigenous plants, there is a lack of knowledge on where to plant what and how to establish an indigenous garden. Over the last two decades I have received many queries on this subject at Kirstenbosch and I hope that this series of articles will provide guidelines for establishing an indigenous garden with the emphasis on ecological gardening and will stimulate the use of indigenous plants by gardeners, horticulturists and landscape architects. These articles are the result of 15 years of gathering data from various parts of South Africa.

The winter rainfall garden is the most common garden type in South Africa. It is characterized by a high degree of biodiversity and a high degree of endemism. The winter rainfall garden is the most common garden type in South Africa. It is characterized by a high degree of biodiversity and a high degree of endemism. The winter rainfall garden is the most common garden type in South Africa. It is characterized by a high degree of biodiversity and a high degree of endemism.



LEGEND	WINTER RAINFALL GARDENS	SUMMER RAINFALL GARDENS
	Fynbos & Strandveld Garden	Succulent Karoo Garden
	Forest Garden	Forest Garden
	Forest Garden	Forest Garden
	Forest Garden	Forest Garden
	Forest Garden	Forest Garden
	Forest Garden	Forest Garden

CHOOSING YOUR GARDEN TYPE

The first step in choosing your garden type is to determine the climate and rainfall pattern of your area. The climate and rainfall pattern of your area will determine the types of plants that will thrive in your garden. The climate and rainfall pattern of your area will determine the types of plants that will thrive in your garden.

Winter rainfall gardens There are three main garden types in the winter rainfall region: the fynbos, strandveld and succulent Karoo gardens. As the name implies, this region is subject to cold fronts during the winter with long dry summers. The plants from this region are adapted to rest during those dry months, becoming active in the autumn with the onset of the winter rains. The divisions between these three main ecological regions (upon which the gardens are based) are not always clear cut and some regions have plants from two vegetation types. Thus a garden in such a region should also reflect the vegetation of these areas.

Towards the east the summer rainfall becomes more abundant and the boundaries between summer and winter rainfall are also not clear cut. It is very difficult to establish one of the Cape garden types in the northern summer rainfall regions.



The March fly, *Amaranthus bellidiflorus*, one of the most attractive fynbos bulbous species. Photo: SAH.

The winter rainfall garden which has an eastern Cape distribution has outliers in the dry river valleys that extend into the southern Cape as far as the Breeds River, providing suitable habitats for establishing a 100-year-old garden. However, because the bulk of the valley has dried up, it is not a good place to establish a garden. The winter rainfall garden which has an eastern Cape distribution has outliers in the dry river valleys that extend into the southern Cape as far as the Breeds River, providing suitable habitats for establishing a 100-year-old garden. However, because the bulk of the valley has dried up, it is not a good place to establish a garden.

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