

GREEN LANDSCAPING GUIDELINE



 ENVIRONMENTAL PLANNING
& CLIMATE PROTECTION
DEPARTMENT
BIODIVERSITY | CLIMATE | PEOPLE

GREENING
DURBAN 2010

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GREENING DURBAN 2010



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1 Why Creating “Greener” Landscapes is Beneficial

Landscaping is the physical modification of the outdoors to serve the needs of people. Traditionally, landscaping has focused on creating maximum human functionality and aesthetics of outdoor spaces through planting, changing the contours of the land and building amenities such as pedestrian walkways, paths and picnic/resting areas.

Traditional landscaping approaches are usually very effective in achieving their specified aim, but sometimes are associated with unforeseen negative environmental and economic impacts.

There is a growing global mandate in response to our declining biodiversity worldwide that any investment into development or the landscape should be done to achieve maximum ecological benefit wherever possible. This is important if we are to contribute positively to restoring our planet's ability to support human life. A well-functioning ecology not only provides refuge for a diversity of plant, animal and insect species, but also allows a good supply of “ecosystem goods and services” to be produced, on which all humans depend for survival¹. This means improving biodiversity and ecosystem functioning while creating landscapes that are useful to and benefit human beings in a range of ways.

In addition to restoring and enhancing ecosystem functioning, there is also a need to achieve a sustainable future. Environmental issues of the 21st century, such as global warming, are pushing us towards a change in our behaviour to ensure that ecological functions and processes are resilient and able to maintain themselves into the future. However, urban landscapes are often not sustainable as they are resource hungry, requiring significant energy, water, and chemical inputs. This is because plant selections are unsuited to local conditions and inappropriate practices result in excessive water usage, soil depletion, escape of alien plants, chemical contamination of the surrounding environment (e.g. rivers), and unsustainable use of natural materials (e.g. rocks, pebbles, or wood). So, urban landscapes need to become more efficient in their use of resources and need to work within the constraints of local climatic conditions in order to achieve better sustainability.

In recent years, a new approach to landscaping has emerged which addresses these needs and issues - commonly called “Green”, “Natural” or “Sustainable” Landscaping². This new approach to landscaping and traditional landscaping share



¹ Ecosystem goods and services include the production of goods such as food, building materials and fodder, as well as services such as flood management, water quality management and recreational amenity. These ecosystem goods and services not only have social value, but also economic value. The “free” ecosystem goods and services produced by ecosystems in the eThekweni Municipal Area have been valued at over R3.2 billion per annum!

² Different countries tend to adopt these different terms. For the purposes of this Guide, the term “Green Landscaping” will be used hereafter.

the same basic considerations, which are to create an aesthetically pleasing, cost effective, functional, low maintenance, and environmentally sound landscape. They differ, however, in the relative importance given to each of these considerations.

Whilst traditional landscaping considers aesthetics and cost effectiveness as the most important considerations, Green Landscaping prioritises functionality, maintenance, efficiency and environmentally sound landscaping as the key considerations.

Green Landscaping is effectively a way of designing and maintaining beautiful gardens and public landscapes in such a way as to:

- **minimise harm to the natural environment;**
- **maximise the ecological function of the landscape (to supply ecosystem goods and services);**
- **save time and money with lower maintenance requirements;**
- **create healthier and safer places for people to live, work and play.**

The following sections explore the main benefits of **Green Landscaping**. These include:

- better living environments,
- biodiversity conservation,
- saving costs, water, and energy,
- protecting and enriching soil resources, and
- climate protection.

1.1 Creating Healthier Environments

Green Landscaping aims to improve people's health by maximizing their connection to and experience of nature.

The Green Landscaping approach includes as a central theme the creation of livable and healthy environments for people, but also for indigenous plants, animals and insect species. This approach seeks to enhance the aesthetic, recreational, and psychological benefits of living in a healthy environment. This means that the focus is on creating landscapes in which functionality may sometimes over-ride form or appearance. Green Landscaping focuses on selecting and using trees, plants, landforms and amenities that add value to the human environment. Examples include planting specifically to provide shade, fruit or natural medicines; or ensuring that street furniture is conveniently and safely located, and ergonomically designed; or including habitat enhancement features like nest boxes, bird baths, shelter from predators by planting thorny plants, and even leaving hollows under pavements for lizards to hide under.

Pesticides and herbicides are dangerous to people, pets and wildlife. Reducing the need for these to be used is an important tenet of Green Landscaping, which helps prevent health risks and environmental impacts.

It is a well-documented fact that human beings

derive spiritual well-being from feeling connected to nature. For example, you don't have to be an avid bird-watcher to appreciate good bird-life in your garden – just the fact that you can hear birds singing and see them flying around, feeding and breeding in your garden or outside your office window may be associated with very positive feelings about the place in which you live or work. Recent research also indicates that human beings are willing to pay for the benefits, such as relaxation or aesthetic beauty, derived from their experience of nature. For example, people are willing to travel great distances at great expense to experience nature in pristine condition. If these natural spaces existed within the city, people would make use of them.

For people with a greater direct interest in nature, Green Landscaping also offers the opportunity to actively develop natural habitats and ecosystems which allow them to experience nature on their doorstep – giving great pleasure and relaxation benefits (e.g. fish ponds, landscaping to attract butterflies, birds or insects). A number of economic studies have found that residential and commercial developments which include natural habitats and ecosystems can improve land / property values significantly.

1.2 Conserving Biodiversity and Improving Ecosystem Service Supply

WHAT IS BIODIVERSITY?

Biodiversity is the variety and variation of all species of plants, animals, fungi and microbes, including their genetic make-up, their ecological roles and their interrelationships in biological communities throughout the world's ecosystems. Biodiversity is therefore the natural biological capital for our life-support system on planet Earth.



The loss of biodiversity is one of the greatest threats to human sustainability of this century. Durban is a local biodiversity hotspot within South Africa because of its position on the south-east African coast where there is a mixing of subtropical species from the north and temperate species from the south. This results in a high diversity of animal and plant species within the eThekweni Municipal Area which need to be protected.

Green Landscaping promotes the planting of indigenous species, and the protection and creation of natural habitats and ecological functioning.

Green Landscaping ensures that our natural biodiversity is not only protected, but also enhanced and sustained because of the valuable ecosystem services provided.

Green Landscaping also restricts or prohibits



the use of exotics – especially invasive species – and harmful chemicals. When exotic plants, animals (e.g. fish) and insects "escape" from our gardens and take over natural areas they choke out the wide variety of indigenous species. While less than 10% of all insects are harmful to plants, most pesticides are harmful or lethal to all insects.

1.3 Saving costs, water and energy

Green Landscaping creates indigenous gardens and natural habitat areas which often require less watering and maintenance than many exotic gardens and lawns. Depending on their extent and layout, exotic landscapes and lawns are usually heavily dependent upon mechanical equipment, labour, pesticides, fertilisers, and supplemental watering – mainly because the plants used in these landscapes are not in their normal habitat and so need extra inputs to survive / thrive.

Green Landscapes comprise plants that are already adapted to local conditions, and so often

require far fewer inputs once established. In addition, **Green Landscaping** promotes the use of low levels of maintenance and the use of hand operated tools over energy-hungry petrol-driven or electric machines.

This not only means that green landscapes are usually cheaper to maintain, but that they also use less scarce resources such as water and energy.



The average 1-acre lawn requires at least 40 hours of labour each year to maintain, not to mention the cost of watering and fertilisers!

South Africa is considered a water-scarce country (even though we may not think so on the East Coast!), and our demand for water is expected to exceed the natural supply capacity of our rivers and groundwater systems within the next 15-20 years. The provision of water to people in South Africa has a significant impact on the environment because it depletes natural reserves, disrupts natural ecosystems, and requires construction of massive infrastructure such as dams and pipelines.

It is therefore our duty to minimise the amount of water we use in every aspect of our lives, to save money and energy needed to purify this water, and also ensure that enough water is left for other people and land uses that need it.

All landscaped areas need some water (**Green Landscapes** usually need less) – and a lot can be done to reduce irrigation requirements and the need to use “expensive” treated / piped water for this purpose:

- Rainwater harvesting and natural control of stormwater run-off can create a seasonal source of “free” water that helps sustain the landscaped area. This can also have a positive effect on the local natural environment through the reduction of stormwater pulses / flooding that is often a major issue in urban or built-up areas.
- The use of ‘grey-water’ from your washing machine, basin, and shower has become an accepted alternative to tap water for landscape irrigation. Estimates indicate that using grey-water instead of tap water for watering the garden can reduce your water use and associated costs by as much as 35%.
- Water-wise irrigation systems can also go a long way to reducing the water needs of landscaped areas.
- Using water efficient plants (not only dryland plants such as aloes) reduces the demand for water.

South Africa’s electricity is produced predominantly through coal-fired power stations. This system of electricity generation makes South Africa one of the worst in the world for producing carbon dioxide (one of the major greenhouse gases causing accelerated global warming). This means that every appliance we use which needs electricity to run (including street lighting, electric lawnmowers etc) is contributing to global

warming! Even petrol and diesel driven appliances (such as petrol lawnmowers, chainsaws, etc) produce carbon dioxide and other greenhouse gases, as they are also powered through the burning of fossil fuels. **Green Landscaping** reduces the need for electricity and fossil fuel driven appliances in all aspects of landscape servicing and maintenance. This not only saves costs, but also contributes to saving our planet!

1.4 Preventing Pollution and Protecting the Soil

Fertilisers, herbicides and pesticides are major polluters of our land and water in South Africa. They not only create health risks to people and wildlife, but can also cause extra costs for purifying water to drinking standards, reduced recreational amenity of water bodies, and loss of ecosystem services where the natural environment has been damaged by pollution. **Green Landscaping** minimizes the need for the use of potentially harmful chemicals, or offers less threatening treatment alternatives. It also encourages the planting of vegetation (e.g. trees), which absorb pollution (e.g. air pollution) and create a healthier environment. Wetlands in particular are particularly excellent water purifiers and water pollutant traps.

Soil is a very precious resource. It takes thou-



sands of years to form – just 10mm of soil can take between 100 and 1000 years to develop from the parent rocks! Soil is very important for your garden as good soils result in healthy plants. Soil is made up of organic (decaying plants / animals) and inorganic (weathered rock, air,

water and minerals) components. **Green Landscaping** aims to protect soil by limiting the chances for topsoil to get washed away, and by protecting the soil from pollution through use of inappropriate or dangerous chemicals. **Green Landscaping** also aims to improve soils through adding organic matter (e.g. compost, manure, or grass cuttings). Organic matter not only provides essential nutrients for plants and fauna in the soil, but also prevents soils from becoming like concrete in summer and a sticky mess in winter.



1.5 Protecting the Climate

Climate change (caused by increasing levels of greenhouses gases such as carbon dioxide in the Earth's atmosphere) is one of the greatest threats ever posed to humanity and the natural environment. It is not only likely to cause a rapid increase in ambient air temperatures, but also a disruption of the world's weather and climate patterns. This is predicted to result in fluctuations in rainfall, enhanced droughts and floods, and a rise in sea level. Climate change will also impact on people's health due to increasing incidents of skin cancer, strokes, and dehydration, as well as the spread of tropical diseases (e.g. malaria and cholera).

Tree planting and regeneration of degraded forest areas is an important aspect of the worldwide movement to address climate change. One of the reasons³ for increasing levels of carbon dioxide in our atmosphere is the massive deforestation and wholesale transformation of naturally vegetated land areas that has taken place across the world to accommodate the growing human population. This has reduced the stock of vegetation that captures and stores carbon. Taking this

It has been estimated that vegetation in the eThekwi Municipal Area traps 31 000 tons of CO₂ per year.

into account when planning any local-level or large-scale landscaping project has thus become an important priority – **Green Landscaping** that focuses on mass tree planting can play a role in addressing Global Climate Change!

Owing to the large buildings and paved surfaces of cities, they tend to become “heat islands”. Landscaping can play an important role in helping to regulate temperatures in cities by creating more shade and green areas that reduce heat reflection and absorption. A good example of this is how parking lots are landscaped: planting for increased shade can improve one's experience and the functionality of these areas significantly. Another example is green roofs, which can be important for regulating temperatures in the building (reducing the cost of heating and cooling), as well as improving the aesthetics and reducing stormwater run-off from the roof.



The eThekwi Municipality is developing a strategy to reforest large areas of Durban that were formerly under forest but have become degraded or transformed by agriculture, natural resource harvesting and uncontrolled fire. In this picture, local communities are helping to plant trees in the buffer zone around the Buffelsdraai Landfill Site, the first municipal reforestation project aiming to plant over 75,000 trees to restore the forest where sugar has been grown for many years.

³The burning of fossil fuels (carbon rich natural resources) and clearing of forests are considered to be the main causes of global warming.

2 The Principles of “Green Landscaping”

The following table presents some principles of **Green Landscaping**. These principles can be used and applied to our public and private parks and gardens to contribute to a healthy and sustainable future.



1. Design with Nature for People

- a) Aim for the best possible balance between human, environmental and economic needs.
- b) Avoid degrading or altering existing functional natural habitats and ecosystems – use these positively to add value to the landscaping framework instead.
- c) Design and build natural ecosystems / habitats to add value, profile our unique biodiversity and provide key services such as stormwater attenuation instead of using hard infrastructure.
- d) Design to blend the landscape into the local natural surroundings.
- e) Design for best human ergonomics, convenience and safety.



2. Minimise Maintenance

- a) Minimise lawned areas, garden beds with high edge to area ratios – these are high maintenance areas.
- b) Minimise exotic / formal landscaping with high labour, fertilisation and pesticide requirements.
- c) Maximise coverage of rehabilitated / constructed natural habitats, as these have limited maintenance requirements.
- d) Select vandal-proof and hard-wearing materials for all street furniture and surfaces.
- e) Mulch lawn clippings and organic garden waste to minimise watering requirements and weed growth.
- f) Avoid raking / sweeping vegetated and unsealed areas, as this removes the organic matter and mulch.
- g) Compost organic garden waste to reduce disposal costs and produce own compost supply.
- h) Replicate natural habitat management regimes where possible (e.g. annual grassland burning instead of manual weed control and bush encroachment control).
- i) Minimise fertilisation and use of chemical pesticides and herbicides.



3. Focus on Local

- a) Use locally indigenous plant species.
- b) Use a diversity of species to avoid creating monocultures.
- c) Avoid using exotic invasive species and include extermination of these in the maintenance plan.
- d) Source plants and materials locally to minimise introduction of new plant genes to local areas, and to minimise the carbon footprint of the products.



4. Be Water-wise

- a) Include rainwater harvesting systems in the design (tanks, swales etc).
- b) Use permeable surfaces wherever possible to increase infiltration and reduce rainwater run-off.
- c) Include grey water recycling systems where appropriate.
- d) Use water-wise irrigation systems (e.g. drip irrigation).
- e) Keep lawns to a minimum and use grasses which are drought tolerant.
- f) Mulch garden beds to conserve soil moisture and provide coolness for plant roots.
- g) Change watering programmes to use less water (timing, water for longer but less often, water roots not foliage).
- h) Fit low-flow shower heads, automatic shut-off taps and dual-flush toilets at all ablutions / water stations.



5. Go Green with Energy

- a) Use solar powered street / landscape lighting & photovoltaic-driven service facilities.
- b) Use low-wattage lighting / LED lights.



6. Choose Green Products

- a) Choose eco-labeled or green certified products (FSC, Energy Star, Fair Trade etc).
- b) Use recycled materials and products.
- c) Choose organic / biodegradable and safest possible pesticides and herbicides.



7. Educate

- a) Use signage to guide people towards correct behavior (directing to litter bins, keep out of rehabilitating areas etc).
- b) Use educational signage to explain environmental / green projects & approaches.
- c) Use educational signage to teach people about biodiversity (tree species labels, ecological maps etc).



8. Stay Legal

- a) Source all plants, rocks etc for landscaping sustainably and legally.
- b) Ensure that all protected plant and animal species are not moved or installed without requisite permits in place.
- c) Avoid planting any listed alien invader plants.
- d) Set up alien plant eradication / management programme to ensure that the landscape remains legal.

3 Green Landscaping Design Approaches

Landscaping generally involves three main phases:
(1) Design,
(2) Construction / Rehabilitation, and
(3) Maintenance.

The Design Phase is the first stage of landscaping and provides a plan for the construction / rehabilitation of the landscape. The Construction / Rehabilitation Phase is where the landscape is rehabilitated or constructed using a combination of hard and soft landscaping materials. The final stage is the Maintenance Phase in which the rehabilitated / constructed landscape is maintained to

retain its original design function.

While **Green Landscaping** principles are applicable in all phases of landscaping, it is in the Design Phase where they must be implemented to have the most significant impact. The following section discusses several design approaches which may be applied in **Green Landscapes**. These include the distinction between formal and informal landscape layouts, designing user-friendly spaces and experiences, creating biodiversity nodes and corridors, designing for the disabled, and introducing environmental education programmes.

3.1 Natural and Formal Design Concepts

While **Green Landscaping** does not necessarily have to mean that “formal” landscapes are out of the question, it is often the case that **Green Landscaping** involves more “Natural Design” than traditional landscaping does.

Natural Landscape Design is more casual than Formal Landscape Design (which involves carefully pruned plants arranged in orderly rows or symmetric shapes to achieve visual balance). While there are no hard and fast rules, natural areas can serve as role models for Natural Design. Plants often seem more randomly placed or clustered and shapes and heights vary widely. Most, if not all of the plants used would be indigenous varieties. Balance is obtained with mass and texture. For example, a large tree might be balanced with a large cluster of shrubs. Man-made ornaments, such as statues and formal pools and fountains, are replaced with natural ones – rocks, logs, and irregularly-shaped ponds.

While a Natural Landscape might be designed to function as a grassland, forest or wetland, it doesn't need to look "wild" to provide a number of environmental benefits. But by using a more random design, imperfections, uneven growth and minor pest damage, will be much less noticeable, and will reduce the need for maintenance.

When a plant is struggling or suffering in a formal landscape, fertilisers and pesticides are used in an attempt to maintain the desired look. In a Natural Design, the loss of a plant is much less noticeable and can be seen as providing more space for neighbouring plants or an opportunity for the gardener to try something new. The need for costly, labour-intensive cutting and pruning will

also be greatly reduced as will most of the need for polluting or potentially hazardous chemicals.

Formal Landscape Design can also be adopted in **Green Landscaping**, although this poses more of a challenge if **Green Landscaping** principles are to be achieved. The use of smaller, more compact plants is one easy way to achieve the formal look within a Green Landscape.

Formal Design concepts often involve mass-planting of a single or limited range of species (tending towards “undesirable” monocultures in terms of **Green Landscaping Principles**), and thus limited ability to create diverse and functional natural habitats and ecosystems. However, nowadays, with increasing commercial availability of a large diversity of indigenous plant species, there is no excuse for not being able to design formal landscapes with locally indigenous plants.

In addition, a number of other Green Principles can be achieved in Formal Landscape Design, even if creating functional natural habitats and ecosystems is not one of these. For example a Formal Landscape Design can still be effected in such away as to limit the need for watering and fertilisers if locally indigenous plants are used, water-



Tecomaria capensis (Cape Honeysuckle) has been used to good effect as a box hedge at Sun Coast Casino.

wise irrigation systems involving fertigation are installed, and high maintenance lawn areas are given limited coverage. In addition, formally land-

scaped areas can also be important components of “greenway corridors”, even if they are not “core areas” (see Section 3.4).

3.2 Designing for User-Friendly Spaces and Positive Experiences

One of the key objectives of Green Landscaping is to create opportunities for people to connect with and positively experience nature. In order to achieve this, Green Landscapes must be designed as people-friendly spaces that create opportunities for positive interactions with nature.

The first design approach that must be considered is the function that the landscaped area must perform - as this will determine what elements need to be included in the design. For example, if the landscape is part of a high intensity recreational use area, the design must allow for hard wearing, free flowing spaces that can accommodate the numbers of people and the activities that are required to take place in them, but as green landscapes these areas also should offer views into interesting plantscapes / rockscapes / water bodies that create a positive experience of nature. However, if the landscape is intended to be a relaxation space for office workers in a city precinct, the landscape design should allow for quiet and secluded spaces where one can experience a little peace and quiet in harmony with nature. In the two examples, the choice of landscape design form, plants, colours, shapes etc will vary significantly – but the purpose is the same: the landscape adds value to the people’s experience of using those areas for their intended activities.

The scale of the plantings and landscape features also play a major role in how people-friendly a landscaped space feels. The size and composition of planted areas relative to open areas is a key issue:

- ↳ height of trees (large trees for large-scale landscapes where imposing plants are not an issue and can be seen as a whole from a distance),
- ↳ diversity of plant species (less diversity in planted areas tends to work well for large-scale landscapes with big open spaces, and a high diversity of plants in areas where people will come close up to the planted areas and be able to appreciate the complexity),
- ↳ tough plants for areas like parking lots where people may trample through the gardens,

The design also needs to consider the change in seasons and to accordingly include elements which make the landscape functional and accessible all year round. For example, both shady (summer) and sunny (winter) areas need to be provided. Trees that lose their leaves in winter can be used to shade park benches or picnic areas where people want to enjoy sitting in the sun in winter, but be shaded in summer. Thus, the aim of **Green Landscaping** is to create landscapes that are as comfortable for people and wildlife as possible.

Green Landscaping aims to enhance people’s experience of the landscape. This is achieved by designing an aesthetically pleasing landscape in which there is balance or harmony between the built environment and nature. This balance or harmony is created by bringing nature closer to the built environment using selected indigenous plants, feeders, birdbaths, and nesting boxes. In this way, people can begin to develop an appreciation of the relationship between plants, animals and ourselves. The aim of **Green Landscaping** is thus to construct a landscape which enhances the experience of nature and creates a local sense of place using locally indigenous plants and materials.



An example is the Durban Botanic Garden’s Lake: the waterbody attracts humans as well as wildlife. Rare and shy Pink-backed Pelicans breed at this site because the birds feel safe, but humans recreate within metres of the birds. This is achieved because of the scale of the landscape – which is large. These birds only breed here because the trees are old and tall, which gives the Pelicans the opportunity to feel safe by being able to roost some height above the human activity area.

3.3 Designing Landscapes for a Safer City / Neighbourhood

Crime Prevention Through Environmental Design (CPTED) is an internationally recognised approach to landscaping. Although there is no universal or prescriptive method for designing out crime, the approach takes into account the fact that the way that landscapes are spatially formed and detailed can have a serious impact on their real and perceived safety. CPTED generally includes five key principles:

1. Natural Surveillance:

"See and be seen" is the overall goal. A person is less likely to commit a crime if they think someone will see them do it. People also tend to feel safer in environments where they can see potential criminals approaching, and where any crime committed against them may be witnessed by others.

2. Access Control:

Walkways, fences, lighting, signage and landscape are used to clearly guide people and vehicles to and from the proper entrances. The goal is not necessarily to keep intruders out, but to direct the flow of people while decreasing the opportunity for crime.

3. Territorial Reinforcement:

Creating or extending a "sphere of influence" by utilising physical designs such as pavement treatments, landscaping and signage that enable users to develop a sense of proprietorship over it. Public areas are clearly distinguished from private ones. Potential trespassers perceive this control and are thereby discouraged.

4. Target Hardening:

The installation of physical barriers, camera surveillance systems and other hard security measures to prevent or provide early detection and response to criminal activity. This is the ultimate crime prevention and management measure, and may create a create sense of fear and insecurity to users.

5. Management and Maintenance:

The "Broken Window Theory" suggests that one "broken window", if allowed to exist, will lead to others and ultimately to the decline of an entire neighbourhood. Neglected and poorly maintained properties are breeding grounds for criminal activity.

These principles can be applied at any scale, from an individual household garden to an entire neighbourhood, city block or park.



Palm Boulevard at Gateway is a good example of a public streetscape park with a good degree of natural surveillance from the surrounding offices and shops – even though this is not a typically green landscape otherwise.

Principle	Description	Design Guidelines
Surveillance	<p>The location and use of features and facilities can create a perception of increased risk of detection of criminal activity and of increased safety and security for users.</p> <p>Criminals usually do not want to be seen. A good example is the location of cafes and kiosks near parks, or streetscape parks onto which offices and retail activities face. Blank walls or building facades without windows facing onto public areas reduces the natural surveillance of these areas. A good approach is to place less safe activities in safe areas and very safe activities in slightly less safe areas.</p>	<ul style="list-style-type: none">● Footpaths, cycleways and bus stops to be in view of adjacent land uses.● Light primary pedestrian / cycle routes.● Illuminate unwanted congregation areas and entrapment spots.● Avoid 'seas of car parks'.● Avoid creating buffer and security zones which push land uses apart to the point of isolation.● Avoid concave building envelopes.● Create clear sightlines to public spaces from adjacent buildings.● Ensure level changes do not obscure public places.● Front boundary fencing should be visually permeable.● Avoid use of screening shrubs.● "Clean stem" trees to keep foliage above head height.● Use very low ground covers that do not obstruct views.

Principle	Description	Design Guidelines
Access Control	<p>Design features can be used to deny criminals access to targets, reduce their escape opportunities and guide users through the environment. Natural access control involves the use of the environment to clearly mark borders and transitional zones to psychologically deter movement of criminals into protected spaces. Human measures such as security guards can also be used.</p>	<ul style="list-style-type: none"> ● Manage traffic patterns in order to moderate car-related crime (car theft, hijacking, get away vehicles). ● Use road / path shapes that inhibit the speed of criminals exiting the area. ● Delineate and align public access routes away from inappropriate / isolated or unsafe environments. ● Avoid cul-de-sacs linked by pedestrian routes unless part of a wider open space connection with good surveillance. ● Avoid use of back lanes without guardian surveillance from properties. ● Minimise multiple escape routes. ● Secure access against criminals with gates and defining structures. ● Ramps and steps can create effective local access controls. ● Changes of ground level delineate ownership or use changes. ● Integrate security screens and bars as design elements, not afterthoughts. ● Careful consideration of scaleable fences and bollards which may inhibit pursuit of offenders.
Territorial Reinforcement	<p>Territorial reinforcement is the use of physical features designed to express ownership and control of the environment and delineate private and semi-private spaces, reducing ambiguity of space ownership. People usually protect territory that they feel is their own and have a certain respect for the territory of others. Identifying intruders is much easier in well-defined space. An area that looks protected gives the impression that greater effort is required to commit a crime.</p>	<ul style="list-style-type: none"> ● Define public and private land use areas and ownership boundaries clearly, by structures and surface materials. ● Avoid ambiguity of ownership and responsibility. ● Appropriate signage.
Target Hardening	<p>Target hardening is the physical securing of buildings and public places against access from criminals. The issues associated with target hardening include the potential for detailed target hardening responses to have an adverse effect on public safety. Measures such as enhanced locks, bars, closed circuit television, window shutters and security fencing all can contribute to reducing opportunities for criminal activity. However, these elements can detract from the amenity of an area resulting in an increase in the perception or fear of crime. Target hardening requires careful integration within an overall approach to designing out crime. All designing out crime measures should be exhausted before introducing target hardening.</p>	<ul style="list-style-type: none"> ● Consider the installation of traffic management elements to discourage vehicle-enhanced break-ins to shops and commercial premises in streetscapes. ● Ensure individual site security measures do not adversely affect local area security considerations. ● Should be based on and justified by individual need assessment. ● Incorporate shuttering and window barring as integral design elements where openings are susceptible to break-in and concealed crime exit. ● Ensure building parapets do not conceal unlawful access. ● Install closed circuit television where natural surveillance is poor. ● Where fencing is required for security it should be no less than two metres in height.
Management and Maintenance	<p>Active management and maintenance is required to ensure the continued use of the space for the purpose intended and increased feelings of safety for users. Areas that are rundown and the subject of graffiti and vandalism are generally more intimidating than areas which do not display such characteristics. The removal of indicators of crime and the use of positive maintenance with lighting, painting and vegetation management creates a cared-for environment that can reduce the fear of crime and induce legitimate behavior.</p>	<ul style="list-style-type: none"> ● Establish training for public open space managers. ● Consider durability, adaptive re-use and robustness of built form and open spaces. ● Ensure spatial management responsibility is clear between public and private sector organisations. ● Establish systems for reporting of problems and fixing them. ● Remove graffiti as soon as possible after occurrences. ● Establish effective maintenance plans for public spaces. ● Maintain plants to retain visibility where required. ● Train maintenance staff to identify and report potential problems.

3.4 Ecosystem Design

The term “ecosystem” does not include the word “system” for nothing. Natural environments are made up of a range of systems that must interlink to remain functional and productive. A good example is a river system – the quality and flow of water in a river at any given point is affected by what happens in the entire upstream river system. Similarly, land-based ecosystems need good links to each other to ensure that wildlife can move between core feeding and breeding areas, and that pollinators and genetic materials can move between different gene pools and so ensure the genetic health of populations.

At any scale, landscapes can be designed such that functional ecosystems are created or enhanced. In order to achieve this, the landscape design must principally include:

1. CORE AREAS: Certain zones which are largely natural and highly functional in terms of ecosystem service supply – for example a nature conservation area (in a macro scale landscape) or a big clump of trees forming a mini-forest (in a micro scale landscape).

2. GREENWAY / CORRIDOR AREAS: Linear or linking zones of natural habitat between core areas – for example a densely vegetated stream area, a dense avenue of trees or a linear golf course rough area.

The eThekini Municipality has its own Metropolitan Open Space System (D'MOSS), which comprises a network of natural open spaces that contain ecosystems which provide critical goods and services to the residents of the municipal area. These ecosystem goods and services have been valued at R3.2 billion per annum (i.e. if all the open spaces were developed then this would be the cost of replacing the free ecosystem goods and services that they currently provide).

The D'MOSS has been designed such that CORE natural habitat areas are linked to other CORE areas by CORRIDORS of natural open spaces – across the entire municipal area.

Simply put, the larger the core areas are, and the more functional the corridor linkages are, the more functional the ecosystems are likely to be in their production of the desired ecosystem goods and services.

A key consideration in the design of a Green Landscape using the above “Ecosystem Design” approach is to determine the various ROLES that the core and greenway / corridor areas need to perform – as this will impact on how these areas are designed. A comparison of the possible roles and associated design features that should be considered in “Ecosystem Design” is shown below:

Possible Roles	Design Features
A1. Wildlife refuge / conservation area (at a macro or micro scale)	<ul style="list-style-type: none"> ● Area where human activity is completely excluded (exclusion zone) to ensure that wildlife can find quiet refuge for resting, breeding and feeding. This area can be thousands of hectares, or just a few square metres in a suburban garden. The bigger the core, generally the more functional it will be as a wildlife refuge. ● Minimise the edge to area ratio of the core – i.e. the more elongated your core area, the less actual refuge you will create. A circular core has the smallest edge to area ratio, squares are next best. ● Create different habitat types for the different wildlife species that need to be conserved within or attracted to the core. The greater the variety of habitats, the greater the diversity of wildlife that will be supported within the core. ● Establish human interface facilities on the edge of the core area (e.g. benches for sitting and listening to / looking at birds, pathways following the edge of the core area so that people can look into it). ● Core areas should preferably be linked to other core area by a system of greenway corridors.
A2. Flood management zone	<ul style="list-style-type: none"> ● Landscape form / topography to be designed to allow and accommodate water flows over the surface without channeling / blocking it. ● Create shallow depressions for water to collect and settle (i.e. for flood attenuation). ● Landscape form to subtly direct surface flows / floodwaters away from infrastructure / buildings or other nearby zones where floodwaters are not desirable. ● On steep grades, landscape form should be altered to create a series of “steps” – encouraging flow velocity reduction and infiltration on the flat areas, with well-stabilised short steps between the flats (aim to achieve less than 1 metre / second flow on average across the entire zone). ● Planting to create appropriate roughness to slow floodwater flows and encourage infiltration. ● Planting to include mat-forming groundcovers (reeds, sedges, grasses) that will bind and hold the soil during flood events. Include flood-tolerant trees with strong root systems in appropriate locations to hold banks / steeper areas (e.g. figs, freshwater or salt water mangrove trees as appropriate). ● Avoid planting trees / bushes that will block flow, break and cause log jams downstream, or uproot and destabilize the soil during flood events.

Possible Roles	Design Features
A3. Environmental education area	<ul style="list-style-type: none"> ● Must have specific attractions for learning (e.g. rivers with pools that contain insect life, geological features, good examples of habitat types or animal populations etc). ● Create an appropriate network of trails / pathways to give access to key learning areas with educational value. Ensure that these are tightly contained to avoid disturbance to the natural habitats / features that must remain functional to provide the learning experience. ● Create diversity of - or specific kinds of - habitat zones that will support a variety of – or a specific kind of – wildlife that is of interest for education. ● Create contained clearings where groups can spread out to receive lectures / information without needing to trample / disturb surrounding natural habitat areas. ● Select good viewing spots to create contained clearings / platforms where learners can congregate to receive information while looking into / over core area. ● Need to design a receiving area for visitors OUTSIDE the core area.
A4. Eco-tourism related recreation	<ul style="list-style-type: none"> ● Must have specific attractions for eco-tourism (views, animal viewing, bird viewing, habitats with relaxing ambience, boardwalk / canopy cable slide, canoe trails etc). ● Create an appropriate network of roads / trails / pathways / boardwalks to give access to key interest or viewing areas. The design should aim to offer the user a variety of experiences (i.e. hot, cool, high, low, different views and smells). Ensure that these access routes are tightly contained to avoid disturbance to the natural habitats / features and designed to avoid fragmenting the core area. ● Create contained clearings where groups can spread out to receive lectures / information without needing to trample / disturb surrounding natural habitat areas. ● Create hides to give visitors close proximity access to central core areas without disturbing wildlife and habitats. ● Need to design a receiving area for visitors OUTSIDE the core area.
B1. Wildlife corridor	<ul style="list-style-type: none"> ● At least two core areas should be linked by corridors comprising appropriate habitat types (i.e. the corridor will not function as such without this). Preferably include a number of small cores along the corridor. ● Corridors must be as continuous as possible (minimize breaks in natural habitat and avoid having wide roads with fast-moving traffic crossing the corridor). ● Use interlocking tree canopies to establish overhead corridors where wildlife movement on the ground is not a good idea (e.g. parking lots). ● Or create rope bridges for wildlife movement between canopies. ● Must have relatively good shelter and refuge areas for resting. ● Must be secured from poaching / human disturbance. ● If wildlife corridor is being designed for specific migratory species (e.g. birds), ensure that appropriate resting and feeding habitats are established and maintained in the corridor.
B2. Human movement corridor (road, pedestrian pathway etc.)	<ul style="list-style-type: none"> ● At least two core areas should be linked by the greenway corridor (i.e. the corridor will not function as such without this). Preferably include a number of small cores along the corridor. These can include a small clump of trees with a bench for resting, or a natural grassland patch with a drinking fountain adjacent etc. ● Corridor should have as few interruptions / breaks as possible. ● Establish indigenous vegetation alongside / within pathway and road corridors. ● Corridor should aim to provide a diversity of views and nature experiences (i.e. shady areas, sunny areas, high areas, low areas, views onto streams etc). Corridor should include a number of stopping points (at features of interest) where facilities are provided for rest, admiring the view etc. ● Manage road verges and embankments as natural habitat zones. ● Create tree canopy linkages over road crossings / other small breaks in the corridor. ● Where pathway / road systems are designed through natural habitats, these must avoid fragmenting the natural habitat zones (i.e. run alongside rather than through) to ensure that refuge habitat areas are retained as part of the greenway corridor. ● Where possible run greenways in front of houses, factories etc. so that these areas are looked onto (improved surveillance) and valued for the green views they provide (i.e. will then be looked after better rather than becoming dumpsites etc).

3.5 Designing for the Disabled

One of the key objectives of **Green Landscaping** is about creating nature experiences for people – all people, including those with disabilities. Green Landscapes are thus designed to ensure that people from all walks of life can access the experiences that they offer. Key design elements that must be adopted for this include:



Landscape furniture such as those illustrated above, which is user-friendly for people with disabilities, should be the preferred option.

Feature	Design Features
Walkways and walking trails	<ul style="list-style-type: none"> ● Establish paved walkways. ● Use of appropriate paving material (avoid deep grooves, heavy aggregates or large joints). ● Follow contours and not exceed 1:50 (cross-slope) and 1:20 (slope). ● Use different paving material / colours to show changes in slope, intersections, and use of path
Entrance ramps	<ul style="list-style-type: none"> ● Establish entrance ramps to all buildings and structures. ● Width of ramp needs to accommodate wheelchairs. ● Slope should not exceed 1:12. ● Design must include a handrail (appropriate height and material).
Ablution facilities	<ul style="list-style-type: none"> ● Establish ablution facilities which are accessible for people with disabilities. ● Entrance ramp to ablution facilities. ● Cubicles which accommodate wheelchairs. ● Design should include handrails and taps which are user-friendly.
Tables and benches	<ul style="list-style-type: none"> ● Establish tables and benches for people with disabilities (appropriate height). ● Placement of tables and benches close to paved walkways. ● Portion of table should not have fixed bench to allow access for wheelchairs.
Drinking fountains	<ul style="list-style-type: none"> ● Establish drinking fountains which are accessible to people with disabilities. ● Taps must be user-friendly
Playground apparatus*	<ul style="list-style-type: none"> ● Establish playground apparatus (e.g. merry-go-round) which accommodates wheelchairs for children with disabilities.
Touch and smell gardens*	<ul style="list-style-type: none"> ● Establish touch and smell gardens for children with disabilities

*Denotes structures which are specialised and should be included in specialist nature reserves or parks which cater specifically for people with disabilities.

3.6 Designing for Environmental Education

While most landscaped areas are pleasing to the eye, they can play an important role in education if appropriate access and interpretive signage is included in the design. Key design features that should be incorporated in landscapes where education is a desired outcome include:

- ☛ Design of human access to view different features and areas of interest (i.e. walking trails through different habitat types, stepping stones across rivers, boardwalks through tree canopies, waterfalls etc). This access is usually provided in the form of trails:
- ☛ Nature trails – marked trail which bring visitors into close contact with the natural environment.

☛ Sensory / Interpretive trails - marked trail with stopping points that provide useful information about a specific component of the environment(e.g. geology or rare plant).

☛ Hides: allow visitors to view wildlife in their natural habitat with very little disturbance.

☛ Environmental centre – a conference venue for discussions, generally includes a museum or practical component (e.g. aquarium).

☛ Inclusion of interpretive signage: markers on trees indicating the species and common name; trails maps; information boards and posters. These can be placed along trails, at an Interpretive Centre, in a hide or next to benches at picnic / rest / view spots.

4 Green Landscaping Design Approaches

Once the **Green Landscaping** Design Approach (i.e. designing for disabled people, safer neighbourhoods etc) has been selected in response to the key objectives of the landscaping project, the detailed landscape design phase is started. This is followed by implementation / construction, and finally the maintenance phase. This **Green Landscaping** Guide provides detailed design and implementation guidance on how to:

- a. Identify, protect and rehabilitate natural features and landscapes as part of the Green Landscape,
- b. Source and select plants and other “green” materials and fittings (e.g. rainwater tanks or composting enclosures) to use in the landscape,
- c. Locate / place plants and other fittings optimally in the Green Landscape.

This section has been divided into “soft” and “hard” landscaping for ease of reference.

4.1 Soft Landscapes

Soft landscapes are areas where plants and soil dominate. We begin with information on how to identify, protect and rehabilitate natural landscapes, as this is a fundamental objective of any **Green Landscaping** approach.

The next section focuses on choosing the right plants and discusses plant themes and zonation,

responses to microclimates, creating habitats, planting to attract / protect specific species, and presents indigenous species lists for the eThekweni Municipal Area. The remaining sections discuss water wise planting, procuring plants responsibly, producing your own plants, composting and garden waste management.

4.1.1 Natural Landscape Protection and Rehabilitation

Green Landscaping aims to create healthy, livable environments for people, and does this by creating a reasonable balance between man and nature in landscaped spaces. A key principle is to protect and enhance biodiversity and ecological functioning through the creation and restoration of natural habitats, such that the supply of ecosystem goods and services that we depend on can be maximized.

Apart from the fact that there is a bevy of environmental legislation that protects natural habitats in South Africa, a key starting point for any **Green Landscaping** project is the identification, protection and rehabilitation of natural habitats and ecosystems that may already exist in the area where the landscaping project is to take place. These are often called “environmentally sensitive areas”.

Once you have identified the environmentally sensitive areas, the next step is to protect them. This means delineating them in an appropriate way to keep out any unwanted activity that could thwart your rehabilitation efforts. If the site is in an urban area, surrounded by lots of people, busy roads or commercial / industrial activity, or may be subject to damage by browsing and grazing animals, the best approach is to fence the



At Cotswold Downs in Hillcrest, the golf course rough areas have been landscaped as “natural habitats”, and the natural greenway corridors that traverse the Estate (such as the stream valley in the above picture) have been protected and rehabilitated.

areas to keep people, vehicles and animals out. If there is development happening around the site then the fence should also be able to keep construction vehicles and workers out. However, if the area is not threatened by people, vehicles or livestock, then delineating the area with survey pegs, hazard tape or even string and appropriate signage, may be enough.



4.1.1.1 Identifying Environmentally Sensitive Areas and Features

Environmentally sensitive areas and features that should be delineated, protected and (where appropriate) rehabilitated to improve the supply of ecosystem goods and services, include:

Environmentally Sensitive Areas and Features	Description	Roles
Grasslands	 <p>Areas where natural grasses, bulbs, forbs (non-woody flowering plants), and occasionally small shrubs, dominate the landscape. Often found on north and east facing slopes, rocky plateaus and slopes or areas of shallow soil (which cannot support trees). Grasslands in the greater Durban area generally have to be maintained by regular burning, or they tend to become forests over time.</p>	<ul style="list-style-type: none"> ● Capturing and slowing rainwater, helping to ensure a more consistent flow of water in rivers / streams. ● Binding the soil and preventing soil erosion. ● Provision of biodiversity refuges for a wide range of plant, animal, insect and reptile species. ● Contribution to landscape amenity (views, hiking, bird watching etc). ● Harvesting of natural resources (grass for thatch, medicinal plants etc).
Forests	 <p>Areas where trees dominate, usually such that the tree canopy is continuous with no / few gaps. The forest understorey contains a range of smaller woody and herbaceous plants. Most often found on dunes, south and west facing slopes further inland, and in river valleys. In the greater Durban area, typical forest types include: coastal, scarp, riverine and mangrove forest.</p>	<ul style="list-style-type: none"> ● Reducing urban heat effects. ● Capturing and storing CO₂. ● Capturing and slowing rainwater run-off, helping to ensure a more consistent flow of water in rivers / streams. ● Stabilising slopes and preventing soil erosion. ● Formation of soil. ● Provision of biodiversity refuges for a wide range of plant and animal species. ● Contribution to property values – views of forests. ● Contribution to landscape amenity (views, hiking, bird watching etc). ● Harvesting of natural resources (wood, medicinal plants etc).
Woodlands / Savannah / Bushveld	 <p>Areas where there is good natural grass cover interspersed with trees. Most often found in areas with hot, dry microclimates and / or shallow soils. These areas are maintained through regular burning and / or managed grazing intensity.</p>	<ul style="list-style-type: none"> ● Capturing and storing CO₂. ● Capturing and slowing rainwater, helping to ensure a more consistent flow of water in rivers / streams. ● Stabilising slopes and preventing soil erosion. ● Provision of biodiversity refuges for a wide range of plant, animal, insect and reptile species. ● Contribution to landscape amenity (views, hiking, bird watching etc). ● Harvesting of natural resources (wood, thatch, medicinal plants etc).
Wetlands	 <p>Areas that are either permanently or periodically inundated with water – usually but not always forming part of river / stream systems. Generally well vegetated with reeds, sedges and grasses.</p>	<ul style="list-style-type: none"> ● Slowing floodwaters and helping to ensure consistent flow in rivers / streams throughout the year. ● Capture of sediment. ● Improving water quality in rivers / streams through capturing nutrients and pollutants. ● Provision of a specific biodiversity refuge, often needed for nesting or feeding of birds and animals. ● Contribution to landscape amenity (views, bird watching). ● Harvesting of natural resources (reeds and sedges for craftwork).

Environmentally Sensitive Areas and Features	Description	Roles
Rivers and Streams 	Permanent or seasonally flowing water courses.	<ul style="list-style-type: none"> ● Supply of water. ● Recreational uses (canoeing, swimming etc) ● Amenity value (e.g. views of Mgeni River increases property values). ● Provision of a specific biodiversity habitat for aquatic flora and fauna.
Floodplains 	Flat areas associated with rivers and streams onto which floodwaters spread during periods of high flow.	<ul style="list-style-type: none"> ● Slowing floodwaters and helping to ensure consistent flow in rivers / streams throughout the year. ● Capture of sediment. ● Improving water quality in rivers / streams through capturing nutrients and pollutants. ● Contribution to landscape amenity (views, bird watching). ● Harvesting of natural resources (reeds and sedges for craftwork).
Dams 	Man-made structures that capture and store water – most often to make the water available for abstraction and use by people throughout the year. Dams are also created for recreational purposes in some instances (fishing, views of water) or stormwater attenuation (capturing and temporarily detaining floodwaters to minimise flood damage downstream).	<ul style="list-style-type: none"> ● Water supply. ● Capturing sediment and improving water quality. ● Contribution to landscape amenity (views of open water bodies). ● Recreational uses (fishing, canoeing, swimming etc). ● Food production (fishing – large dams only). ● May attenuate floods depending on the design of the dam.
Protected Individual trees and plants and protected habitat areas 	A range of tree and other plant species are protected by national and provincial legislation (see next section). In addition, certain animal and reptile species are protected. In either instance, the protected individual plants would need to be marked and conserved, or the habitat area that the animal / reptile is dependant on for survival would need to be protected.	<ul style="list-style-type: none"> ● Conservation of biodiversity – scarce and threatened species.
Cliffs (natural and man-made) 	Areas of sheer rock which may be vertical or sloped. These areas may have important heritage significance (rock paintings in caves), biodiversity significance (birds of prey nesting on cliff ledges) of amenity and recreational significance (rock climbing, property values increased as a result of views of cliffs or waterfalls etc).	<ul style="list-style-type: none"> ● Specific biodiversity refuges. ● Heritage conservation. ● Recreational uses. ● Landscape amenity value (e.g. views of cliffs and waterfalls).
Coastal Habitats 	Sensitive coastal habitats include dunes (vegetated and unvegetated), beaches, rocky shores, estuaries and the ocean, and any area affected by the high water mark of the sea.	<ul style="list-style-type: none"> ● Recreational uses (sunbathing, swimming etc). ● Estuaries improve water quality. ● Amenity value (e.g. views of coastal areas increases property values). ● Provision of a specific biodiversity habitat for aquatic flora and fauna. ● Harvesting of natural resources and food supply (fishing, mussel collecting etc).
Farmlands 	Areas where crops are grown or livestock grazes. These areas are important for food production and food security in any landscape.	<ul style="list-style-type: none"> ● Food production and food security. ● Wildlife refuges. ● Wildlife corridors.

4.1.1.2 Protected Species

There are a number of different laws and policies that have been set up in South Africa to protect endangered, vulnerable and threatened plant and animal species. These may affect the protection of plants growing in the wild (i.e. which may not be disturbed without a permit), the production of certain kinds of indigenous plants in a nursery, the trade in protected species of plants; and the capture, breeding and management of certain species of wildlife. While this legislative and policy environment is fairly complex, the key laws and policies that pertain to **Green Landscaping** are:

National Protected Tree List (promulgated under the National Forests Act of 1998)

The national protected tree list indicates that no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence granted by the Minister to an applicant and subject to such period and conditions as may be stipulated. The national list of protected trees (published 7 September 2007) is included in APPENDIX B.

Natal Nature Conservation Ordinance (15 of 1974) - Schedule of Protected and Specially Protected Species

While this Ordinance covers a wide range of conservation issues, the Schedule of Protected and Specially Protected Species is referred to in terms of special permits that need to be issued by the Natal Parks Board (now Ezemvelo KZN Wildlife) for the hunting, culling, capture, collection, relocation, sale, purchase, keeping, breeding and disposal of species listed in the Schedules. Schedules are contained in APPENDIX C.

Threatened or Protected Species Regulations (promulgated under the National Environmental Management Act: Biodiversity Act of 2004)

The purpose of these regulations is to provide a framework for the issuing of permits for the following activities in respect of listed threatened or protected species (see APPENDIX D):

- 👉 Registration of:
 - ✿ Captive breeding operations;
 - ✿ Commercial exhibition facilities;
 - ✿ Game farms;
 - ✿ Nurseries;
 - ✿ Scientific institutions;
 - ✿ Sanctuaries;
 - ✿ Rehabilitation facilities;
 - ✿ Wildlife traders
- 👉 Regulation of hunting activities.
- 👉 Provide for the prohibition of specific activities relating to the listed species.
- 👉 Provide for the protection of wild populations of listed threatened species.

Should any landscaping projects affect or involve any of the species listed in these regulations in any way, Ezemvelo KZN Wildlife should be contacted for assistance in respect of the permits and authority required.

Ezemvelo KZN Wildlife is the mandated authority for the issuing of permits for anything to do with listed Protected, Specially Protected, Threatened or Vulnerable plant and animal species in KwaZulu-Natal. Any project that affects / uses the listed species in any way should first consult with Ezemvelo KZN Wildlife in respect of permits required. The permits office is based at the head office in Pietermaritzburg and can be contacted on

Tel: 033 845 1324

Fax: 033 845 1747

4.1.1.3 Physical Delineation and Protection of Landscapes under Rehabilitation

The physical delineation of environmentally sensitive areas and features which are to be protected and rehabilitated is critical to ensure that all parties involved in any way with these areas know where the activity is going to be focused. The type of physical delineation must respond directly to keep out any unwanted activity that could impact on the protection and rehabilitation objectives.

In some instances it is necessary to create a barrier to the entry of people, vehicles or

livestock. This is generally the case where the site is located in an area undergoing construction, lies within a human movement pathway, is in a rural area where livestock grazing and browsing is universal across any unfenced portion of the landscape.

In other instances, a simple demarcation of the boundary may be sufficient – particularly where the area to be protected / rehabilitated lies within a larger protected or fenced area with controlled access. An example of this could be the deline-

ation of rehabilitation zones within a proclaimed, fenced and managed nature reserve.

Where the rehabilitating area is located within or adjacent to a construction site, it is often necessary to ensure that the physical delineation method used can also act as a silt / soil / dust trap, as cleared areas or dirt roads can cause significant impacts on the natural areas where protection and rehabilitation are the objectives.

Summary of methods used for delineation and protection of rehabilitating natural landscapes / features:



At this construction site, the river valley has been cordoned off with a fence of geofabric to ensure that eroded soil does not wash into it.

Type		When to Use / Benefits
Fencing – bonnox, weldmesh etc		<ul style="list-style-type: none"> ● Required when a physical barrier is required to stop people or livestock entering the area. ● If the area includes a route where people walk often walk through, drive through or where illegal dumping is a problem. ● Does not stop silt / soil washed off from adjacent cleared areas.
Silt fencing – geofabric or shade cloth erected on poles and buried into the soil at the base (often also sandbagged at this point).		<ul style="list-style-type: none"> ● Useful when the adjacent area has been cleared and there is a need to stop silt / soil washing into the natural area or wind blown sand from covering newly planted areas. ● Useful for screening the natural vegetation from dust if the adjacent use is an unsurfaced dirt / haulage road (the silt fence will need to be as high as possible for maximum effect). ● Multiple rows of silt fencing can be used where there is a risk of a single fence being broken through by surface run-off or heavy loads of eroded soil.
Hazard tape / survey pegs		<ul style="list-style-type: none"> ● Only useful when the area is not threatened by the movement of people, vehicles or livestock as it does not provide any kind of barrier – it simply delineates the edge of the natural area. ● Should be combined with signage.
Sand bags		<ul style="list-style-type: none"> ● Useful if piled on top of each other to slow run-off and protect adjacent areas from eroded soil. ● Do not form a physical barrier to people or livestock as they can be easily climbed over. ● Expensive and usually only employed where slope is a key issue or when working in sandy beach / dune environments.
Signage		<ul style="list-style-type: none"> ● Should usually be combined with all other methods listed above. ● Must be clear and visibly located. ● Minimise text and use icons if signs need to be read by people of many different languages or limited literacy.

4.1.1.4 Rehabilitation Approaches

Once the area is appropriately delineated and protected, rehabilitation can begin. Habitat and ecosystem restoration in the Durban area can be a relatively simple process. It involves:

- The removal of any factors that might be stressing the natural balance of the area (for example alien plants that are rapidly taking over),
- Restoring a “natural” management regime for the habitat (for example protecting forests from fire, or controlled burning of grasslands), and
- Giving a little help to speed the rehabilitation process up where appropriate (for example planting trees to speed up forest regeneration).

Even many highly transformed landscapes – e.g. fallow sugar cane fields – are not necessarily that difficult to rehabilitate back to a natural state. In most soils, the seeds from the plants of the former natural habitat that occupied the area prior to its development or cultivation, still survive. This is why dune mining operations always collect the soil from the dune areas that are to be mined,

store this and then spread it back over the area once done. In many cases these operations do nothing more – the forests regenerate simply from the seed stock that remains in the soil. In the case of sugar cane areas in the eThekweni Municipal Area, these regenerate quite quickly back to secondary grasslands if a suitable alien plant management and controlled burning programme is implemented.

When planting for restoration purposes, it is not always easy to continue to access these areas to water / maintain the plants. It is thus important to use only plants that have been properly hardened off from the nursery production system for restoration to minimize the rate of loss of plants.

Complex restoration projects (e.g. involving the stabilization of major erosion areas and wetland rehabilitation projects involving the construction of weirs), it is necessary to contract the services of a specialist environmental rehabilitation professional to provide a plan and guidance on the implementation of the works.

SCHEMATIC SUCCESSIONAL DIAGRAM — FROM CANELAND TO FOREST

DAY ONE

You will have scrub hare, grey duiker, maybe cane rat if it was a dampish field, bushbuck and bushpig feeding.

The fish eagle is always flying over, but will only feed if the river is present.

Bushpig, bushbuck, red duiker, python, porcupine, will be resident, grey duiker, scrub hare and cane rat may rest if there is enough cover. An African rock python may visit if there are enough cane rats.

ONE YEAR ON

Grey duiker, scrub hare and cane rat will feed, breed and rest. The rest will still visit to feed.

AT THIS STAGE IF YOU ARE MANAGING FOR GRASSLAND THEN FIRE WILL COME INTO PLAY AND THE GREY DUKER, SCRUB HARE AND CANE RAT WILL BE ABLE TO STAY FULL TIME IN THIS HABITAT.

FIVE YEARS ON

Grey duiker will be resident as will cane rat but scrub hare will be only feeding if there is enough food. Python will visit and be resident if it is near a river. Red duiker and bushpig will rest up and feed. Bushbuck will only visit to feed. Porcupine may be visiting to feed.

TEN YEARS ON

Cane rat, scrub hare will have gone. Grey duiker will just be about to rest and breed. Red duiker and bushbuck will be nesting, feeding and breeding. Bushpig will be here as well if it is damp enough. Python may also be here if food is about. If it is a drier slope then porcupine will be resident.

TWENTY YEARS ON

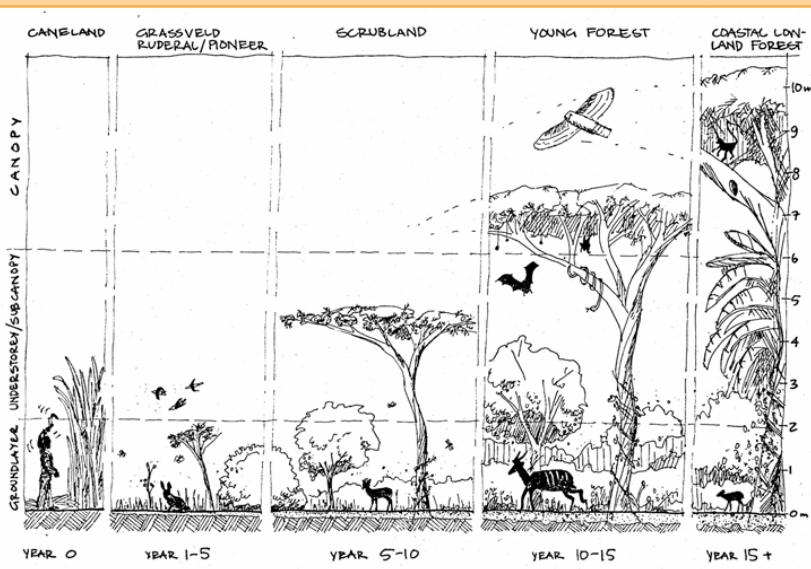
Cane rat, scrub hare and grey duiker are gone. Bushpig, bushbuck, red duiker, python, porcupine will all be resident. Blue duiker will be visiting to feed. If the trees are forming a canopy they grey-headed bush strike will be visiting to feed.

THIRTY YEARS ON

Cane rat, scrub hare and grey duiker are gone. Bushpig, bushbuck, red duiker, python, porcupine and blue duiker will all be resident. Spotted thrush will be visiting in winter.

FIFTY YEARS ON

As for 30 years, but more blue duiker and grey-headed bush strike and more spotted thrush in the winter months.



The above diagram illustrates how natural habitat (forest) can be regenerated from sugar cane lands.
(by Trevor Dix, 1998).



The above building site – the Derivco Building in Umhlanga, abutted a drainage line which was rehabilitated in the course of the development. The picture on the left was taken in September 2001, and the one on the right 16 months later in January 2003. (photos: Geoff Nichols)

4.1.1.5 Alien Invasive Plants and Weeds

In South Africa, weeds and invader plants are currently controlled by a specific set of Regulations promulgated under the Conservation of Agricultural Resources Act (CARA) of 1983, and Regulations Promulgated under the National Environmental Management Biodiversity Act (2004) published in 2009. The former Regulations are administered by the National Department of Agriculture, and the latter by the National Department of Environment Affairs and Tourism, and aim to “control” invasive plants and weeds in terms of their existence on any piece of land, their propagation / multiplication, regeneration and spreading. The CARA Regulations define three categories of weeds and invader plants, and depending on which category each species falls, different levels and types of controls apply.

Category 1 Plants may not occur on any land or inland water surface. All landowners are required to control any Category 1 plants that grow within their area of ownership. Unless the National Department of Agriculture has given an Exemption Permit, no-one may:

- ✿ establish, plant, maintain, multiply or propagate Category 1 plants;
- ✿ import or sell Category 1 plants or propagative material thereof;
- ✿ acquire Category 1 plants or propagative material thereof.

Category 2 Plants may not occur on any land or inland water surface other than in an area demarcated by the National Department of Agriculture. Such areas may include biological control reserves or areas in respect of which a water use license for stream flow reduction activities has been issued in terms of section 36 of the National Water Act, 1998 (e.g. a forestry plantation). Even in such demarcated areas, Category 2 plants must be:

- ✿ cultivated under controlled circumstances; and
- ✿ the Category 2 plants or products thereof must primarily serve a commercial purpose, be used as a woodlot, shelter belt, for building materials, animal fodder, soil stabilisation, medicinal or other beneficial function; and
- ✿ the Category 2 plants may not occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam or wetland; and
- ✿ all reasonable steps must be taken to curtail the spreading of the Category 2 plants outside the demarcated area.

All landowners are required to control any Category 2 plants that grow within their area of ownership. Unless the National Department of Agriculture has given a Permit to do so, no-one may:

- ✿ sell propagative material of Category 2 plants or any Category 2 plants to another person unless such other person is a land user of a demarcated area or of a biological control reserve; or
- ✿ acquire propagative material of Category 2 plants or any Category 2 plants unless such material or such plants are intended for use in a demarcated area or in a biological control reserve.

Category 2 plants or propagative material thereof may only be imported or sold in accordance with the provisions of the Plant Improvement Act of 1976, the Agricultural Pests Act of 1983 and the National Environmental Impact Assessment Regulations (GNR 385, 386 and 387 of 2006) promulgated under the National Environmental Management Act of 1998.



⁴ Invasive plants refer to species which are established and have spread outside of their natural distribution range, and threaten ecosystems, habitats, or other species, or have demonstrated the potential to threaten ecosystems, habitats, or other species.

Category 3 Plants may not occur on any land or inland water surface unless already in existence at the time of the commencement the Weeds and Invader Plants Regulations (2001). However, all landowners must ensure that no Category 3 plants occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam or wetland. Landowners must also take all reasonable steps to curtail the spreading of Category 3

plants. Unless the National Department of Agriculture grants an Exemption Permit, no-one may:

- ✿ establish, plant, maintain, multiply or propagate Category 3 plants;
- ✿ import or sell Category 3 plants or propagative material thereof;
- ✿ acquire Category 3 plants or propagative material thereof.

The CARA list of alien invader plants and weeds is included in APPENDIX E.

4.1.2 Green Roofs

A green roof is a roof with a suitably low gradient that is planted with low growing, drought resistant, indigenous vegetation in a shallow, lightweight growing medium. Green roofs do not require structural supports and hence can be established on existing roofs that have not been specifically constructed to carry an additional structural load such as an intensive rooftop garden does (with larger, heavier plants and soils).

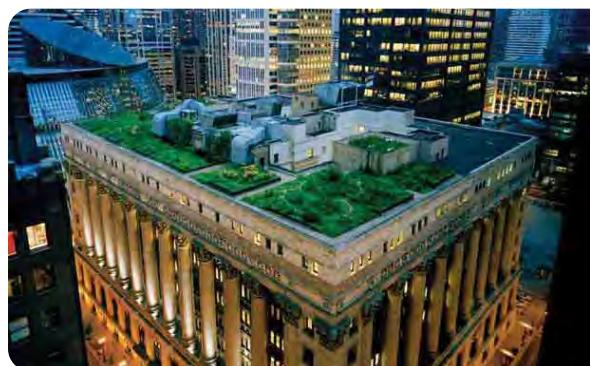
Green Roofs have a number of benefits and are thus particularly useful Green Landscapes:

- ✿ They can reduce the temperature of the buildings on which they are located, so reducing the need for energy hungry airconditioning.
- ✿ They can reduce reflected heat in urban environments, and so reduce urban heat islands.
- ✿ They capture and absorb rainwater, and so reduce accelerated stormwater impacts which are a common problem in built up areas.
- ✿ They are valuable spaces for the production of vegetables and herbs where space for such sustainable food-security activities are limited in built up urban landscapes.
- ✿ They capture certain greenhouse gases and release oxygen, contributing positively to

climate protection and urban air quality.

- ✿ They may absorb and dampen sound, assisting in reducing noise nuisance in urban buildings.
- ✿ They may contribute to greenway corridor systems throughout cities – particularly for mobile species such as insects and birds.
- ✿ When used in natural landscapes or landscapes where views are valued, green roofs can help to disguise or reduce the visual impacts of buildings.

The modern concept of Green Roofs was started in Germany during the 1960's and has since spread to many countries such as the United States, United Kingdom, and France. It has been estimated that approximately 10% of Germany's buildings presently have 'Green Roofs'. In Germany, Switzerland and Austria, green roofs are required by law on all new buildings that have a suitably low pitch. Germany's busiest airport (Frankfurt International Airport) has gained nearly half a million square feet of building-top foliage since 1990. The more than 20 green roofs at this airport not only help muffle noise from planes, but also have doubled the lifespan of the roof structures concealed beneath plants.



Green roof tops such as the Chicago Hall, Illinois (left) and Mountain Equipment Co-Op, Toronto (right) provide corridors for the movement of wildlife in the urban areas of the city, as well as several ecosystem services (e.g. reducing the heat island effect).

4.1.2.1 How to Construct a Green Roof

There are two construction methods that can be used for Green Roofs:

- ☛ The direct method involves placing the growing medium directly onto the waterproof underlay required for green roofs.
- ☛ The second involves placing the growing medium in trays. This is referred to as the modular method.

The modular method is best for difficult applications, such as corrugated roofs or where roof access is difficult. This method also works well when instant effect and mobility are necessary. Both the direct and the modular methods of green roof construction require that:

- ✿ The roof is checked by a structural engineer to ensure that the existing roof can take the additional loading.
- ✿ A green roof specialist is consulted to establish which method is most suitable and which plant species should be used.
- ✿ An additional protection layer is applied on top

of the existing roof membrane (usually a layer of geo-textile bidum and a layer of 1000 micron plastic).

- ✿ A drainage layer is placed on top of the protection layer: For direct method construction another layer of geotextile fabric mesh is placed on the roof. For the modular method recyclable plastic containers are placed on the roof.
- ✿ A specialised soil layer is then either placed on top of the layers (direct method of construction) or in the containers (modular method construction). The soil layer for a green roof may be as much as 60 % lighter than a conventional soil type. Normally a lightweight, well drained, high moisture retention soil layer compiled of vermiculite, perlite and well composed growing medium or potting mix is used.
- ✿ Indigenous vegetation is then planted in the soil layer.

A comparison of the two construction methods is provided below:

OPTIONS	DIRECT	MODULAR
Installation	Various protective layers must be installed on the roof prior to planting.	Trays can be pre-planted, thus offering quick installation. The container system can be put in place on the roof rapidly and in accordance with design requirements.
Maintenance and repair	Layers need to be lifted until the problem is found, resulting in the growing medium and plants being disturbed.	Containers can be moved easily without disturbing the growing medium and plants.
Alterations and additions	Often difficult and expensive to change or add-on due to edge design requirements.	Allows for the installation of green roofs in sections, thus offering the opportunity for future add-ons and alterations.
Weight	Direct systems are often heavy and may require roof surface replacement or additional support.	Trays can be installed on almost any existing roof surface in good condition and with appropriate structural capacity.
Plants	Roots have less space restrictions allowing for deeper and more extensive root systems and greater interactions between plants.	Some plants may struggle as their root systems are restricted.

When selecting plants for a green roof, ensure that the plants have been hardened-off or acclimatized to withstand dry, hot conditions.

4.1.2.2 What to Plant on a Green Roof

Plants in the vegetative layer should be:

- ☛ drought resistant,
- ☛ heat tolerant,
- ☛ low growing,
- ☛ self seeding (so as to replace themselves when stressed by heat / water fluctuations),

- ☛ wind resistant, and
- ☛ able to survive and even thrive under extreme growing conditions.

Apart from any food plants to be grown, all plant species used in Green Roofs in Durban should be locally indigenous.

23.

4.1.2.3 Maintaining a Green Roof

The Green Roof requires regular irrigation until the plants have become established. Thereafter the plants need to be irrigated as and when necessary, which is determined by the type of vegetation, the depth and drainage characteristics of the soil and the prevailing atmospheric conditions.

Opportunities exist for irrigation using water col-

lected in the gutters of the roof and adjacent roofs and grey water from kitchens and bathrooms. In addition to this, water from airconditioner condensers may be diverted on Green Roofs.

Occasionally green roofs need to be weeded, as a common problem is the germination of wind and bird dispersed seed.

4.1.3 Choosing the Right Plants

There are several reasons why choosing the right plants is critically important for any **Green Landscaping** project. Most important is the need to select plants which would naturally occur in the area, and that suit the local climate, for the following reasons:

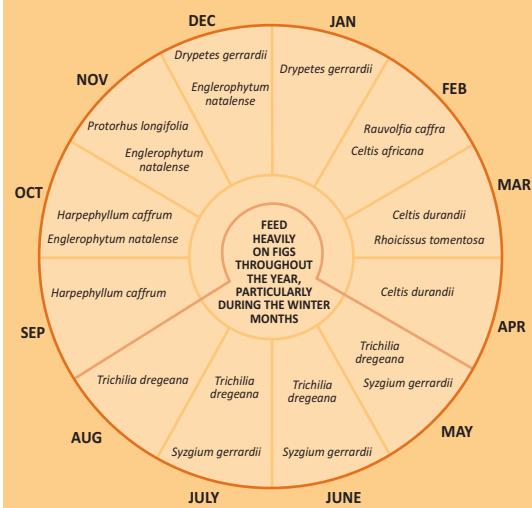
- ➲ This replicates local biodiversity and helps to restore the coverage of these naturally occurring species in the local area (even if part of an urban landscape);
- ➲ One can expect to find local populations of birds, butterflies and other insects that will be attracted to these plants – which will enhance the ecosystem functioning of the landscape and enhance the enjoyment that people will be able to derive from the landscape;
- ➲ Locally occurring plants are likely to require less maintenance (watering, pesticides etc); and similarly the growth rates of the plants are likely to be better and the chance of having the plants die off is reduced.

In choosing the “right” plants, consideration should be given to:

- ➲ Response to the design and intended purpose of the landscape – i.e. do the plants need to provide shade, do they need to flower at a certain time of year, do they need to be a certain height or be able to be pruned into formal shapes, do they need to be grouped to form a certain kind of habitat?
- ➲ Response to maintenance issues – i.e. are there hard structures in the area that might be impacted by the root systems of certain kinds of plants, how often will the plants be watered?
- ➲ Sourcing the plants sustainably – i.e. if large trees are needed, is there a way of getting these without taking them illegally from the wild? Can you produce your own plants from seed or cuttings?



TRUMPETER HORNBILL
EXAMPLE OF SOME TREES USED TO SUPPLEMENT FIG DIET IN COASTAL SCARP FORESTS IN KZN



👉 Using sufficient numbers of each species of plant to support all life stages of the insect or other organism that you are trying to preserve.

👉 Plant enough species in your landscape to allow for food for every day of the year not just a few days or even weeks.

4.1.3.1 Planting Themes

A planting theme is the combination of plant types selected with the aim of producing a particular effect. Planting Themes for Green Landscapes don't differ significantly from traditional landscaping, except in that the plants chosen need to be locally indigenous and suit the local microclimate.



This may seem somewhat limiting, however, the eThekini Municipal Area is home to more than 2000 plant species, with an increasing availability in commercial and specialist plant nurseries.

The planting theme selected for the **Green Landscape** may have any one or a combination of the following aims in mind:

✿ **Aesthetics:** formal or informal Green Landscape planting themes may respond to the traditional landscaping objectives of creating plant mass, texture, colour themes or variations, shapes or patterns for aesthetic benefit.

✿ **Ecosystem functionality and / or diversity:** the creation of different habitat types within the landscape that support different ecosystems, for example zones containing forest patches, grassland areas, ponds with aquatic vegetation in and surrounding them. A greater diversity of plant species provides more wildlife habitat, more seasonal interest, and less noticeable damage from pests or diseases. This can be combined with human functionality objectives of creating different nature experiences within the landscape, for instance by creating gardens for medicinal plants or butterflies.

✿ **Water-wise:** while planting locally indigenous species is in itself a water-wise landscaping approach as these generally require less watering than tropical exotic plants do, there are certain plants which are especially able to tolerate low-water conditions. Where the landscaped area is in a place that cannot be easily maintained, is exceptionally water-scarce, or for which the aim is to minimize the use of natural resources in maintenance, then water-wise plants should be used. These are generally all succulents and other drought tolerant species such as those listed in Appendix A.

✿ **Plants performing services:** the selection of plants that perform particular functions to service a specific need. For example the planting of only large, flat crowned and shade-giving trees around and within a parking lot; or the planting of mat-forming grasses to stabilize a steep slope.





Flatcrowns (*Albizia adianthifolia*), such as these at Mount Edgecombe, are semi-deciduous, losing most of their leaves in winter, and so are excellent trees to plant where you want more shade in summer and more sun in winter.

4.1.3.2 Planting Zones in Durban

There are five planting zones and over 2000 indigenous plant species which occur naturally in Durban. The species chosen for any **Green Landscaping** project in Durban will inherently

need to respect these different zones, as they determine which species are endemic or locally indigenous to a particular area.

The five vegetation zones in Durban are:

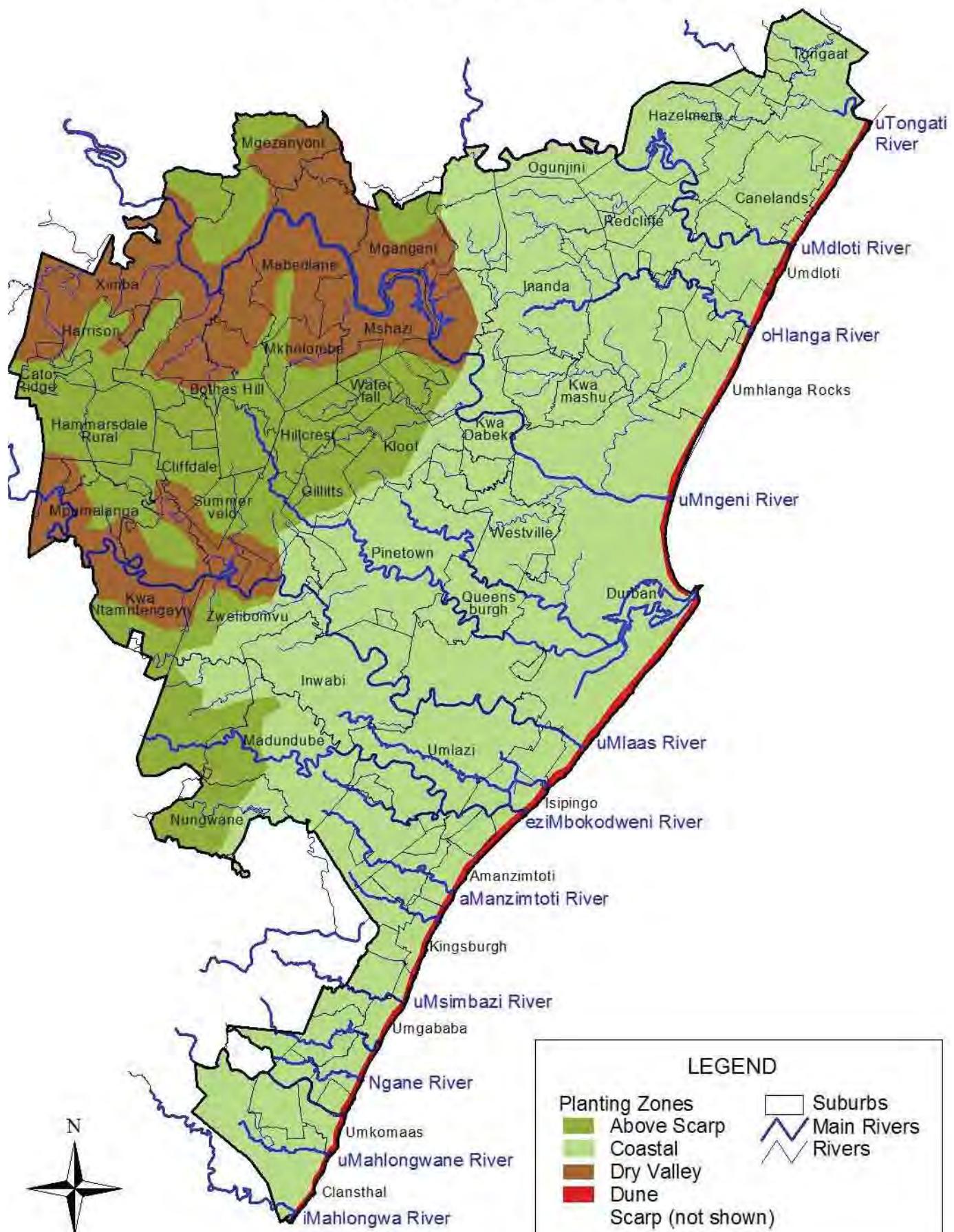
Zone	Description
Dune	<ul style="list-style-type: none"> ● Extends from the high water mark along the coastline and estuaries. ● Harsh conditions – exposure to coastal wind and salt spray, high light intensity and limited soil moisture due to highly porous sandy substrate.
Coastal	<ul style="list-style-type: none"> ● Broad undulating band that rises inland from the dune zone. ● Warm and humid conditions in summer to mild conditions in winter.
Scarp	<ul style="list-style-type: none"> ● Steeply rising zone which defines limit of coastal zone. ● Conditions vary from hot, dry and stony slopes to moist areas with densely wooded slopes and ravines. Generally cooler conditions with mist when cloud cover descends.
Above Scarp	<ul style="list-style-type: none"> ● Directly above rocky, steep kloof, and scarp edges. ● Characteristic moist grasslands and forest patches of cooler inland area.
Dry Valley	<ul style="list-style-type: none"> ● Increasing altitude and distance from coast conditions. ● Lower rainfall and change in soil type – transition from moist grassland to bushveld. ● Variable vegetation types – savannah type woodland, dry grasslands, succulent thicket, and valley bushveld.

Many of the indigenous plant species which occur in Durban are locally indigenous and contribute to Durban's special character or 'sense of place'. Many of the exotic species (e.g. Flamboyant *Delonix regia*, Tibouchina *Tibouchina granulosa* Common Screw Pine *Pandanus utilis* and Norfolk Island Pine *Araucaria heterophylla*) that have historically been planted around Durban, detract from the uniqueness of the locally indigenous

plant communities. Even species which are indigenous but occur naturally in other regions of the country (e.g. Fevertree *Acacia xanthophloea*) are, in the truest sense, exotic to Durban.

So in a Green Landscape, the best principle is thus to ensure that only locally indigenous / endemic plants species are used, and that these are properly suited to the vegetation zone in which the site is located.

Planting Zones in Durban



4.1.3.3 Responses to Local Microclimates

Choosing plants that are locally indigenous in terms of the broad vegetation zone in which the site is located is not the only consideration for a truly Green Landscape. Any site, whether it is a few square metres in size, or many kilometres in size, will have a range of micro-climates on it. The choice of which plants to place where in the landscape needs to respond to these different micro-climate zones in the landscape if one is to achieve optimal plant growth rates, minimized watering and maintenance requirements, and lowest plant death rates. For example, areas which are hot and dry (perhaps on a sandy north facing slope) need to be planted with plants that

can tolerate these conditions; area which are shaded for most of the day and have high moisture levels in the soil need to be planted with species that can tolerate these conditions.

One can also plant to change local microclimates, for example planting a large patch of shade-giving trees in a hot area, which then allows shade tolerant understorey species to survive underneath and improve the human use experience of the area (i.e. cooler, shadier and more leafy environment).

In identifying different micro-climate zones in the landscape, the following key elements must be considered:

Element	Description
Aspect	<ul style="list-style-type: none">● South and West facing slopes experience less direct sunlight and are therefore cooler and wetter. Soils may be deeper and loamier.● North and East facing slopes experience more direct sunlight and are therefore warmer and drier. Soils may be shallower, rockier and sandier.
Slope	<ul style="list-style-type: none">● Steep slopes are subject to accelerated run-off and higher rates of soil erosion. These areas generally have shallower soils.● Flatter areas in valleys are sites of deposition of eroded soils and so have deeper soils and may be more protected from wind.● Flatter areas on hill / mountain tops are subject to high levels of exposure to sunlight, wind and erosive forces. Soils may be shallower or rockier.
Wind	<ul style="list-style-type: none">● Plants in exposed positions (e.g. mountain tops and sand dunes) experience higher wind influence. Wind stresses plants by increasing evaporation from the leaves, and damaging foliage and branches.
Rainfall	<ul style="list-style-type: none">● Even within the Durban area, rainfall can vary enormously from one place to the next. Local rainfall records should be sourced to establish the local rainfall trends.● Rainshadows may exist in certain valleys.
Elevation	<ul style="list-style-type: none">● For each 100m above sea level the average ambient temperature can be expected to be one degree centigrade (C) lower.● Some areas may be subject to occasional frost in the winter months (cool air sinks into valleys, areas with high elevation).

4.1.3.4 Creating Habitats

In developing a plant palette for a Green Landscape, one of the aims can be the creation of particular habitat types within the landscape. This can achieve a particular look and feel (i.e. aesthetics) or could specifically be aimed at ecosystem restoration or extension. The main characteristics of different habitats found in Durban and the different roles that they can perform are described in Section 4.1.3.2.

Habitat types are essentially defined by the mix of plant species that they comprise, and are driven by the vegetation zone in which the site is located and the local microclimate factors at play. Obviously, different habitat types perform different roles, and attract different insect and animal species. In addition, different habitat types require different kinds of maintenance and management.

Habitat Type	Key Habitat Features	Maintenance / Management Implications
Grasslands	<p>Areas where a diversity of natural grasses, bulbs and forbs dominate the landscape.</p> <p>May not be successful where soils are too wet, generally need full sun, and for best results need to be controlled burnt at least every 2 – 3 years (if possible).</p> <p>Support grazing antelope and livestock. Depending on the range of flowering species may also be key in supporting populations of seed-eating birds.</p> <p>One of the most threatened habitat types in South Africa.</p>	<ul style="list-style-type: none"> ● Don't usually need to be watered or fertilised, but mulching of the soil between the plantlets will assist in speeding up coverage of the grasses. ● Occasional burning is better than mowing as this promotes species diversity and keeps woody plants out of the habitat. ● Manage grazing intensity. ● Keep poachers out. ● Regular mowing is not recommended as it removes the seeding stalks and so reduces the habitat functionality and ability of the grasses to colonise appropriately.
Forests	<p>Areas where trees dominate, usually such that the tree canopy is continuous with no / few gaps. The forest understorey contains a range of smaller woody and herbaceous plants.</p> <p>Usually requires good rainfall and / or moist soil conditions (for most forest types found in Durban).</p> <p>Supports a wide range of insect, animal and bird species through providing a safe sheltered refuge and wide range of food sources.</p> <p>Generally quite easily established in most parts of Durban except in rainshadows or very exposed areas.</p>	<ul style="list-style-type: none"> ● Regular watering of trees when young and keep other species that compete for light and nutrients (grass) away until trees are taller than the grass sward. ● Keep alien plants out. ● Keep poachers out ● Protect from fire (especially if grasslands adjacent are likely to get burnt).
Woodlands	<p>Areas where there is good natural grass cover interspersed with trees.</p> <p>Can survive with less water than forests, as woodland tree species are generally more drought-tolerant.</p> <p>Supports a range of animal, insect and bird species – mainly through provision of food sources (grass and trees).</p>	<ul style="list-style-type: none"> ● Infrequent burning is better than mowing. ● Keep alien plants out. ● Keep poachers out ● Manage grazing intensity
Wetlands and Dams	<p>Areas that are either permanently or periodically inundated with water. Generally well vegetated with reeds, sedges and grasses, and may have areas of open water.</p> <p>Excellent bird nesting areas if reeds are tall enough, water is shallow, and / or there is open water for waterfowl.</p> <p>Supports animals like frogs and sometimes water mongoose.</p>	<ul style="list-style-type: none"> ● Keep alien plants out ● Desilt occasionally if this becomes a problem, causing the wetland to dry out or dam to lose volume ● Occasional burning of wetland and dam edges if becoming too woody
Cliffs	<p>Areas of sheer rock which may be vertical or sloped.</p> <p>Provide nesting areas for certain birds if the cliff is rough (i.e. has ledges).</p> <p>Provides habitats for lizards, and monitor lizards (leguaans) if water nearby.</p>	<ul style="list-style-type: none"> ● Keep alien plants off ● Protect areas below if rock falls are a risk ● Ensure area above the cliff is stable
Coastal habitats	<p>Sensitive coastal habitats include dunes (vegetated and unvegetated), beaches, rocky shores, estuaries and the ocean, and any area affected by the high water mark of the sea.</p> <p>The only areas that would ever be landscaped are dunes – and these should be done with the appropriate environmental authorisations in place and under the guidance of an environmental rehabilitation specialist. Coastal areas are highly dynamic and so landscaping in these areas needs to be highly robust and requires significant maintenance while establishing.</p>	<ul style="list-style-type: none"> ● Protect new planting from wind blown sand as best as possible ● Use dune pioneer plants only ● Sand-bag / pin with geofabric sandy slopes that may shift with wind or water flow ● Keep alien plants and people out ● Protect from wind if necessary by creating sand traps on eastern edge.



4.1.3.5 Planting to Attract / Protect Specific Species

By creating certain habitat types in the landscape, groups of insect and animal species can be protected or attracted in the landscape. However, if there are specific kinds of insects or animals that are being targeted in the Green Landscape,

then the choice of plant species to include must be specific to the needs of the target insects and animals.

Some examples of planting to attract or protect specific species are given below:

Type Of Garden	What To Do
Butterfly Gardens	<ul style="list-style-type: none"> ⦿ Identify the kinds of butterflies that you are likely to be able to attract (i.e. there already need to be populations of these in the vicinity). ⦿ Identify the larval host plants of the local butterfly species that you wish to attract. Include the greatest possible diversity and coverage of these in the landscape to attract large numbers of butterflies into the landscape. ⦿ Also include plants that produce energy-rich nectar which attracts and feeds adult butterflies. ⦿ Ensure an appropriate abundance of each plant species to support all life stages of the target butterfly species.
Medicinal Plant Gardens	<ul style="list-style-type: none"> ⦿ Include the popular, scarce or threatened medicinal plants in your landscape palette. Many of these are bulbs which will flower / shoot seasonally. ⦿ Source the plants from a legal supplier if they are protected species (e.g. cycads and many of the bulbs popularly used for traditional medicines).
Bird Gardens	<ul style="list-style-type: none"> ⦿ Identify the species that you are likely to be able to attract into your garden (i.e. there need to be populations of these in the general area already). ⦿ Identify the habitat requirements of the target species (e.g. bird needs open water for feeding, closed reed system for resting and breeding; or bird feeds on nectar from Cape Honeysuckle bushes and nests in Natal Mahogany (<i>Trichilia dregeana</i>) trees) and ensure that your habitat includes these plant species in appropriate locations and abundance. ⦿ Selection of the plants for the above purpose must be appropriate to the scale of the landscape. ⦿ Leaving dead trees in dams, or creating artificial rafts can assist in attracting fishing birds, which need these for hunting and resting.
Bat Gardens	<ul style="list-style-type: none"> ⦿ Identify the kinds of bats that you are likely to be able to attract (i.e. there already need to be populations of these in the vicinity). ⦿ Identify the food chains that they are dependant on. Fruit bats are easy as one can focus on planting the trees that provide the fruit that these bats eat (preferably a range that fruit at different times of the year). If the bats eat insects, you will need to plant the species that attract the kinds of insects that the bats feed on. ⦿ Install roosting boxes in the garden. Attach to high wall or on a pole at least six metres tall.
Animal Gardens	<ul style="list-style-type: none"> ⦿ Animals are generally not able to move great distances between refuge areas, particularly in urban environments. It is therefore critical to design the landscape so that these animals can move along greenway corridors between well-protected refuge areas. The corridors can be on land, if the target species is arboreal (i.e. genets, monkeys or bushbabies) then linked / overlapping tree canopies or rope bridges can be used to create the corridors. ⦿ Identify the food chains that the target animals utilize and plant to suit this. Remember that for some species (insectivorous or carnivorous), you may need to plant to attract the insects or animals that your target species is seeking. In addition to this, if the animal has specific refuge requirements (e.g. dense bush areas for resting and breeding) then these need to be included in the landscape. ⦿ Ensure that there is a water source that the animals can access in your landscape.



Bat boxes



Natural log nesting box



Left: An artificial 'raft' on a dam attracts fishing birds who use it as a convenient perch
Right: This tree, left in situ to be flooded by a new dam, has created a great perch for Black headed Herons, Yellow-billed Kites, Cormorants and Egrets, and a good nesting spot for Weavers.



4.1.3.6 Planting Practicalities for Different Landscapes

Apart from responding to the need for plants to be indigenous, suit the local vegetation zone and

micro-climates, the table below lists criteria for selecting trees for natural areas, parks, and streets:

Planting Area	Description
Natural Area	<ul style="list-style-type: none"> ● Must be locally indigenous and trees must have been produced with seed / cuttings found no further than 50km from the planting area. ● Must suit local habitat types and microclimate
Parks	<ul style="list-style-type: none"> ● Depends on park usage and surrounding natural areas. ● Shade giving trees in zones for people to rest and play. ● Avoid thorny trees.
Streets	<ul style="list-style-type: none"> ● Selected on individual merit based on following criteria: <ul style="list-style-type: none"> ● Quick growing. ● Tolerate pollution. ● Few low hanging branches (single stemmed to accommodate pedestrian traffic). ● Endure being pruned (some indigenous species do not recover well from severe pruning). ● Root system which causes minimum disruption (roads, buildings, and underground services). ● Minimum seed germination. ● Thornless (avoid injury and damage to property). ● No soft fleshy fruits / round hard fruits, or large flowers that when fallen, become slippery and could cause people to lose their footing. ● Withstand adverse weather conditions (extreme hail, rain, drought, and wind).

The best time to plant trees in Durban is during the dormant season (June to August). Young trees must be staked in areas exposed to strong winds and protected by cages where vandalism occurs. Establishing a personal nursery and producing your own plants needs to be considered if large volumes of indigenous trees are required. This is because the high demand for indigenous trees has pushed up the price (nurseries taking advantage of demand) and some nurseries may not be able to keep up with the demand. Rare and sensitive



Protection measures such as grates (left) and tree guards (right) need to be considered in places where plants experience excessive wear and tear. The grill on the left is permeable to allow surface run-off to filter into the soil around the base of the tree.



indigenous species are generally not produced by local nurseries and are far more expensive than more common species.

4.1.3.7 Water Wise Landscaping

Indigenous plants generally require less water than exotic plants. There are, however, certain locally indigenous plants which are more water-wise (drought tolerant) than other indigenous plants. **Green Landscaping** encourages the use of water wise plants wherever possible as this practice reduces the amount of water needed for irrigation. See Appendix A for a list of particularly drought-tolerant species.

Succulents and grey-leaved plants cope well with heat and require very little water. These plants

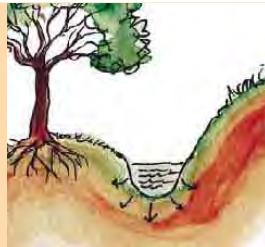
have become popular in recent years as they are low-maintenance and can be used as form plants (e.g. aloes). Grey-leaved plants can also provide foliage and texture variation to the landscape.

The following tips can be used in undertaking water-wise **Green Landscaping**:

- ✿ Minimise lawn area – lawns are notoriously thirsty.
- ✿ Limit coverage of sealed surfaces in the landscape, instead use pervious paving and



- gravel which allows rainwater to infiltrate the soil and increase the available groundwater for plants in the landscape.
- ✿ Purchase and plant young shrubs and trees as these require less water before they are established than older, larger shrubs and trees.
 - ✿ Improve the soil condition. Loamier soils with a higher organic matter content hold more water than sandier soils, which are well-drained.
 - ✿ Use soil wetting agents (vermiculite) to hold water in the soil longer and closer to plants.
 - ✿ Instead of removing leaves / grass cuttings from the landscape, push these over planted beds, and under trees to act as mulch – preventing loss of water from the soil. Bark chips (which are usually chipped pine bark), cut grass and sawdust can also be used as mulch when you need more than just the fallen leaves in your landscape.
 - ✿ Plant wind breaks to reduce drying effect of wind (warm / cold winds increase evaporation).
 - ✿ Plant trees to provide shade and reduce heat buildup and evaporation from soil.
- ✿ Group plants with similar water requirements together (i.e. plants with low, moderate, or high water needs).
 - ✿ Remove weeds as these compete with indigenous plants for water.
 - ✿ Reduce water loss through evaporation by watering in the early morning / late afternoon.
 - ✿ Check the weather forecast to avoid watering before rain.
 - ✿ Divert run-off from hardened surfaces into areas of landscape with moderate to high water needs; or capture rainwater for use in irrigation of the landscape.
 - ✿ Install a water-wise irrigation system.
- A water harvesting system should be considered to increase the sustainability of the landscape. South Africa is a water scarce country and so we need to reduce our consumption of potable water, especially for use in the garden. This also saves money as the amount of tap water being used is reduced. There are three feasible options which should be considered. This includes harvesting rainwater, reusing grey water, and retention ponds or swales.

System	Description
Rainwater Harvesting	<ul style="list-style-type: none"> ✿ Rainwater provides high quality water (but not for drinking unless boiled). ✿ Rainwater can be collected from roofs using gutters which feed into a container. ✿ Containers should be mounted on a secure, level platform, and include an overflow pipe for excessive rainfall. ✿ Rainwater can easily be used for irrigating your garden, for bathing in, washing etc. ✿ Make sure your roof is in good condition and that your gutters are well maintained (hole and silt free) for best rainwater collection efficiency. 
Retention Ponds or swales	<ul style="list-style-type: none"> ✿ Collect run-off from hardened surfaces e.g. paving and roofs, into a pond or swale ✿ Water from the ponds permeate the ground and increase soil moisture for adjacent plants. ✿ Ponds should be placed along contour lines and never downslope. Ideally they should be 30 cm deep (the deeper the better) and 30cm in width. ✿ Include a vegetated berm on the downslope side to contain water within the pond. ✿ Ponds should never be located close to buildings (damp). 
Reusing Greywater	<ul style="list-style-type: none"> ✿ Greywater refers to waste water from washing machines, basins, the shower, and the bath. ✿ Greywater should be collected in a container (bigger the better) and pumped or gravity fed into the garden. ✿ Unlike rainwater, greywater is not seasonal (however, overwatering may become a problem). ✿ Greywater is considered safe for use in the garden if organic detergents are used. ✿ Water containing bleach, disinfectant, soap or washing detergent with salt or phosphorus should not be used. ✿ Avoid irrigating edible crops or fruits with greywater. ✿ Clay / loam soils are more difficult to irrigate with greywater due to slower infiltration rates. 

There are two points to consider when installing and choosing an irrigation system. These are:

1. How much water the plants require – need to give only what is necessary.
2. The application rates of different irrigation systems (e.g. lawn sprinklers apply more water than micro-sprayers over the same time period) – choose the system that is most water

efficient but still meets the needs of the plants adequately.

The following table presents a summary of the advantages and disadvantages of the four most common irrigation systems. A combination of these irrigation systems can also be used to water plants in a water-wise manner (e.g. pop-up sprinklers for lawns and drip irrigation for flower beds).

System	Advantages	Disadvantages
Hand Watering	<ul style="list-style-type: none"> ● Simplest and most common system ● Easily avoid over-watering ● Use nozzle on hose / watering can to control the flow 	<ul style="list-style-type: none"> ● Time consuming ● Easily use excessive force – wash away soil and mulch
Micro-sprayer system	<ul style="list-style-type: none"> ● Most common automated irrigation system ● Effective for flower / vegetable beds ● Flexible spray options – e.g. 360°, 180°, or 90° and fine mist to jet spray 	<ul style="list-style-type: none"> ● High water losses through drift and evaporation (up to 70%) ● Not effective for large areas ● Not effective in penetrating soil through mulch layer
Sprinkler system (pop-up and surface sprinkler)	<ul style="list-style-type: none"> ● Cover large areas ● Flexible spray options – e.g. 360°, 180°, or 90° and soft to hard spray 	<ul style="list-style-type: none"> ● High water losses through drift and evaporation ● Not effective for sensitive plants – excessive force of spray
Drip Irrigation	<ul style="list-style-type: none"> ● Good for small area or area planted to trees ● Deliver exact amount to each plant ● Reduce loss of water through drift and evaporation reduce loss to evaporation or run-off ● Effective in watering soil through mulch layer ● Can use grey water in these systems 	<ul style="list-style-type: none"> ● Not effective for large areas ● Expensive to install ● May not work well in clay / loam soils where infiltration rates are slow

There are other considerations to keep in mind when installing the chosen irrigation system:

- 👉 Follow the instructions. The system will only function effectively if it is installed and used according to its design. Be aware of the spray radius and avoid too much overlap and blind spots (areas which are not irrigated).
- 👉 Consult an expert if there is any uncertainty as mistakes can be costly in terms of time (dis-

assembling system) and materials (replacing used materials).

- 👉 Fit tap timers to ensure that plants are not over-watered and rain or soil moisture sensors to ensure that plants are not watered when the soil is sufficiently wet.
- 👉 Position irrigation systems so that water does not get wasted by falling on impervious surfaces (buildings, pathways, driveways or roads).

4.1.3.8 Procuring Plants and Materials Responsibly

For any landscape to be considered Green – it must be legal! This means that all the plants and other materials must have been sourced sustainably and without detriment to the environment. The first thing to bear in mind is that some indigenous plant species are protected (see section 4.1.1.2), and should these be needed for a landscaping project, the supplier must be able to produce the necessary permits (from Ezemvelo

KZN Wildlife) indicating that they are licensed suppliers of those plants.

Many indigenous landscaping companies are happy to supply “ready-trees” (i.e. large specimens that can be used as features) and weathered sandstone rocks for landscaping commissions. The sad reality is that in creating these indigenous landscapes, many of these landscapers have pulled trees and rocks out of a natural habitat some-



where. Given the growing market for indigenous landscaping and rockwork, this is starting to become a major threat to natural environments in and around Durban.

It is therefore critical that all suppliers of all large indigenous trees, rocks, stumps, logs etc. must produce a permit from Ezemvelo KZN Wildlife for these plants if they have been sourced from the wild. If they are from a nursery, a signed letter

must be provided by the nursery owner indicating that the trees were produced there.

Instead of using large, already established trees sourced from the wild, it is often better to use truncheons (i.e. large branches) of the species that will root from these to establish large trees in the landscape in a short space of time (examples include locally indigenous *Ficus* and *Erythrina* species).

4.1.3.9 Producing Your Own Plants

An alternative to sourcing plants from a local grower or nursery is to produce your own plants. This would ensure that plants have been responsibly procured, and may be more cost-effective.

There are two ways in which to produce your own plants. The first is from seed and the second

is from vegetative propagation. Vegetative means includes propagation through stem cuttings, root cuttings, divisions, leaf cuttings and truncheons.

Each of these methods has inherent advantages and disadvantages which are presented in the table below.

Propagation Method	Advantages	Disadvantages
Seed	<ul style="list-style-type: none"> ● Generally stronger seedlings produced. ● Greater genetic diversity (new generation which is genetically different from parents). 	<ul style="list-style-type: none"> ● Slower to reach reproductive maturity. ● May have difficulty germinating certain seeds (e.g. recalcitrant species and those with specific germination heat / moisture requirements).
Vegetative Means	<ul style="list-style-type: none"> ● Direct clone of parents – inherit desirable characteristics (e.g. large fruit or rapid growth) ● Reach reproductive maturity more quickly ● Larger seedlings / plants – able to be planted out sooner than seedlings from seed. ● Able to bulk up seedling stock more rapidly, i.e. more plants faster. ● No seasonal restriction on sourcing propagative material. 	<ul style="list-style-type: none"> ● Sourcing seed takes time and is restricted to seeding season. ● May be weaker than seedlings from seed. ● Lower genetic diversity.

The successful propagation of plants is not only dependant on budget or resources, but an understanding of basic plant growth principles and how to manipulate these under controlled conditions. Propagation can therefore be undertaken at various scales and in a number of places ranging from one's backyard to modern nurseries. There are, however, certain good practice procedures which should be considered in producing your own plants. These include:

- ✿ Ensure that plant stock is correctly identified and from good, healthy parent stock
- ✿ Keep records of methods to avoid any past

mistakes and work towards continuous improvement

- ✿ Ensure tools are cleaned (1 part bleach to 9 parts water) to reduce risk of transferring infections (e.g. viruses, bacteria, or fungi)
- ✿ Continually monitor and maintain plants (e.g. monitor amount of sun exposure)
- ✿ Irrigate plants in early morning or late evening when possible
- ✿ Ensure plants are properly hardened off before planting out – for reduced irrigation requirements of planted-out seedlings the hardening-off process needs to be especially harsh.

4.2 Hard Landscapes

Hard landscapes are areas in which plants don't dominate – and usually comprise paved or hard surfaced areas, walkways, landscape furniture, ablutions and lighting. The materials and fittings used in hard landscapes is an important consideration in **Green Landscaping**, as the selection of more environmentally friendly options can make a significant difference to the environmental impact of the landscape. The key aims in this regard are to choose:

- ☛ Recycled materials wherever possible (e.g. timberplastic).
- ☛ Products that do not contain hazardous chemicals that could leak into the air, soil or water. For example all water-based paints contain VOC's (volatile organic compounds) which can be harmful to ones health and the environment. Certain paint manufacturers now offer low-VOC paint options.
- ☛ Products that minimize energy consumption or use green energy: Owing to the fact that landscape lighting (especially street and walkway lighting, and external feature lighting) needs to be on for a large number of hours in every 24-hour period, these facilities use a lot of electricity and so need to be as energy efficient as possible, and / or use green energy resources where feasible.
- ☛ Products that minimize water consumption: Public ablutions and drinking taps are often

abused by the users because they have no incentive to save water when not paying for it. There are a number of products available that restrict the use of water in toilets, showers and taps (e.g. dual flush toilets, tap aerators and low flow shower heads).

☛ Products that have a lower carbon footprint: The carbon footprint of a material relates to the energy used in its manufacture, as this energy usually relates directly to carbon dioxide emissions⁵. Aluminium has been dubbed “solid energy” owing to the high carbon emissions associated with its extraction and manufacture and so is usually the worst option environmentally – however, timber (only if sourced from legitimate timber plantations and not from wild hardwood forests) has a much lower carbon footprint. An estimate of the relative tonnes of CO₂ emissions associated with each tonne of material type is shown below:

Material	Tonnes CO ₂ / Tonne Material
Aluminium	23.7
Steel	1.8
Bitumen	1.2
Glass	1.2
Cement	1.0
Timber (Meranti)	1.0
Clay brick	0.2
Stone aggregate	0.003

Source: GEMIS 4.5

4.2.1 Landscape Furniture

Landscape furniture includes all elements in the landscape which are installed to facilitate human comfort and use of the area, such as: benches, picnic tables, braai's, waste bins, and decorative structures such as sculptures. **Green Landscaping**

principles require that a suitable balance is achieved in the selection of landscape furniture between durability (i.e. low maintenance and long lasting), functionality and environmental friendliness. These factors are explained further below:

Most Durable	<ul style="list-style-type: none">● Furniture is made of materials that cannot be vandalised or easily removed (e.g. concrete tables and benches).● Materials are long lasting.● None of the component are saleable to materials recyclers (i.e. steel is a problem).● Furniture does not require regular painting or varnishing (e.g. concrete or timberplastic).
Most Functional	<ul style="list-style-type: none">● Are comfortable / ergonomically designed.● Are designed so as not to collect dirt and rainwater on seats and table tops.● Can be used by disabled people (i.e. wheelchair friendly).● Materials do not get overly hot in the sun (i.e. cannot be used) and don't cause unpleasant glare or reflections.
Most Environmentally Friendly	<ul style="list-style-type: none">● Maximum recycled component (e.g. timberplastic).● Low carbon (e.g. timber rather than steel or aluminium).● Do not include imported materials and are locally manufactured.● Materials can ultimately be recycled or re-used at the end of the product's lifespan.

⁵ Carbon dioxide is one of the main greenhouse gases implicated in global warming.



Above: Wooden landscape furniture which uses timber sourced certified by the FSC should be the preferred option (www.townandpark.com.au).

Left: Landscape furniture which is made of recycled materials, such as plastic, is the preferred option for a sustainable landscape design (www.marmaxproducts.co.uk).

The majority of landscape furniture has traditionally been made of galvanised steel, timber, or concrete. Many of these materials are non-renewable resources, high maintenance, and not easily recycled. **Green Landscaping** encourages the use of tables and chairs which are durable and made from recycled material. This reduces the demand for natural resources, recycles waste, and reduces the frequency of replacing furniture. Another important consideration for the selection of furniture is the environment. Careful consideration should be given to the suitability of the materials to local conditions. For example, the durability of timber products is greatly reduced when

exposed to direct sun and rain. Timber products are therefore better suited to less exposed areas such as beneath trees.

Waste bins are another kind of landscape furniture which is particularly important in public landscapes. Providing adequate waste bins is important to prevent litter undermining the attractiveness and people's experience of the natural landscape. Solid wastes, such as plastic packets, are also harmful to wildlife which may choke or get trapped by them. The way that litter facilities are presented can also encourage their use and thus limit littering and pollution.

Design Objectives	Description
Capacity	<ul style="list-style-type: none"> ● Adequate size. ● Appropriate number of waste bins (consideration of position and spacing between receptacles).
Practicality	<ul style="list-style-type: none"> ● User friendly for general public (including the disabled) and city officials who need to empty the containers. ● Should also be placed in positions which are convenient for the public to access (i.e. along walkways and adjacent benches and tables). ● Depending on the environment, may need to be watertight and covered (keep animals out, particularly monkeys / baboons and mongoose if these animals are present). ● Should be reasonably stationary and secured (prevent theft / vandals). ● Should be raised to prevent debris collecting at base of receptacle.
Recognisable	<ul style="list-style-type: none"> ● Design which is easily recognisable as it is relatively uniform in shape, size, capacity, and colour. ● Clearly marked. ● Use signs to encourage the public to use them (e.g. no littering signs next to bins).
Environmentally friendly, durable materials	<ul style="list-style-type: none"> ● Constructed of high quality and durable materials which are resistant to sun and corrosion (use recycled plastic where possible).
Add value to landscape	<ul style="list-style-type: none"> ● Although the key purpose is functionality, the design should be attractive, complement the landscape design theme, and contribute to the overall landscape look and feel (consideration of types and designs of receptacles).
Encourage waste separation	<ul style="list-style-type: none"> ● If appropriate (i.e. the waste can be collected in separate streams), a two bin system can be used where one bin is for all recyclable materials (i.e. glass, cans, PET plastic, paper) and the other is for general waste (i.e. food scraps, general plastic and food-soiled paper).

4.2.2 Lighting

It is recognized that landscape lighting is an integral part of most – if not all – landscapes. This lighting may include walkway / street lighting, external feature lighting, area lighting, floodlighting and lighting inside public buildings (e.g. ablutions). In most cases, landscape lighting is used to provide increased security, to emphasise certain landscape features or buildings, and to create light for people to be able to move through or use the landscape

during hours of darkness. Inherently, most landscape lighting needs to be switched on for most of the hours of darkness (up to twelve hours in Durban) and so can consume vast quantities of electricity. The choice of energy efficient lighting solutions, or lighting that uses green energy, is very important in **Green Landscaping**.

Greener lighting options are presented in the table below:

Technology	Appropriate Use	Illustration
Passive design	Landscapes should be designed such that public areas and facilities receive maximum natural light, particularly in the early morning or at dusk, to delay the need for lighting. The choice of trees with low density foliage, or that lose their leaves in winter, and the use of skylights or translucent roof panels in ablutions can make a significant difference to the number of lighting hours.	
Low energy lamps	These should be installed in all areas instead of incandescent lighting.	
T5 lamps with electronic ballasts	Should be used for floodlighting, area lighting instead of normal fluorescent lamps.	
LED lighting	Particularly useful for feature lighting as it provides a bright light and uses very little energy.	
Timers	The use of timing switches on landscape lighting is often more energy efficient than light sensors if managed appropriately.	
Motion detectors	Useful where lighting is needed in a confined area and can be safely switched off when no-one is around, e.g. ablution blocks, corridors.	
Light switching	The ability to switch lighting in different zones of the landscape on and off separately is useful for example when certain areas in a landscape are used for night functions, and other areas can be switched off unless specifically needed for crowd overflow.	
Green energy	Photovoltaic panels and wind energy can be used for any kind of lighting, however this is often expensive to install and may be subject to high theft risk in exposed locations. Small landscape lights which use photovoltaic cells are suitable for smaller landscape installations.	

4.2.3 Water Efficiency

Common features and fittings in hard landscapes that can be major consumers of water are:

- ✿ Ablution facilities: toilets and wash basins
- ✿ Drinking taps and fountains
- ✿ Showers

Owing to the fact that most of the users of these facilities have little incentive to conserve water at them (i.e. they are not paying for it), it is important to install technologies that limit the amount of water that can be consumed. Some options include:

Technology	Appropriate Use	Illustration
Dual flush toilets	<ul style="list-style-type: none"> ● Any ablution facility. ● Most success likely when signage is included that explains when and how to use the low and high flush options. 	
Composting toilets	<ul style="list-style-type: none"> ● Not in general public ablutions as the use needs to be strictly controlled (no toilet paper or foreign matter can enter the system). ● Can be used in controlled situations where the users have a high level of literacy and there is some means of continuous education of users. 	
Tap aerators	<ul style="list-style-type: none"> ● Any and all taps in wash hand basins. ● Assists in reducing water use by introducing water bubbles into the flow, so less water comes out the tap for each second it is switched on. 	
Press-button Taps or Timer Taps	<ul style="list-style-type: none"> ● Public ablutions where high user numbers are expected – wash hand basins and public showers. ● Drinking fountains. ● Button is pressed and water comes out of tap for a few seconds before switching off automatically. ● Can be frustrating for users if not set to run for long enough with each press. 	
Low flow shower heads	<ul style="list-style-type: none"> ● Restrict the flow of water from the shower head and can be used in any and all shower facilities. 	
Waterless urinals	<ul style="list-style-type: none"> ● A relatively new technology but can be installed at any ablution facility. ● Urinals do not flush – urine flows out of the urinal through a cartridge which removes odours. 	
Flush Urinals	<ul style="list-style-type: none"> ● Many of the older urinal systems have a continuous flow of water running through them. The new systems include a flush button which is more water efficient. 	

4.2.4 Signage

Signage is of particular importance in **Green Landscapes** for the following reasons:

- ☛ Provide interpretation of the natural features in the landscape, and direction on what to look out for, for the enhancement of people's experiences of the Green Landscape.
- ☛ Direct people out of or away from sensitive natural areas where their presence may disturb important natural ecosystems.

☛ Provide direction about appropriate behaviour in the green landscape so as to minimize risk to the functioning ecosystems (e.g. promote safe disposal of litter; keep to the path to avoid soil erosion, limit noise around bird nesting spots, no smoking to minimize fire risk etc).

Some of the key design elements which should be considered when developing signage are listed below:

Design Principle	Description
Location	<ul style="list-style-type: none">● Signs must be strategically placed to ensure that ALL users that need to see them will see them.● The number of signs needs to be minimised, but sufficient to ensure that the message reaches all users.
Legibility	<ul style="list-style-type: none">● Need to be big enough to be read from the entire area which will have a view of the sign.● Text needs to be concise, and universally recognized icons should always be used in conjunction with the text for ease of reading and to accommodate illiterate users.● Must be in the language(s) of the target audience.● If multiple signs are used, a common shape / colour theme should be adopted so its clear that the signage pertains to the particular landscape / trail system etc.
Compatibility with surroundings	<ul style="list-style-type: none">● Must be proportional in size and scale to the landscape.● Glare, reflections must be taken into account in designing and locating signage.● Need to be integrated into landscape (compliment land not disrupt rhythm of landscape) – choice of colours is critical.
Materials	<ul style="list-style-type: none">● Ensure that materials are compatible (e.g. glossy finishes are not legible in direct sun because of glare and reflections).● Should use high quality, durable and low maintenance materials.● Vandalism should be a consideration for signage in public areas.

4.2.5 Hardened Surfaces

Hard surfaces are the components of the landscape, such as roofs, roads, and pathways, which are to some extent impermeable. When water hits these surfaces it flows to the lowest point which is generally a drain. This run-off then flows through the stormwater system into a channel, stream, or river. The increase in the amount and velocity of run-off from hardened surfaces often results in flash floods, erosion, and damage to buildings during heavy downpours. The increased surface run-off also carries pollutants, such as oil, fertilisers, pesticides, and detergents, into the river systems. These pollutants result in a range of environmental problems, such as algal blooms, and may severely impact on wildlife and the functionality of that system.

Green Landscaping supports the use of permeable surfaces wherever possible. In contrast to hardened surfaces, permeable surfaces allow water to permeate (soak) into the soil. The water filters through the soil and contributes to the local groundwater supply. This groundwater is then available for adjacent plants. By filtering the stormwater through the soil, pollutants are also reduced which may have been carried into river ecosystems by surface run-off.

A comparison of the permeability for common paving materials, and their installation and the level of maintenance required is presented in the following table. Permeability refers to the materials effectiveness in allowing water to soak into the soil.

Material	Permeability	Installation Cost	Maintenance	Effectiveness Vs Cost Rating
Asphalt / Concrete	Nil	Medium	Low	🚫 POOR
Brick, cobble, pavers (no concrete underneath)	Medium	High	Low	😊 MODERATE
Permeable pavers	Medium	High	Moderate	😊 MODERATE
Gravel / stone crush	High	Low	Moderate	😊 GOOD
Bark chips	High	Low	High	😊 GOOD

From the above comparison, it is clear that surface materials such as asphalt would not be preferred for Green Landscapes, unless it was possible to capture the run-off for use in controlled irrigation systems.

Although brick and concrete pavers offer greater permeability than a concrete or asphalt surface, it is important to ensure that when being installed it is not laid onto a prepared concrete surface! This is actually the method most preferred by commercial brick

paving companies as it ensures less movement of the bricks / pavers – but obviously negates any permeability benefits!

The permeability of the material is not the only consideration in choosing a paving material. The intended use and overall appearance of the paved surface also needs to be considered. The following table presents some of the most commonly used permeable surfaces and indicates for which purpose they are most suitable.

Suitable For	Paving Material	Description	Illustration
Infrequently used areas / low level of foot traffic only	Bark chips	<ul style="list-style-type: none"> ● Highly permeable. ● Relatively cheap and easy to install (no special skills required). ● Low carbon footprint if sourced locally. ● Comes in a range of sizes, colours, and textures. ● Requires moderate to high levels of maintenance depending on amount of traffic (topping up). 	
Driveways and walkway areas which take higher volumes of heavy traffic	Gravel / stone crush	<ul style="list-style-type: none"> ● Highly permeable. ● Relatively cheap to install. ● Range of colours available. ● Relatively low carbon footprint if sourced locally. ● Requires moderate levels of maintenance (topping up). 	
Driveways and walkway areas which take higher volumes of heavy traffic	Permeable paving	<ul style="list-style-type: none"> ● Moderately permeable (allow water to pass through voids in or between pavers). ● Made from range of materials including plastic, pebbles, or concrete. 	
Driveways and walkway areas which take higher volumes of heavy traffic	Grass pavers	<ul style="list-style-type: none"> ● Highly permeable (allow grass to grow through voids in pavers). ● Made from plastic or concrete (not always visible once grass grows through). 	
Driveways and walkway areas which take higher volumes of heavy traffic	Concrete or pebble-based permeable pavers	<ul style="list-style-type: none"> ● Moderately permeable. ● Look very similar to non-pervious pavers. 	

Another way of positively utilizing rainwater run-off from hardened areas is to capture it and feed it into a storage tank. Water from the storage tank can be channeled into the landscape irri-

gation system, or into wildlife watering ponds. Green Roofs are an effective way of capturing and absorbing rainwater run-off such that accelerated stormwater flows have less impact.

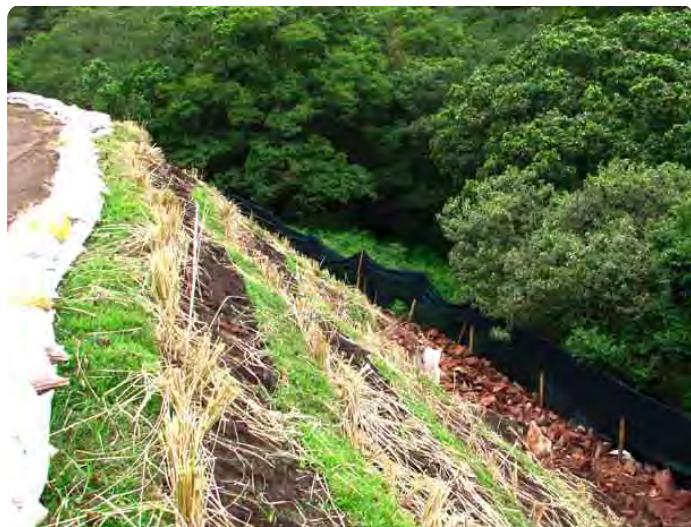
4.2.6 Stabilising Embankments

It is generally better to avoid creating steep embankments that need stabilization, as it's not often easy to do this without creating an eyesore and a risky zone that could collapse during heavy rain. However, sometimes it's unavoidable.

There are a number of ways that banks can be stabilized. The most common is to use gabions or retaining walls. Another option is to use natural rock packed onto a steeped-back slope. If the slope is not too steep, Vetiver Grass can be used

to help bind the soil, sometimes meaning that hard structures can be avoided for stabilization.

Whichever approach is selected, **Green Landscaping** approaches advocate that sustainably sourced natural materials should be used wherever possible, and if possible, the stabilized area should be vegetated. The vegetation will further help to stabilize the embankment and will help to reduce the heat reflected off the surface of retaining walls or gabions.



Natural rock spoil from construction of the Cotswold Downs Golf Course was used here to stabilize a steep embankment on the edge of a green. Indigenous grasses were planted between the rocks to prevent soil erosion and to create a rocky-grassy habitat type.

Rows of Vetiver Grass have been planted here, interspersed with rows of turf grass, to stabilize a steep embankment instead of using hard structures.

4.2.6 Stabilising Drainage Channels

Streams, drainage lines or simply areas of storm-water concentration, are all areas which need special treatment in a landscape to ensure that soil erosion does not occur. Provided that these areas are being CREATED in the landscape (i.e. it is not desirable to realign or re-landscape any natural drainage area that is an existing sensitive natural feature), it is necessary to consider how to do this in a "Green" a way as possible.

The principles are to:

- a) Avoid hard surfaces in the drainage channels – as these speed up the velocity of the water flows and make them more erosive.
- b) Avoid impermeable surfaces in the drainage channels – as this prevents recharge of the natural groundwater and increases the volume of stormwater flow which poses a greater risk of flooding and erosion to areas downstream.



A grass-lined stormwater channel – note the shallow gradient



A rock-packed stormwater channel

- c) Properly stabilize these areas, as erosion of the channels can have disastrous impacts on downstream ecosystems. Importantly, the stabilization treatment must be effected for the entire channel (base and sides) such that water will not be able to flow around the stabilised area (as this can cause undercutting and failure of the stabilisation intervention).

The above list of principles may seem to conflict with each other. However, it is possible to properly stabilize a stormwater channel without concrete lining it. Some common methods are:

- ✿ Using grass blocks planted up with water-loving grasses, sedges and reeds in the drainage channel. This effectively creates a natural-looking channel with a semi-hardened surface. Infiltration is good and the roughness of the surface can be very effective at slowing stormwater. Can be used on relatively steep drainage channels.

- ✿ Covering the surface with mat-forming grasses that can tolerate a certain amount of wetness. *Cynodon dactylon* can survive prolonged damp soil conditions and often covers well. This method works only where the gradient of the stormwater channel is very low, as the soil binding capabilities of grasses are not high enough to properly stabilize steep channels where the flow velocities are excessively high.

- ✿ Using gabion baskets to line the channels. The gabions must be large enough to contain ALL the flow that is ever likely to be experienced in the channel or they will be undercut and will fail. The gabions collect silt over time and can be vegetated with grasses, reeds and sedges. Works well for areas where the gradient of the channel is relatively steep.

- ✿ Using rocks packed into the channel. The rocks are effective at slowing the stormwater flows and encouraging infiltration. Not effective for very steep gradients.



A poorly stabilized stormwater channel can become a major environmental problem



This concrete channel was too small for the flow, and was completely undercut when the water flowed around and under it

4.3 Maintenance

Maintenance is important to maintain and enhance the condition of the landscape which has been designed and constructed. Poor maintenance detracts from the user-friendliness and experience of the landscape. It also limits the functionality of the landscape as an ecosystem

which supports local wildlife (e.g. birds) and provides a variety of ecosystem services (e.g. carbon sequestration).

The following sections discuss integrating the principles of **Green Landscaping** into a maintenance programme.

4.3.1 Controlling Weeds and Invasive Plants

Weeds are plants which colonise areas rapidly, and are mostly indigenous to South Africa. Invasive alien plants do not occur naturally in a region and are classified as either Category 1, 2, or 3 (depending on extent that they colonise land or water and displace indigenous plants). Where Category 1, 2 or 3 plants occur, landowners are required to control such plants.

Several variables need to be considered in the planning of a weed control or invasive alien clearing programme, including:

☛ Percentage, size, and density of infestation

- Divide the property into areas of high, medium and low infestation. Start with low infestation areas and only move on once infestation is under control.

☛ Dominant species present

- Determine most appropriate method of control for these species.

☛ Topography

- Start clearing from the top of slopes and watercourses (limits amount of seed being washed to lower areas). Work from outside towards the centre on gentle slopes. Work horizontally (3m bands) on steep slopes (prevent soil erosion). Roll cut material to form a 'frill' along the edge of band (slow down run-off). Leave 2m gap between bands and only start working on these once cleared bands have regenerated.

☛ Soil conditions

☛ Water courses

- Herbicides which are persistent must not be used near water courses

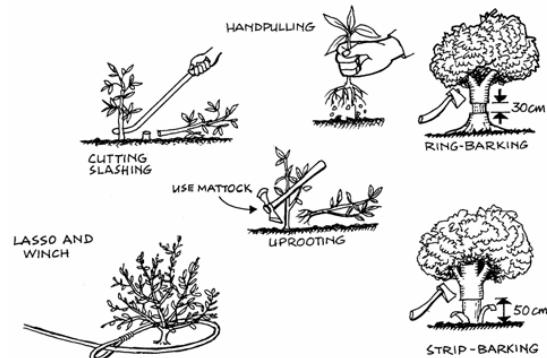
☛ Climate and seasons

- Herbicides must not be used in windy conditions (spray drift)

Green Landscaping promotes the minimisation of the use of chemicals in the landscape. Consequently, the use of herbicides for alien plant control is recommended only as a last resort.

One or more of the following methods can be used to control Category 1, 2, or 3 plants:

- ✿ Uprooting, felling, cutting or burning;
- ✿ Treatment with a weed killer that is registered for use in connection with such plants in accordance with the directions for the use of such a weed killer;
- ✿ Biological control carried out in accordance with the stipulations of the Agricultural Pests Act of 1983, the Environment Conservation Act of 1989 and any other applicable legislation;
- ✿ A combination of one or more of the methods above, save that biological control reserves and areas where biological control agents are effective may not be disturbed by other control methods to the extent that the agents are destroyed or become ineffective.



Physical control methods such as those illustrated above should always be the preferred control method to the use of herbicides

The above control methods also need to be applied with regard to the **re-growth** of Category 1, 2 and 3 plants, and any propagules thereof. Follow-up operations are considered mandatory. Any action taken to control Category 1, 2 and 3 plants always needs to be executed with caution and in a manner that will cause the least possible damage to the environment.

4.3.2 Controlling Pests and Diseases

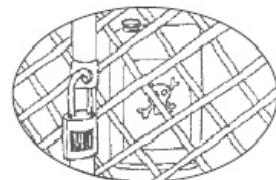
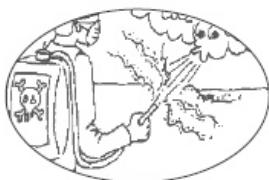
While insecticides, herbicides, and fungicides get rid of unwanted insects, plants, diseases, they often affect non-target species as well. These non-target species live below the canopy and play an essential role in keeping the soil healthy, recycling dead matter, and providing an essential food source for birds, frogs, lizards and bats. The careless use of chemicals can also contaminate water sources and lead to health problems and even death for humans. All pesticides, herbicides, and fungicides are potentially dangerous to people.

Green Landscaping requires that the use of chemicals in the maintenance of the landscape is kept to a strict minimum. This not only applies to insecticides, herbicides and fungicides, but also to chemical fertilizers.

The need for chemicals to control pests and diseases can be reduced through the following techniques:

- ☛ Selection of pest resistant plants which suit local conditions.
- ☛ Ensure planting areas have been sufficiently prepared to ensure healthy plant populations (e.g. break up compact soil, level surface, composting, good drainage etc).
- ☛ Attempt physical pest / disease control methods (e.g. removal by hand or water from hosepipe) first. Attempt biological control methods (e.g. attracting or introducing naturally occurring enemies of pest) if physical methods fail. Apply chemicals as a last resort.

- ☛ Ensure that control method only affects target pest or disease and not surrounding environment. Remove infected parts or all of plant and only apply chemicals (as last resort) to remaining infected areas.
- ☛ Only use chemicals with a low toxicity, applying the recommended dosage, and avoid using them in rainy or windy conditions.
- ☛ Avoid repeatedly using the same chemicals as pests and diseases may build up an immunity.
- ☛ When applying chemicals, keep away from drift or dust cloud. Mouth protection, rubber gloves and boots must always be worn when applying chemicals.
- ☛ Always clean equipment after use and never leave chemicals in applicator overnight. Keep equipment in good working condition through regular maintenance and fixing leaks immediately. NEVER throw waste water from washing equipment into rivers, dams or other sensitive areas.
- ☛ Be aware of the symptoms of poisoning (e.g. headaches, nausea, and dizziness). If contamination occurs, wash hands and clothes thoroughly, and consult your local doctor. If the chemicals have been swallowed, do not induce vomiting if not indicated on the label.
- ☛ Ensure that chemicals are locked away when not in use and that they are out of reach of children and animals. Keep chemicals away from food or liquids at all times. Dispose of empty containers at a registered landfill site.



4.3.3 Composting and Garden Waste Management

Sustainable waste management is an important component of **Green Landscaping** as any waste produced eventually returns to the environment (e.g. air, water, or soil) where it may cause pollution. For example, burning of garden waste contributes to local air pollution and global warming. Waste is defined as anything that is no longer useful and needs to be disposed of. Sustainable waste management aims to move away from dealing with disposing of wastes (e.g. landfill sites) to the avoidance of wastes. The golden rules of responsible waste management are to reduce, reuse, and recycle waste.

1. Reduce the amount of waste produced. For example, replace herbicides which are a hazardous waste and need to be disposed of in a hazardous landfill site with mulch to minimise weed growth and hand pick small plants. Always choose products which do not have excessive packaging.

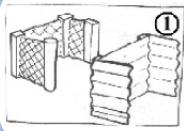
2. Reuse garden materials again and again. For example, use durable refuse bags which can be used over again in place of thin plastic bags which can only be used once.

3. Recycle or convert garden materials into a new or different form (e.g. composting).

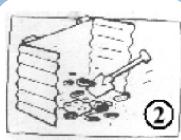
Composting is an easy way in which to reduce waste that needs to be disposed of at a landfill site. It also produces a recycled product that enhances soil quality and plant health. Composting breaks down garden materials which release and

make available nutrients that are essential for plant growth. Composting not only returns nutrients to the soil, but increases the soil's ability to hold air and water, and prevents erosion (binding soil).

The following are some tips on composting:



Contain compost heap using a cage made of wooden slats or wire (improve air circulation). It is however preferable to use a trench which is approximately 2m by 2m (depending on amount of waste material and compost needs).



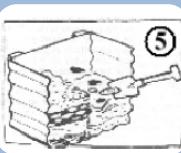
Compost heaps / bins must be on soil to allow good drainage and access for worms and bacteria which decompose the waste. Loosen the soil at the base to allow insects and bacteria easy passage to compost heap.



Cut up large pieces (e.g. branches) and ensure there is a balance of materials (e.g. kitchen scraps, non-woody cuttings, lawn cuttings, and dry leaves). Large branches should generally not be used as composting material. They can however be used in Green Landscapes as interesting features or to provide shelter for local wildlife. They should be allowed to decompose naturally in the landscape (also reduces energy needed to remove them).



Ensure that there is sufficient water to keep contents moist (not wet).



The heap should be regularly turned to increase oxygen levels and to kill the seeds of weeds and fly larvae. The heap should be turned when it becomes cool inside.

Place heap / bin in a sunny place to ensure that it is always warm.
Add a 'starter' pack (e.g. manure or commercial bacteria activator) to speed up the decomposition process.

4.3.3 Grassland Burning

Fire is an important component of grasslands, wetland and woodland management which maintains functionality and biodiversity. Fire is an important disturbance event which has the following benefits:

- ✿ Opens up space and habitats for wildlife, and maintains the heterogeneity of the landscape.
- ✿ Improves the grazing quality of the grassland (stimulate new growth and support greater biodiversity).
- ✿ Clears away the accumulation leaf litter which may smother and hamper the emergence of sensitive species.
- ✿ Regulates the emergence and spread of woody species (including some alien invasive species).
- ✿ Reduces the risk of runaway fires (clears accumulated fuel load).
- ✿ Triggers some indigenous species to germinate or flower (some species have adapted to fire and need the heat or chemicals in the smoke).

The impact of grassland burning is influenced by three factors because of: frequency, season (time of year), and intensity. Grasslands which burn too often, at the wrong time of year, or where fires are too intense (accumulation of fuel load⁶) usually undergo a change in species composition as hard-

ier species replace more sensitive ones. These harder species are less palatable to wildlife and therefore support a lower biological diversity. Grasslands which burn too infrequently, at the wrong time, or where burns are too cool (because of a limited fuel load) also undergo a change in species composition as harder grass species crowd and shade out more sensitive species. The cooler burns also allow shrubs and trees to encroach into the grassland. Grassland burning is thus an important component of the management of grasslands and their functionality.

The following points should be considered in the controlled burning of grasslands, wetlands and woodlands.

- ✿ Grasslands are usually burnt every two years (or every year if there is good rainfall and sufficient fuel load) and following the first spring rains (mid-August to the beginning of September). Burning may start as early as mid-July if there were good rains during the previous summer, and the grass has dried out sufficiently. In Durban the best time is in the months of June or July before the first spring rains and before bulbous and other spring flowering plants have flowered.

⁶ Accumulated dead plant matter.

- ✿ Wetlands and vleis should be burnt every 3 to 5 years, unless the accumulation of leaf litter begins to pose a fire hazard or fire is used as part of an alien invasive clearing programme. Early autumn is generally the best time to burn. However, soil moisture (low soil moisture can damage plant cover) and the breeding habits of birdlife needs to be considered.
- ✿ Woodlands are burnt in the same way as grasslands, but less frequently (every 2 to 5 years) depending on the emergence of woody encroachment species.
- ✿ Forests should never be burnt.

The table below shows important considerations for a successful controlled burning programme.

Objectives	Description
Optimal conditions	<ul style="list-style-type: none"> ✿ Optimum conditions are below 20° and where relative humidity is above 50% (Avoid burning on hot or windy days). ✿ Best burning time is early in the morning once dew has dried sufficiently to allow for ignition. ✿ Extinguish fires immediately if wind becomes stronger than a light breeze.
Block-burning	<ul style="list-style-type: none"> ✿ Divide land up into blocks separated by natural features (e.g. rivers, dams, forests) and human-made firebreaks. ✿ Burn blocks on a rotational basis (allow animals to move away from danger and provides mixture of conditions. e.g. high and low grasses). ✿ Protect infrastructure and habitats that must not be burnt with firebreaks (grass is mown). ✿ Blocks may be burnt in a mosaic fashion rather than wholesale.
Permission	<ul style="list-style-type: none"> ✿ Inform neighbours that you intend to burn, why you are burning, and when burning is likely to take place (avoid burning on weekends or public holidays when your neighbours are likely to be home). ✿ Contact the eThekweni Fire and Rescue Services (031 361 0000) to ask for permission to burn and to enquire about fire index for the day

Right: Igniting fuel load

Far right: Burning blocks and property boundaries should be separated using human-made fire breaks in the absence of natural breaks such as rivers



4.3.4 Vandalism and Litter Control

Vandalism and litter control should be approached with a 'broken window' philosophy. If something is broken it should be fixed or replaced as soon as possible. This discourages others from doing the same, e.g. graffiti should be removed immediately to discourage people from thinking that it is acceptable to vandalise public property.

It is important to get the surrounding local community involved in the maintenance and cleaning up of the Green Landscape. They can be involved through various public education and awareness programmes. This encourages people to take ownership of the space and assist the authorities in keeping out vandals or cleaning up the parks (e.g. people who use these spaces can make a note of vandals and report these to the authorities).

Litter control is very important as litter can be harmful to local wildlife and block up rivers and

storm water systems. Litter is also unsightly and detracts from the attractiveness of the natural landscape. An effective litter control programme should include several well designed litter bins, placed in convenient locations and emptied regularly, particularly in parks or other high-use public areas. Scheduled mechanical or manual cleanups of landscapes should also be used to control litter. Signs prohibiting littering and fining offenders can also be used to reduce incidences of littering. Cleaning of areas using water tankers may also be necessary where disinfecting is required (e.g. outside of ablution facilities). Illegal dumping is a serious problem in many cities and often occurs in the open spaces which provide local wildlife with shelter and the city with ecosystem services. The dumping of building rubble, garden and general waste severely undermines the functionality of these ecosystems.

5 Useful Resources

Publications & Articles

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Websites

City of Darebin, Australia :	www.darebin.vic.gov.au
City of Seattle, USA :	www.seattle.gov/sustainablebuilding
eThekweni Municipality Online Indigenous Plants Index :	www.durban.gov.za/durban/plants_index
IUCN Red Data Lists :	www.wcmc.org.uk/species/plants/redlist.htm
National Department of Agriculture Website :	www.nda.agric.za/
National Department of Water Affairs & Forestry :	www.dwaf.gov.za
SADC Regional Environmental Education Programme :	www.sadc-leep.org.za
South African Green Building Council :	www.greenbuilding.co.za
US Environmental Protection Agency Green Landscaping:	www.epa.gov/reg3esdl/garden

Relevant Legislation

All legislation available for download from www.info.gov.za:

Conservation of Agricultural Resources Act (43 of 1983)
Constitution of the Republic of South Africa (108 of 1996)
Environmental Conservation Act (73 of 1989)
National Environmental Management Act (101 of 1998)

National Environmental Management Act: Biodiversity Act (10 of 2004)
National Water Act (36 of 1998)
National Veld and Forest Fire Act (101 of 1998)

APPENDIX A: Indigenous Plants for the eThekweni Municipal Area

Sun needs: ☀ Full Sun ☁ Semi-shade ☀ Shade/deep shade **Water needs:** ⚡ Low ⚡ Moderate ⚡ High
Denotes fruit and colour: 🍃 Green 🍋 Yellow 🍊 Orange 🍑 Red 🍂 Mauve/Purple 🍂 Pink

Preferred zone	D	C	S	AS	DV	Scientific Name	Common Name	Zulu Name	Nursery availability
coastal belt-inland		X	X	X	X	<i>Abrus precatorius</i>	Lucky Bean Creeper	uMuthi weNhlanhla	uncommon
coastal belt-above scarp	X	X	X	X		<i>Abutilon sonneratianum</i>	Forest Abutilon		available
coastal belt-inland	X	X	X	X	X	<i>Acacia ataxacantha</i>	Flame Thorn	umuThathawe	uncommon
coastal belt-inland			X	X	X	<i>Acacia caffra</i>	Common Hook Thorn	uMtholo	uncommon
scarp-inland		X	X	X	X	<i>Acacia gerrardii</i>	Red Thorn	uMphuze	uncommon
dunes-coastal	X					<i>Acacia kraussiana</i>	Coast Climbing Thorn	uBhope	available
dunes-coastal	X	X	X	X		<i>Acacia natalitia</i>	Coastal Sweet Thorn	umuNga	available
coastal belt-inland	X	X	X	X		<i>Acacia nilotica</i>	Scented Thorn	umNqawe	available
coastal belt-inland	X	X	X	X		<i>Acacia robusta</i>	Brack Thorn	umNgamanzi	common
coastal belt	X			X		<i>Acacia schweinfurthii</i>	River Climbing Thorn	uthathawe	potential
coastal belt-inland	X		X	X		<i>Acacia sieberiana</i>	Paperbark Thorn	umuKhamba	common
above scarp-inland				X	X	<i>Acacia tortilis</i>	Umbrella Thorn	umuSasane	available
coastal belt-above scarp			X		X	<i>Acalypha glabrata</i>	Forest False-nettle	isithombothi	uncommon
dunes-coastal belt			X			<i>Acokanthera oblongifolia</i>	Dune Poison-bush	iNh lungunyembe	common
coastal belt-inland	X	X	X	X	X	<i>Acokanthera oppositifolia</i>	Common Poison-bush	iNh lungunyembe	available
dune-scarp	X	X				<i>Acridocarpus natalitus</i>	Moth-Fruit	uMabopha	potential
coastal belt	X	X				<i>Adenia gummifera</i>	Green Mamba Vine	iMphindamshaya	potential
dune - kloof	X	X	X			<i>Adenopodia spicata</i>	Spiny Splinter Bean	uMbambangwe	potential
coastal belt-above scarp		X	X			<i>Aeollanthus parvifolius</i>	Rocksheet Spur Bush		uncommon
scarp-inland	X	X	X	X		<i>Agapanthus campanulatus</i>	Bell Agapanthus	uBani	potential
scarp	X	X				<i>Agapanthus praecox</i>	Large Agapanthus	uBani	common (hort. var.)
above scarp	X		X			<i>Alberta magna</i>	Natal Flame	iButha-elikhulu	uncommon
coastal belt-inland		X	X	X		<i>Albizia adianthifolia</i>	Flat-crown	uSolo	common
coastal belt-inland	X	X	X	X		<i>Albuca fastigiata</i>	Large White Albuca	uMaphipa-intelezi	common
coastal belt-above scarp	X	X	X			<i>Albuca nelsonii</i>	Candelabrum Lily	uMaphipa-intelezi	uncommon
coastal belt-inland	X	X	X	X		<i>Albuca setosa</i>	Clumping Albuca	iNgcino	available
above scarp-inland	X		X	X		<i>Alepidea amatymbica</i>	Giant Alepidea	iKhathazo	available
coastal belt-inland	X	X	X	X		<i>Allophylus africanus</i>	Black False Currant	uMhlozana	uncommon
coastal belt-inland	X	X	X	X		<i>Allophylus dregeanus</i>	Forest False Currant	uMtathasane	uncommon
dune-coastal	X					<i>Allophylus natalensis</i>	Dune False Currant	isiHlohlela	available
scarp-inland		X	X	X	X	<i>Aloe arborescens</i>	Krantz Aloe / Umhlabana	iNh labaencane	common
coastal belt-inland	X		X	X		<i>Aloe barberiae</i>	Tree Aloe	iNkalane-enkulu	common
coastal belt-inland			X	X	X	<i>Aloe cooperi</i>	Cooper's Aloe	iNqimindolo	common
coastal belt-inland	X	X	X	X		<i>Aloe ferox (candelabrum)</i>	Candelabra Aloe	iNh laba	common
coastal belt-inland	X	X	X	X		<i>Aloe kraussii</i>	Broad-leaved Yellow Grass Aloe	isiphukuthwane	uncommon
coastal belt-inland	X	X	X	X		<i>Aloe linearifolia</i>	Yellow Grass Aloe	inkuphuyana	uncommon
dunes-inland	X	X	X	X		<i>Aloe maculata</i>	Common Soap Aloe	amahlala	common
above scarp-inland	X		X	X		<i>Aloe marlothii</i>	Mountain Aloe	iNh laba	common
coastal belt	X					<i>Aloe pluridens</i>	French Aloe		available
above scarp-inland	X	X		X	X	<i>Aloe pruinosa</i>	Mkondeni Aloe	iCena-elikhulu	available
dunes	X	X				<i>Aloe thraskii</i>	Dune Aloe	uMh laba	common
coastal belt-kloof	X	X	X			<i>Anastrabe integrerrima</i>	Pambati Tree	isiBhemedu	uncommon
dunes-above scarp	X	X	X			<i>Aneilema aequinoctiale</i>	Clinging Aneilema	iDangabane-elikhulu	potential
coastal belt-above scarp	X	X	X	X		<i>Antidesma venosum</i>	Tassel-berry	isiBangamlotha	common
coastal belt-above scarp	X	X	X	X		<i>Aphloia theiformis</i>	Mountain Peach		uncommon
coastal belt-inland		X	X	X		<i>Apodytes dimidiata</i>	Witpeer	uMdakane	common

Flower colour:	White	Cream	Yellow	Honey	Brown	Orange	Maroon	Red
	Magenta	Pink	Lilac	Mauve/Purple	Blue	Pale blue	Grey	

Form	Height	sun, semi, shade	Water needs	Flower colour and season	Other Points: NB Use locally indigenous sources				Drought tolerant
CL	0.5-2 m	☀️☀️	💧	✿ Sep-Apr	Decorative but toxic red and black seeds. Medicinal, love charms.				Yes
HS	1 m	☀️	💧	✿ All Year	Medicinal use. Butterflies.				No
T	5-10 m	☀️	💧	✿ spikes	Sep-Feb	Decorative reddish seed pods. Barrier plant			Yes
T	3-12 m	☀️	💧 - ⚡	✿ spikes	Sep-Nov	Fodder tree. Wood for fence posts, fuel. Medicinal, magical.			Yes
T	5-7 m	☀️	💧	✿	Oct-Feb	Flowers attract insects. Medicinal.			Yes
CL	10-15 m	☀️	💧	✿	Dec-Mar	Mixed screen or thorny barrier plant.			Yes
T	15-20 m	☀️	💧	✿	Oct-Feb	Fast growing. Pioneer in disturbed areas, excellent for wildlife.			Yes
T	3-6 m	☀️	💧 - ⚡	✿ balls	Sep-Jan	Edible gum, wood for furniture, fence posts, fuel. Medicinal. Scented bead pods.			Yes
T	6-20 m	☀️	💧 - ⚡	✿	Oct-Feb	Attracts birds, butterflies. Fast-growing.			Yes
CL	10-15 m	☀️☀️	💧	✿	Oct-Mar	Makes an impenetrable hedge. Does not occur south of La Lucia.			Yes
T	7-15 m	☀️	💧	✿	Sep-Nov	Peeling bark and good for birds and butterflies.			Yes
T	5-15 m	☀️	💧	✿	Oct-Feb	Nutritious for stock. Birds. Medicinal. Fuel.			Yes
T	1,5-5 m	☀️	💧	✿	Oct-Dec	Stems used to make baskets. Butterflies. Good shape.			Yes
SH	3-5 m	☀️☀️	💧	✿	Sep-Nov	Scented flowers. Decorative. Poisonous. Medicinal. Birds eat fruit.			Yes
SH	2-7 m	☀️☀️	💧	✿	Jun-Oct	Scented flowers. Decorative. Poisonous. Medicinal. Birds eat fruit.			Yes
CL	1-4 m	☀️☀️	💧	✿	Sep-Feb	Decorative and attractive climber. Butterflies.			No
CL	30 m	☀️☀️	💧	✿	Oct-Dec	Fleshy green stems. Medicinal, magical. Poisonous.			Yes
CL	30 m	☀️☀️	💧	✿	Dec-Jan	Excellent barrier plant.			No
GC	40 cm	☀️	💧 - ⚡	✿	Nov-Apr	Succulent herb with aromatic leaves			Yes
B	50 cm	☀️	💧	✿	Dec-Mar	Protective charm.			Yes
B	80 cm	☀️☀️	💧	✿	Dec-Feb	Medicinal			Yes
T	5-10 m	☀️	💧	🍐	Feb-Jun	Decorative red flowers and seeds. Medicinal. Rare, slow-growing.			No
T	10-25 m	☀️	💧	✿	Aug-Dec	Wood utilised. Medicinal. Butterflies. Decorative.			Yes
B	50 cm	☀️	💧	✿	Jan-Feb	Protective charm.			Yes
B	1 m	☀️	💧	✿	Sep-Dec	Decorative. Used as a protective charm.			Yes
B	30 cm	☀️	💧	✿	Aug-Jan	Decorative. Protective charm against lightning & to end quarrels.			Yes
H	1 m	☀️☀️	💧	✿	Jan-Apr	Medicinal			Yes
T	3-6 m	☀️☀️	💧	✿	Nov-Mar	Medicinal. Wood used for hut building.			No
SH	2-6 m	☀️☀️	💧	✿	Feb-May	Sprays of red berries for birds.			No
SH	2-5 m	☀️	💧	🍐	Jun-Aug	Edible red fruit. Birds, butterflies. Good pot plant.			No
SH	1-3.5 m	☀️☀️	💧 - ⚡	✿	May-Jul	Hedging. Medicinal. Birds.			Yes
T	10-18 m	☀️	💧 - ⚡	✿	Apr-Jun	Birds.			Yes
S	1.2 m	☀️	💧	✿	Sep-Mar	Decorative. Edible. Medicinal. Birds.			No
FP	2-3 m	☀️	💧	✿	May-Aug	Medicinal sap. Birds.			Yes
S	60 cm	☀️	💧 - ⚡	✿	Nov-Feb	Decorative. Flowers eaten. Birds.			No
S	30 cm	☀️	💧	✿	Jan-Apr	Medicinal. Birds.			Yes
S	1 m	☀️	💧 - ⚡	✿	May-Oct	Decorative. Edible. Medicinal. Birds.			Yes
FP	2-5 m	☀️	💧	✿	May-Aug	Medicinal sap. Birds.			Yes
FP	up to 5 m	☀️	💧 - ⚡	✿	May-Jul	Birds.			Yes
S	60 cm	☀️	💧	✿	Mar-May	Birds.			Yes
FP	up to 4 m	☀️	💧	✿	May-Jul	Birds.			Yes
SH	3-7 m	☀️☀️	💧	✿	Oct-Feb	Wood used for spoons.			Yes
GC	50 cm	☀️☀️	💧	✿	Sep-Jun	Leaves and roots eaten.			No
T	3-7 m	☀️☀️	💧	🍐	Oct-Jan	Tasty fruit on females for birds. Wood for building, fuel. Medicinal. Decorative.			No
T	3-5 m	☀️	💧	✿	Sep-Oct	Uncommon small tree with scented flowers.			No
T	5-15 m	☀️☀️	💧	✿	Sep-Apr	Scented. Wood used. Decorative. Birds enjoy red and black fruits.			Yes

Preferred zone	D	C	S	AS	DV	Scientific Name	Common Name	Zulu Name	Nursery availability
dune-coastal belt	X					<i>Aptenia cordifolia</i>	Aptenia	iBohlololo	common
coastal belt-scarp	X	X				<i>Aristea ecklonii</i>	Blue Stars	uMabhanjana	available
coastal belt-inland	X	X	X	X		<i>Aristea woodii</i>	Blue Stars	uMluze-omncane	available
coastal belt-inland	X	X	X	X		<i>Aristida junciformis</i>	Ngongoni Three-awn	Ngongoni	available
coastal belt-inland	X	X	X	X		<i>Arundinella nepalensis</i>	River Grass		available
coastal belt-inland	X	X	X	X		<i>Asparagus aethiopicus</i>	Trailing Asparagus		uncommon
coastal belt-inland	X	X	X	X		<i>Asparagus africanus</i>	Bush Asparagus	isigobo	uncommon
above scarp-inland	X		X	X		<i>Asparagus asparagoides</i>	Cape Smilax	iButha	uncommon
dunes-coastal	X					<i>Asparagus densiflorus 'Mazeppa'</i>	Dune Asparagus	isiQobola	common
coastal belt-inland	X	X	X	X		<i>Asparagus densiflorus 'Sprengeri'</i>	Emerald Asparagus	isiQobola	common
dunes-scarp		X				<i>Asparagus falcatus</i>	Sickle-leaved Asparagus	iMbelekaZana	available
coastal belt-scarp	X	X				<i>Asparagus macowanii</i>	Zulu Asparagus		available
coastal belt-kloof	X	X				<i>Asparagus setaceus</i>	Bathroom Asparagus	iButha	common
coastal belt-inland	X	X	X	X		<i>Asparagus virgatus</i>	Broom Asparagus	iButha	common
coastal belt-above scarp	X	X	X	X		<i>Aspilia natalensis</i>	Wild Creeping Sunflower	uMahoqo	potential
dunes-inland	X	X	X	X		<i>Asystasia gangetica</i>	Creeping Foxglove	isihibo	common
coastal belt-above scarp	X	X	X			<i>Bachmannia woodii</i>	Four-finger Bush	uMphunzisa	potential
coastal belt-above scarp	X		X	X		<i>Baphia racemosa</i>	Natal Camwood	isiFithi	common
kloof-inland		X	X	X		<i>Barleria elegans</i>	White Barleria	uMhlalulwane	available
coastal belt-kloof	X	X		X		<i>Barleria gueinzii</i>	Trailing Bush Violet		available
costal belt-inland	X	X	X	X		<i>Barleria obtusa</i>	Bush Violet	iDolo-lenkonyane	common
dunes-coastal belt	X	X				<i>Barringtonia racemosa</i>	Powder-puff Tree	iBoqo	common
coastal belt-above scarp	X	X	X			<i>Bauhinia tomentosa</i>	Yellow Bell Bauhinia	isiThibathibana	common
coastal belt-above scarp		X	X	X		<i>Becium obovatum</i>	Cat's Whiskers	iDada	potential
coastal belt-inland		X	X	X		<i>Begonia dregei</i>	Dwarf Begonia		uncommon
scarp	X	X				<i>Begonia geranioides</i>	Geranium-leaved Begonia		potential
scarp-above scarp		X	X	X		<i>Begonia sutherlandii</i>	Orange Begonia	uqamamawene	potential
coastal belt-inland	X	X	X	X		<i>Behnia reticulata</i>	Forest Smilax	isigoba	uncommon
coastal belt-inland	X	X	X	X		<i>Berchemia zeyheri</i>	Red Ivory	uMneyi	available
coastal belt-inland	X	X	X	X	X	<i>Berkheya speciosa</i>	Thistle Flower	iKhakhasi-elikhulu	available
coastal belt-scarp	X	X				<i>Bersama lucens</i>	Glossy White Ash	uNdiyaza	common
scarp-inland	X	X	X	X		<i>Boophone disticha</i>	Gifbol	iNcotho	uncommon
kloof-inland		X	X	X		<i>Bowiea volubilis</i>	Bowiea	iGuleni	uncommon
dunes-scarp	X	X				<i>Brachylaena discolor</i>	Coast Silver Oak	umuPhahla	common
kloof-inland	X	X	X	X		<i>Brachylaena elliptica</i>	Bitter-leaf Silver Oak	iGqaba	uncommon
kloof-inland	X	X	X	X		<i>Brachylaena uniflora</i>	Natal Silver Oak	umuPhahla-wehlati	uncommon
coastal belt-above scarp		X	X			<i>Bridelia micrantha</i>	Coastal Golden Leaf	uMshonge	common
coastal belt-inland	X	X	X	X		<i>Buddleja dysophylla</i>	White Climbing Sage		uncommon
coastal belt-inland	X	X	X	X		<i>Buddleja pulchella</i>	Red Climbing Sage	iGqeba-elimhlophe	uncommon
coastal belt-inland	X	X	X	X		<i>Buddleja saligna</i>	False Olive	iGqeba-elimhlophe	available
scarp-inland	X	X	X	X		<i>Bulbine abyssinica</i>	Bushy Bulbine	iBhucu	common
coastal belt-above scarp	X	X	X			<i>Bulbine natalensis</i>	Broad-leaved Bulbine	iBhucu	common
coastal belt-inland	X	X	X	X		<i>Burchellia bubalina</i>	Wild Pomegranate	isiGolwane	common
coastal belt-scarp		X				<i>Buxus natalensis</i>	Natal Box	iGudlangulubi	available
kloof-inland	X	X	X	X		<i>Cadaba natalensis</i>	Natal Worm Bush	aMangwe	uncommon
coastal belt-above scarp	X	X	X	X		<i>Callilepis laureola</i>	Ox-eye Daisy	iHlamvu	potential
coastal belt-inland	X	X	X	X		<i>Calodendrum capense</i>	Cape Chestnut	uMbhaba	common
coastal belt-inland	X	X	X	X		<i>Calpurnia aurea</i>	Natal Laburnum	umuKhiphampethu	common
dunes-coastal belt	X					<i>Canavalia rosea</i>	Beach-bean Canavalia		potential

Form	Height	sun, semi, shade	Water needs	Flower colour and season	Other Points: NB Use locally indigenous sources	Drought tolerant
GC	1 m				Sep-Jul Medicinal. Prolific growth.	Yes
GC	40 cm				Aug-Mar Medicinal.	Yes
B	40 cm				Sep-Mar Used as protective and good luck charms.	Yes
G	60 cm				Nov-May Ground cover. Used to make brooms. Thrives in poor soil	Yes
G	1.5 m				Dec-Mar Grazing grass when young. Prevents soil erosion.	No
CL	3 m				Dec-Mar Climber with white flowers.	yes
HS	1 m				Apr-Nov Used medicinally, as a protective charm and in traditional initiation.	Yes
C	2 m				all year Medicinal. For the vase and good potplant.	No
GC	50 cm				Nov-Apr Red berries for birds.	Yes
GC	50 cm				Nov-Apr Red berries for birds.	Yes
CL	1-6 m				Sep-Dec Decorative thorny climber. Scented flowers. Medicinal, magical. Birds	Yes
SH	2 m				Aug-Nov Decorative. For the vase. Good potplant.	Yes
F	2 m				Feb-May Decorative fern like climber. Used in love charms.	Yes
F	1 m				Dec-Feb Medicinal, magical. Birds use leaves in nest-building.	Yes
H	50 cm				All Year Medicinal.	No
GC	50 cm				All Year Leaves eaten as spinach. Butterflies and bees.	Yes
SH	1.5-3 m				Apr-Aug Rare shrub for shade areas. Birds eat frut. Butterflies	No
T	3-10 m				Aug-Nov Lovely scent. Butterflies. Slow-growing.	Yes
HS	1 m				Mar-Apr Trailing habit, for dry areas.	Yes
GC	50 cm				Mar-May Soft trailing shrublet, profuse flowers	Yes
GC	1 m				Mar-Jun Butterflies.	Yes
T	4-10 m				Nov-Jun Medicinal. Decorative pompom racemes.	No
SH	2-5 m				Nov-Apr Decorative. Butterflies	Yes
HS	30 cm				Sep-Feb Medicinal. Butterflies.	No
H	25 cm				Dec-Mar Decorative.	No
H	20 cm				Nov-Apr Decorative. Good container and shade plant for cool areas.	No
H	30 cm				Aug-May Ornamental. Medicinal. Protective charm.	No
CL	2-5 m				All Year Used in flower arranging	No
T	3-6 m				Sep-Jan Edible fruit. Medicinal. Wood used for furniture etc. Birds.	No
GC	1 m				Aug-Feb Ornamental. Medicinal.	Yes
T	2-5 m				Sep-May Medicinal. Decorative. Birds enjoy red seeds.	No
B	80 cm				Jul-Oct Medicinal.	Yes
B	3 m				Oct-Apr Medicinal. Unusual succulent foliage.	Yes
T	4-10 m				Jul-Sep Wood for huts, implement handles, posts. Hedge in coastal / windy areas.	Yes
T	3-5 m				Apr-Aug Hardy. Wood used for sticks and fence posts.	Yes
T	7-15 m				Jul-Sep Wood for hut building, implement handles, posts. Screen.	No
T	7-15 m				Aug-Oct Lovely new leaves, autumn colours. Medicinal. Wood used. Fast-growing. Birds.	No
CL	4 m				May-Aug Scented. Butterflies.	No
T	2-7 m				Jul-Aug Scented. Butterflies.	No
T	2-7 m				Aug-Jan Medicinal. Wood for posts, good fuel. Butterflies.	Yes
GC	40 cm				Aug-Mar Decorative. Medicinal.	Yes
GC	50 cm				All Year Decorative. Medicinal, Sap heals some skin ailments.	No
SH	3-6 m				Nov-Apr Decorative. Medicinal. Birds.	No
SH	1.5-3 m				Aug-Sep Decorative shape and leaves. Wood used for hut-building. Nest sites.	No
CL	2-3 m				Apr-May Birds eat fruit. Attracts butterflies.	Yes
H	60 cm				Aug-Nov Medicinal, magical.	Yes
T	8-25 m				Jul-Mar Decorative. Wood for furniture. Birds, butterflies.	No
SH	3-9 m				Dec-Feb Decorative. Medicinal.	No
CL	10 m				Dec-Aug Butterflies.	Yes

Preferred zone	D	C	S	AS	DV	Scientific Name	Common Name	Zulu Name	Nursery availability
coastal belt-inland		X	X	X	X	<i>Canthium ciliatum</i>	Hairy Turkey-berry	uMnyulushube (X)	uncommon
dunes-kloof		X	X	X	X	<i>Canthium inerme</i>	Common Turkey-berry	umuVuthwamini	common
coastal belt-inland		X	X	X		<i>Canthium mundianum</i>	Rock Alder	uMngalambele	uncommon
coastal belt-above scarp			X			<i>Canthium spinosum</i>	Coastal Canthium	umuVuthwamini-omncane	available
dunes-coastal belt	X	X			X	<i>Capparis brassii</i>	Cumquat Caper Bush		potential
coastal belt-above scarp	X	X	X	X		<i>Capparis fascicularis var. zeyheri</i>	Forest Caper Bush		potential
coastal belt-above scarp	X	X	X			<i>Capparis sepiaria</i>	Wild Caper Bush	uSondeza	potential
coastal belt-inland	X	X	X	X		<i>Capparis tomentosa</i>	Woolly Caper Bush	uKokwane	uncommon
coastal belt-inland	X	X	X	X	X	<i>Carissa bispinosa</i>	Forest Num-num	umuVusankunzi	common
dunes-kloof	X	X				<i>Carissa macrocarpa</i>	Umthungulu	uMthungulu	common
dunes	X					<i>Carpobrotus dimidiatus</i>	Dune Fig	uMgongozi	common
scarp	X	X				<i>Cassinopsis tinifolia</i>	False Lemon Thorn	iHlazane	uncommon
coastal belt-above scarp	X	X				<i>Cassipourea gummiflua</i>	Large-leaved Onionwood	uMbhovane	available
dunes-coastal forest	X					<i>Catunaregam spinosa</i>	Thorny Bone-apple	umuKhwakhwane	available
coastal belt	X					<i>Cavacoa aurea</i>	Natal Hickory	uMbhuku	available
coastal belt-inland	X	X	X	X	X	<i>Celtis africana</i>	White Stinkwood	uMvumvu	common
coastal belt	X	X				<i>Celtis durandii</i>	False White Stinkwood	iNdwandwazane	available
coastal belt		X				<i>Celtis mildbraedii</i>	Natal White Stinkwood		available
coastal belt-inland	X	X	X	X		<i>Ceratotheca triloba</i>	Wild Foxglove	uDonaq	available
coastal belt-inland		X	X	X		<i>Chaetacanthus burchelli</i>	Fairy Stars		uncommon
coastal belt-inland	X	X	X	X		<i>Chaetacanthus setiger</i>	Fairy Stars		available
coastal belt	X			X		<i>Chaetacme aristata</i>	Thorny Elm	uMkhovoti	available
coastal belt-inland	X	X	X	X	X	<i>Cheilanthes viridis</i>	Lip Fern		uncommon
coastal belt-above scarp	X	X	X			<i>Chionanthus foveolatus</i>	Common Pock Ironwood	iSandletshe	uncommon
coastal belt-inland	X	X	X			<i>Chionanthus peglerae</i>	Giant Pock Ironwood	isiZimane-esimhlophe	common
scarp	X	X	X	X		<i>Chlorophytum cooperi</i>	Cooper's Anthericum		potential
coastal belt-above scarp	X		X	X		<i>Chlorophytum saundersiae</i>	Weeping Anthericum		common
above scarp-inland	X		X	X		<i>Chlorophytum bowkeri</i>	Bowker's Chlorophytum		available
coastal belt-above scarp	X	X	X	X		<i>Chlorophytum comosum</i>	Green Hen-and-chickens	iPhamba	common
coastal belt-above scarp	X	X	X	X	X	<i>Chlorophytum krookianum</i>	Giant Chlorophytum		uncommon
dunes-coastal belt	X					<i>Chlorophytum modestum</i>	Small Chlorophytum	uMathunga wehlathi omncane	available
dunes-above scarp	X	X	X	X		<i>Chrysanthemoides monilifera</i>	Bush Tick-berry	uMtholombe	common
coastal belt-scarp	X	X				<i>Chrysophyllum viridifolium</i>	Fluted Milkwood	uMgwinya	available
dunes-coastal belt	X	X	X	X		<i>Cissus fragilis</i>	Forest Grape Vine	umuVusankunzi	potential
valley bushveld	X		X	X		<i>Cissus quadrangularis</i>	Cactus Vine	iJovane	uncommon
coastal belt-above scarp	X	X	X	X		<i>Clausena anisata</i>	Perdepis	uMsanka	available
coastal belt-inland	X	X	X	X		<i>Clematis brachiata</i>	Traveller's Joy	uMdlandlathi	available
dunes-inland	X	X	X	X		<i>Clerodendrum glabrum</i>	Cat's Whiskers	uMqoqonga	common
coastal belt-inland	X	X	X	X		<i>Clivia gardenii</i>	Major Garden's Clivia	uMayime	common
coastal belt-inland	X	X	X	X		<i>Clivia miniata</i>	Common Clivia	uMayime	common
coastal belt-above scarp	X	X	X			<i>Clutia abyssinica</i>	Large Lightning Bush		potential
coastal belt-above scarp	X	X	X			<i>Clutia pulchella</i>	Warty-fruited Clutia	uMembesa	potential
coastal belt-above scarp	X	X	X			<i>Coccinia palmata</i>	Wild Cucumber	uThangazane omncane	potential
coastal belt-inland	X		X	X		<i>Coddia rudis</i>	Small Bone-apple	umuDondwane	common
coastal belt-above scarp	X	X	X			<i>Cola natalensis</i>	Coshwood	uMthenenende	uncommon
dunes-above scarp	X	X	X			<i>Coleotrype natalensis</i>	Forest Commelina		available
coastal belt-above scarp	X	X				<i>Combretum bracteosum</i>	Hiccup Nut	uQotho	available
coastal belt-inland	X		X	X		<i>Combretum erythrophyllum</i>	River Bushwillow	uMbondwe	common
coastal belt-inland	X	X	X	X		<i>Combretum kraussii</i>	Forest Bushwillow	uMdubu-wehlathi	common

Form	Height	sun, semi, shade	Water needs	Flower colour and season	Other Points: NB Use locally indigenous sources	Drought tolerant
S	2-5 m				Oct-Feb Medicinal, magical. Barrier plant. Fruit for birds.	No
T	4-7 m				Aug-Jan Edible fruit. Birds, butterflies.	No
T	4-7 m				Sep-Nov Use local seed source. Edible black fruit. Wood for furniture, fenceposts, tools.	No
T	2-4 m				Jul-Dec Edible fruit. Birds.	No
CL	5 m				Jun-Oct Butterfly host plant.	Yes
CL	2-6 m				Jun-Oct Birds, butterflies.	yes
CL	2-6 m				Jun-Oct Buds pickled. Medicinal, magical. Birds, butterflies. Barrier plant.	yes
CL	2-6 m				Aug-Nov Decorative. Medicinal, magical. Birds, butterflies. Spiny barrier plant.	Yes
SH	1-4 m				Aug-Jan Scented. Decorative. Red edible fruit eaten by birds. Medicinal.	No
SH	2-5 m				All Year Decorative. Edible red fruit. Hedge / barrier. Wind-resistant. Birds, butterflies.	No
GC	20 cm				All Year Decorative. Edible fruit. Medicinal. Butterflies.	Yes
SH	2-7 m				Oct-Apr Attractive foliage.	No
T	4-12 m				Dec-Apr Medicinal. Decorative.	No
SH	3-7 m				Aug-Nov Scented. Edible fruit. Medicinal. Barrier plant, wood for poles. Leaves browsed.	Yes
T	7-15 m				Sep-Oct Rare. Decorative fluted stem. Medicinal. Wood for sticks	No
T	15-20 m				Oct-Dec Decorative. Wood used for implements/furniture. Birds.	Yes
T	up to 30 m				Jul-Oct Small yellow fruit eaten by birds.	No
T	up to 30 m				Aug-Apr Rare in the wild; fast-growing. Birds.	No
H	1.5 m				Oct-Apr Annual/biennial. Medicinal.	No
GC	25 cm				Sep-May Small bushy herb.	Yes
GC	20 cm				Sep-May Low spreading groundcover. Attracts butterflies.	Yes
T	5-15 m				Apr-Dec Wood used for fighting sticks. Attracts birds.	No
F	50 cm			n/a	n/a Hardy fern with blue-green foliage.	No
T	2-15 m				Sep-Dec Fruit eaten by birds.	No
T	4-20 m				Aug-Feb Decorative. Birds. Excellent street tree.	No
G	20 cm				Oct-Mar Neat small clumping grass-like plant.	No
G	70 cm				Jul-Feb Attractive clumping grass-like plant.	No
GC	40 cm				Dec-Apr Clumping ground cover with lovely vertical stems of white flowers.	No
GC	30 cm				All Year Medicinal. Potplant.	No
B	1.2 m				Dec-Apr Striking white flower spikes.	No
GC	20 cm				Oct-May Variegated. Used as a protective charm.	No
HS	1-6 m				Apr-Nov Decorative. Edible fruit. Medicinal. Hedge/windbreak, beach. Birds, butterflies.	Yes
T	10-40 m				Feb-Jun Decorative. Birds.	No
CL	10 m +				Dec-Jun Good fence plant. Birds eat fruit.	No
CL	5 m				Oct-Mar Good for hanging bowls. Medicinal. Birds.	Yes
SH	3-10 m				May-Aug Wood used. Medicinal, magical. Flavours curries. Birds, butterflies.	No
CL	vigorous				Feb-Jun Decorative. Medicinal. Magical.	No
T	2-10 m				Dec-Jun Medicinal. Wood for poles, fuel. Birds, butterflies.	No
B	80 cm				Jun-Sep Medicinal.	No
B	60 cm				Aug-Oct Decorative. Medicinal. For the vase.	No
SH	3.5 m			small	Mar-Oct Medicinal.	No
SH	2-4 m			small	Nov-Jan Medicinal.	No
CL	8 m				Dec-Jun Decorative. Leaves cooked as spinach. Medicinal.	No
SH	1-3 m				Oct-Mar Decorative, good container plant. Edible fruit. Leaves browsed. Birds.	Yes
T	7-10 m				Oct-Nov Wood used for sticks. Decorative orange fruit.	No
GC	30 cm				Sep-Apr Groundcover with clumping habit.	No
CL	8 m				Sep-Dec Edible roasted nut. Decorative. Birds.	Yes
T	5-10 m				Sep-Nov Decorative, lovely autumn foliage. Fast growing. Birds.	No
T	5-20 m				Aug-Nov Stems for baskets. Red fruit. Decorative with red winged seeds.	No

Preferred zone	D	C	S	AS	DV	Scientific Name	Common Name	Zulu Name	Nursery availability
coastal belt-above scarp			X	X	X	<i>Combretum molle</i>	Velvet Bushwillow	uMbondwe	common
coastal belt-above scarp	X	X	X	X		<i>Commiphora harveyi</i>	Red-stem Corkwood	uMinyela	available
above scarp-inland	X		X	X		<i>Commiphora neglecta</i>	Green-stem Corkwood	uMinyela	uncommon
coastal belt-above scarp			X	X		<i>Commiphora woodii</i>	Forest Corkwood	uMde-wehlati	uncommon
dunes-above scarp	X	X	X	X		<i>Cordia caffra</i>	Septee Tree	iLovu	available
coastal belt-inland		X	X	X	X	<i>Cotyledon orbiculata</i>	Narrow Pig's Ears	iPewula	available
coastal belt-inland	X	X	X	X	X	<i>Crassula alba</i>	Common Crassula	isidwe	uncommon
coastal belt-inland	X	X	X	X		<i>Crassula expansa</i>	Dainty Crassula		uncommon
kloof-scarp	X	X				<i>Crassula multicava</i>	Fairy Crassula	uMadinsane	common
coastal belt-inland	X	X	X	X		<i>Crassula obovata</i>	Stonecrop		uncommon
coastal belt-inland	X	X	X	X		<i>Crassula orbicularis</i>	Stone Crassula	uMadinsane	uncommon
above scarp-inland	X	X	X	X		<i>Crassula ovata</i>	Kerky-Bush		common
coastal belt-above scarp			X	X		<i>Crassula pellucida</i>	Carpet Crassula		uncommon
coastal belt-above scarp	X	X	X			<i>Crassula perfoliata</i> *	Pointed-leaved Crassula		uncommon
coastal belt-above scarp	X	X	X			<i>Crassula sarmentosa</i>	Bushy Crassula		available
coastal belt-inland	X		X	X	X	<i>Crinum macowanii</i>	River Crinum	uMnduze	common
coastal belt-inland	X	X	X	X		<i>Crinum moorei</i>	Moore's Crinum	uMnduze	common
coastal belt-inland	X	X	X	X		<i>Crocosmia aurea</i>	Falling Stars	uMlunge	common
coastal belt-inland	X	X	X	X		<i>Crotalaria capensis</i>	Cape Rattle-pod	ubuKheshezane	available
coastal belt-above scarp	X	X	X			<i>Crotalaria natalitia</i>	Pioneer Rattle Pod		uncommon
kloof-above scarp	X	X		X		<i>Croton steenkampianus</i>	Marsh Fever-berry	uHubeshane	uncommon
coastal belt-inland	X	X	X	X		<i>Croton sylvaticus</i>	Forest Fever-berry	uMhloshozane	common
coastal belt-inland			X	X	X	<i>Cryptocarya latifolia</i>	Broad-leaved Quince	uMhangwenya	available
coastal belt-above scarp	X	X	X			<i>Cryptocarya myrtifolia</i>	Myrtle Quince	umuNgqabe	available
coastal belt-above scarp	X	X	X			<i>Cryptocarya woodii</i>	Cape Quince	umuNgqabe	available
coastal belt-scarp	X	X				<i>Cussonia nicholsonii</i>	Natal Coast Cabbage Tree	umSenge	uncommon
coastal belt-above scarp			X	X		<i>Cussonia sphaerocephala</i>	Natal Forest Cabbage Tree	uMsenge	common
coastal belt-inland			X	X	X	<i>Cussonia spicata</i>	Cabbage Tree	uMsenge	common
coastal belt-inland	X	X	X	X		<i>Cussonia zuluensis</i>	Zulu Cabbage Tree	uMsenge	uncommon
coastal belt-inland	X	X	X	X		<i>Cyanotis speciosa</i>	Doll's Powder-puff	iNgonga	available
scarp-inland	X	X	X	X		<i>Cyathea dregei</i>	Common Tree Fern	isiKhomakhoma	available
dune-inland		X	X	X	X	<i>Cynanchum spp.</i>	Dog-wort species	iShongwe-elinabawo	potential
coastal belt	X					<i>Cyperus albostriatus</i>	Forest Star Sedge	iNgawane ephakathi	available
coastal belt						<i>Cyperus prolifer</i>	Dwarf Papyrus		available
above scarp-inland	X	X		X	X	<i>Cyperus rupestris</i>	Russet Rock Sedge		uncommon
above scarp-inland		X		X	X	<i>Cyperus sexangularis</i>	Angle-stem Star Grass	iNgculu	uncommon
coastal belt-scarp	X	X	X			<i>Cyperus solidus [=Mariscus solidus]</i>	Saw Sedge		available
coastal belt-above scarp	X	X	X	X		<i>Cyperus textilis</i>	Tall Star Sedge	uMuzi	available
dunes-above scarp		X	X	X		<i>Cyphostemma flaviflorum</i>	Dune Grape Bush	uDekane	potential
coastal belt-above scarp	X	X	X	X		<i>Cyphostemma hypoleucum</i>	Double-Barrel Vine	uDekane	uncommon
coastal belt-above scarp			X	X		<i>Cyrtanthus mackenii</i>	Ifafa Lily	Impingizana encane empofu	common
kloof-above scarp		X	X	X		<i>Cyrtanthus sanguineus</i>	Inanda Lily		uncommon
dunes-above scarp	X	X	X			<i>Dactyloctenium australe</i>	Berea Grass		common
coastal belt-inland	X	X	X	X		<i>Dais cotinifolia</i>	Pompon Tree	iNtonzane-emnyama	common
coastal belt-above scarp		X	X	X		<i>Dalbergia armata</i>	Thorny Rope	uMhluhluwe	uncommon
coastal belt-inland	X	X	X	X		<i>Dalbergia obovata</i>	Climbing Flat-bean		available
coastal belt-above scarp	X	X	X	X		<i>Dalechampia capensis</i>	Dalechampia	iNzula	uncommon
dune-kloof	X	X	X		X	<i>Deinbollia oblongifolia</i>	Dune Soap-berry	iQinisamasimu	common
above scarp		X		X		<i>Delosperma rogersii</i>	Delosperma		common

* *subsp. heterotricha*

Form	Height	sun, semi, shade	Water needs	Flower colour and season	Other Points: NB Use locally indigenous sources	Drought tolerant
T	4-8 m				Sep-Nov Seasonal foliage colours. Medicinal. Wood used. Decorative.	Yes
T	5-15 m				Oct-Dec Decorative, peeling bark. Wood used. Birds.	Yes
T	3-8 m				Sep-Oct Roots eaten. Wood used. Poles. Birds.	Yes
T	5-15 m				Feb-Apr Fast-growing. Birds eat fruit.	Yes
T	2-12 m				Sep-Oct Decorative. Medicinal. Wood for hut building, sticks. Birds.	Yes
S	1 m				All Year Medicinal, Sap heals warts. Birds.	Yes
S	40 cm				All Year Ornamental. Magical.	No
GC	20 cm				All Year Miniature groundcover.	yes
GC	40 cm				May-Nov Medicinal.	Yes
GC	30 cm				Dec-Jun Straggling, small form plant.	Yes
GC	30 cm				Jan-Nov Attractive succulent for rocks or pots in shady places.	Yes
S	2 m				July-Aug Masses of pink/white flowers.	Yes
GC	15 cm				Dec-Apr Attractive semi-succulent ground cover.	Yes
S	40 cm				May-Oct Small succulent for pots in sunny areas.	Yes
GC	50 cm				Jun-Aug Variegated form available.	Yes
B	90 cm				Oct-Feb Ornamental. Scented. Medicinal.	Yes
B	1.6 m				Sep-Jan Ornamental. Scented. Medicinal.	Yes
B	1 m				Jan-Apr Ornamental. Medicinal. Birds.	Yes
SH	2-5 m				Oct-Apr Browsed. Butterflies, birds. Hedge.	No
HS	2 m				Mar-Aug Small delicate shrub.	No
SH	1.5-4 m				Nov-Apr Medicinal. Decorative leaves.	Yes
T	7-20 m				Dec-May Medicinal. Good shade. Decorative, deciduous, orange fruit attracts birds.	No
T	5-20 m			small	Jun-Sep Fruit for birds; magical and medicinal.	No
T	10-20 m			small	Oct-Jan Magical and medicinal uses. Fruit for birds.	No
T	3-15 m				Sep-Feb Magical and medicinal uses. Attractive foliage, butterflies.	No
T	3-6 m				Aug-Dec Decorative.	Yes
T	25 m				Mar-Jun Decorative, fast-growing.	Yes
T	4-10 m				Apr-Jun Decorative. Medicinal. Birds, butterflies.	Yes
T	3-6 m				Oct-Feb Decorative.	Yes
GC	35 cm				All Year Medicinal.	Yes
FP	2-5 m			n/a	n/a Attractive form plant.	No
CL	3 m				Mar-Jul Medicinal. Poisonous to stock.	Yes
GC	50 cm				Oct-Jun Used in mat making.	No
G	1 m				Sep-May Very attractive.	No
G	15 cm				Nov-Feb Densely tufted plant with reddish flowers	No
G	1 m				variable Nest material for birds.	No
G	1.5 m				variable Massive brown flowerhead.	No
G	1.5 m				variable Nest material for birds.	No
CL	5 m				Oct-May Birds.	Yes
CL	10 m				Oct-May Medicinal. Birds.	Yes
B	20 cm				Jul-Feb Used as a protective charm. Good for rockery or as a potplant.	Yes
B	35 cm				Jan-Apr Decorative, large red flowers. Medicinal.	Yes
G	20 cm				Jan-May Lawn grass. Grazed. Stabilises soil.	No
T	2-7 m				Nov-Feb Decorative. Bark stripped for rope.	Yes
CL	10-30 m				Oct-Nov Barrier plant, large spines. Good bonsai.	No
T	3-6 m				Oct-Nov Hedge plant. Butterflies. Wood used. Decorative flat seedpods.	No
CL	3.5 m			bracts	Aug-May Medicinal. Butterflies.	No
T	1.5-9 m				Mar-Jun Edible fruit. Medicinal. Seeds lather as soap. Birds, butterflies.	No
GC	15 cm				All Year Good ground cover.	Yes

Preferred zone	D	C	S	AS	DV	Scientific Name	Common Name	Zulu Name	Nursery availability
scarp-inland		X	X	X	X	<i>Delosperma tradescantiooides</i>	Trailing Delosperma		available
coastal belt-inland		X	X	X	X	<i>Dichrostachys cinerea</i>	Sickle Bush	uGagane	available
coastal belt-inland	X		X	X	X	<i>Diclis reptans</i>	Dwarf Snapdragon	isiNama	uncommon
above scarp		X		X		<i>Dicoma argyrophylla</i>	Doll's Protea	ububendle	uncommon
coastal belt-inland		X	X	X	X	<i>Dierama argyreum</i>	Hairbell		uncommon
coastal belt-inland		X	X	X	X	<i>Dierama latifolium</i>	Hairbell		uncommon
coastal belt-scarp		X	X			<i>Dieteres butcheriana</i>	Forest Iris		uncommon
coastal belt-above scarp		X	X	X		<i>Dieteres grandiflora</i>	Large Wild Iris		common
coastal belt-inland		X	X	X	X	<i>Dieteres iridioides</i>	Small Wild Iris	indawo-yehlathi	common
coastal belt-above scarp		X	X	X		<i>Digitaria diversinervis</i>	Forest Understorey Grass		potential
dunes		X				<i>Dimorphotheca fruticosa</i>	Creeping Marguerite		available
coastal belt-above scarp		X	X	X		<i>Dioscorea cotinifolia</i>	Wild Yam	iNtana	potential
coastal belt	X					<i>Dioscorea dregeana</i>	Wild Yeam	iNgcolo	potential
coastal belt-inland		X	X	X	X	<i>Dioscorea sylvatica</i>	Forest Elephant's Foot	iNgwevu	uncommon
coastal belt-inland		X	X	X	X	<i>Diospyros lycioides subsp. sericea</i>	Blue Bush	umuNqandane	available
coastal belt-kloof		X	X			<i>Diospyros natalensis</i>	Small-leaved Jackal-berry	iKleyane	available
coastal belt-above scarp		X	X	X		<i>Diospyros scabrida</i>	Coastal Bladder-nut	uManzimane	available
coastal belt-kloof		X	X	X		<i>Diospyros simii</i>	Climbing Star-apple	uMnqandane	uncommon
coastal belt-above scarp		X	X	X		<i>Diospyros villosa</i>	Hairy Star-apple		uncommon
coastal belt-inland		X	X	X	X	<i>Dissotis canescens</i>	Pink Wild Tibouchina	iMfeyenkala	available
scarp		X	X			<i>Dissotis princeps</i>	Wild Tibouchina		uncommon
coastal belt-above scarp	X	X	X	X		<i>Distephanus angulifolius</i> *	Trailing Vernonia	iMpqompoqwane	uncommon
dunes-inland		X	X	X	X	<i>Dodonaea viscosa var. angustifolia</i>	Sand Olive		available
coastal belt-above scarp		X	X	X	X	<i>Dombeya cymosa</i>	Natal Wild Pear	iBunda	available
coastal belt-inland			X	X	X	<i>Dombeya rotundifolia</i>	Wild Pear	iNhliyionkhulu	common
coastal belt-above scarp	X	X	X	X	X	<i>Dombeya tiliacea</i>	Forest Wild Pear	iBunda	available
coastal belt-inland		X	X	X	X	<i>Dovyalis caffra</i>	Kei Apple	Mxokolo	common
coastal belt-scarp		X	X			<i>Dovyalis longispina</i>	Natal Apricot	umuNyazuma	available
coastal belt-above scarp		X	X	X	X	<i>Dovyalis rhamnooides</i>	Common Sourberry	uKhamgwingi	available
coastal belt-scarp		X	X			<i>Dracaena aletriformis</i>	Large-leaved Dragon Tree	iGonsi-lehlathi	common
coastal belt-inland		X	X	X	X	<i>Drimia elata [=D. robusta]</i>	Satin Squill	isiklenama	available
dunes-coastal belt						<i>Drimiopsis maculata</i>	Spotted-leaf Drimiopsis	iNjobo	common
scarp		X	X			<i>Drimiopsis maxima</i>	Large-leaved Drimiopsis		uncommon
coastal belt-above scarp		X	X	X		<i>Drypetes arguta</i>	Water Ironplum	uMkhushwane	uncommon
coastal belt-above scarp			X	X		<i>Drypetes gerrardii</i>	Forest Ironplum	uMhlwakela	uncommon
coastal belt-kloof		X	X			<i>Drypetes natalensis</i>	Natal Ironplum	uMkhushwane	available
coastal belt-above scarp			X	X		<i>Duvernoia adhatodoides</i>	Pistol Bush	iHlwlanlane	common
coastal belt-inland		X	X	X	X	<i>Ehretia rigida</i>	Puzzle Bush	umuHlele	common
coastal belt-inland		X	X	X	X	<i>Ekebergia capensis</i>	Cape Ash	uMnyamathi	common
scarp	X		X			<i>Ekebergia pterophylla</i>	Rock Ash		potential
coastal belt-inland		X	X	X	X	<i>Elaeodendron croceum</i> **	Common Saffron	isinama	uncommon
coastal belt-inland		X	X	X	X	<i>Encephalartos natalensis</i>	Natal Cycad	isiGqiki-semkhovu	common
scarp-inland		X	X	X	X	<i>Encephalartos villosus</i>	Ground Cycad	isiGqiki-semkhovu	common
coastal belt-above scarp		X	X	X		<i>Englerophytum natalense</i>	Natal Milkplum	uMthongwane	available
scarp-inland		X	X	X	X	<i>Eragrostis capensis</i>	Heartgrass		available
coastal belt-above scarp	X	X	X	X	X	<i>Eriospermum cooperi</i>	White Fluffy-seed		potential
dune-inland		X	X	X	X	<i>Erythrina humeana</i>	Dwarf Coral Tree	uMsinsana	available
coastal belt-inland		X		X	X	<i>Erythrina latissima</i>	Broad-leaved Coral Tree	UmQongazi	available
coastal belt-inland		X	X	X	X	<i>Erythrina lysistemon</i>	Common Coral Tree	umuSinsi	common

Form	Height	sun, semi, shade	Water needs	Flower colour and season	Other Points: NB Use locally indigenous sources		Drought tolerant
GC	15 cm				All Year	Trailing white-flowered ground cover.	Yes
SH	2-7 m				Oct-Jan	Decorative. Eaten by stock. Wood for poles&fuel. Medicinal, magical.	Yes
GC	15 cm				Sep-May	Edible. Medicinal.	No
GC	40 cm				Jan-May	Purple-silver flowers last well in the vase.	No
B	1 m				Sep-Feb	Clumping grass-like plant with drooping flowers.	No
B	2.5 m				Oct-Jun	Arching wands of pale pink flowers.	No
G	1.2 m				Sep-Dec	A sought-after plant.	No
G	1.5 m				Sep-Feb	Large white flowers all year.	No
G	50 cm				Sep-Feb	White flowers all year.	No
G	40 cm				Jan-Mar	Lawn grass, delicate. Birds, butterflies.	No
GC	25 cm				Sep-Mar	Good stabiliser and groundcover for dunes in full sun.	Yes
CL	15 m				Oct-Jan	Tubers edible. Medicinal.	Yes
CL	15 m				Oct-Jan	Medicinal.	Yes
CL	15 m				Nov-Apr	Medicinal.	Yes
T	2-7 m				Sep-Dec	Edible fruit. Medicinal. Birds, butterflies.	No
T	6-10 m				Oct-Dec	Decorative. Wood for huts, sticks. Small orange "acorns" eaten by birds.	No
SH	2-7 m				Oct-Mar	Attractive leaves and unusual fruits; good hedge or bonsai plant. Scented. Birds.	No
SH	1-7 m				Jun-Sep	Unusual woody climber with large red, edible fruit.	No
SH	1-4 m				Mar-May	Attractive scrambler with hairy maroon-tinged leaves, fruit for birds.	No
HS	1.5 m				Oct-May	Decorative. Medicinal.	No
HS	3 m				Jan-Oct	Medicinal	No
CL	1-4 m				May-Aug	Medicinal. Butterflies.	No
SH	7 m				Apr-Jul	Medicinal. Stabilises sands.	No
SH	2-5 m				Mar-May	Scented flowers. Wood for ornaments. Decorative.	No
T	3-5 m				July-Sep	Scented flowers. Medicinal. Decorative. Butterflies.	No
SH	2-10 m				Apr-Jul	Decorative.	No
SH	3-8 m				Nov-Jan	Edible fruit. Spiny barrier or hedge plant. Birds.	No
T	5-12 m				Sep-Nov	Edible fruit. Thorny barrier plant. Edible fruit attracts birds.	No
T	1-7 m				Oct-Dec	Edible fruit. Barrier plant. Birds.	No
FP	1-4 m				Nov-Feb	Easy grower, good indoors. Flowers scented at night. Bird food and nest plant.	No
B	1.2 m				Sep-Jan	Clumping sun-loving bulb with iridescent tall flower spikes.	Yes
GC	25 cm				Sep-Apr	Medicinal. Potplant or suitable for shady areas where competition is low.	No
B	30 cm				Sep-Dec	Potplant or suitable for shady areas where competition is low.	No
T	3-10 m				Nov-Dec	Edible fruit. Fruit brewed. Wood for building. Birds.	No
T	10-20 m				Sep-Nov	Wood used for sticks.	No
T	3-10 m				Sep-Nov	Flowers & fruit on trunk. Wood for building, sticks, fuel.	No
SH	3-10 m				Feb-Aug	Very decorative, long-lasting white flowers with maroon markings.	No
SH	2-6 m				Jul-Nov	Decorative. Edible fruit. Medicinal, magical. Wood used. Birds, butterflies.	Yes
T	10-35 m				Aug-Dec	Medicinal, magical. Birds. Fodder. Good for providing shade.	No
T	7 m				Jul-Nov	Small tree mainly on rocky slopes	No
T	2-15 m				Oct-May	Medicinal bark. Decorative.	No
FP	3-6 m				Sep-Apr	Decorative. Recent demand by sangomas. Fast-growing.	No
FP	2.5 m				Sep-Apr	Used as a protective charm and to promote longevity. Birds.	No
T	4-10 m				Jun-Jan	Edible fruit. Wood used in hut building. Decorative. Birds.	No
G	90 cm				Sep-May	Medium clumping grass with attractive inflorescence	No
B	40 cm				Aug-Jan	Small plant for sunny areas of garden. Best in groups.	Yes
SH	1.5-4 m				Sep-Apr	Decorative. Medicinal. Fast-growing. Sunbirds.	Yes
T	4-12 m				Aug-Sep	Chunky, deciduous, slow growing tree, large rough leaves, corky bark. Birds	Yes
T	3-10 m				Jun-Oct	Sunbirds. Medicinal. Very decorative.	No

Preferred zone	D	C	S	AS	DV	Scientific Name	Common Name	Zulu Name	Nursery availability
dunes		X	X	X	X	<i>Erythroxylum emarginatum</i>	Common Coca Tree	iKhandaempaka	uncommon
dunes-above scarp		X	X	X	X	<i>Euclea natalensis</i>	Natal Guarri	iDungamuzi	common
coastal belt-inland			X	X	X	<i>Eucomis autumnalis</i>	Pineapple Lily	uMathunga	common
dunes-above scarp		X	X	X		<i>Eugenia albanensis</i>	Dwarf Grassland Eugenia	uMnanjwa	potential
dunes-coastal		X				<i>Eugenia capensis subsp. capensis</i>	Dune Myrtle	isiHlangalula	uncommon
coastal belt-above scarp		X	X	X		<i>Eugenia natalitia</i>	Common Forest Myrtle	uMthintane	uncommon
coastal belt-above scarp		X	X	X		<i>Eulophia speciosa</i>	Sand Orchid	uMhlunge-omhlophe	potential
coastal belt-inland			X	X	X	<i>Euphorbia ingens</i>	Common Tree Euphorbia	uMhlonhlo	uncommon
coastal belt-kloofs	X	X	X		X	<i>Euphorbia triangularis</i>	River Euphorbia	uMlonwane	uncommon
coastal belt-above scarp			X	X		<i>Euphorbia woodii</i>	Wood's Euphorbia	isihlele	uncommon
scarp		X	X			<i>Euryops brevipapposus</i>	Krantz Daisy Bush		available
coastal belt-above scarp		X	X	X	X	<i>Faurea saligna</i>	Transvaal Beech	iSefu	potential
coastal belt-above scarp	X	X	X	X		<i>Felicia erigeroides</i>	Wild Michaelmas Daisy	isithelelo	uncommon
coastal belt-inland		X	X	X	X	<i>Ficus burkei [= F. thonningii]</i>	Common Wild Fig		available
dunes-above scarp		X	X	X	X	<i>Ficus burtt-davyi</i>	Veld Fig	uluZi	available
coastal belt-above scarp		X	X			<i>Ficus craterostoma</i>	Forest Fig	uMthombe	uncommon
coastal belt-inland		X	X	X	X	<i>Ficus glumosa</i>	Mountain Fig	iNkokhokho	uncommon
kloofs-inland		X	X	X	X	<i>Ficus ingens</i>	Red-leaved Rock Fig	uMdende	uncommon
dunes-above scarp						<i>Ficus lutea</i>	Giant-leaved Fig	uMvubu-omkulu	common
coastal belt-inland	X	X				<i>Ficus natalensis</i>	Natal Fig	uMdende	common
coastal belt-above scarp		X	X	X		<i>Ficus polita</i>	Wild Rubber Fig	umuKhiwane	common
coastal belt-inland		X	X	X	X	<i>Ficus sur</i>	Broom Cluster Fig	umuKhiwane	common
coastal belt-above scarp		X	X	X		<i>Flagellaria guineensis</i>	Climbing Bamboo	uGonothi	uncommon
coastal belt-above scarp		X	X	X		<i>Freesia laxa</i>	Woodland Painted Petals		available
coastal belt-above scarp		X	X	X		<i>Garcinia gerrardii</i>	Forest Mangosteen	isibinda	uncommon
coastal belt-inland			X	X	X	<i>Gardenia thunbergia</i>	White Gardenia	umuVala-sangweni	common
kloof-above scarp	X	X	X			<i>Gasteria croucheri (local forms)</i>	Large Gasteria	iMpundu	available
coastal belt-above scarp		X	X	X	X	<i>Gazania krebsiana (local form)</i>	Yellow Gazania	uBendle	uncommon
dunes-coastal belt		X				<i>Gazania rigens</i>	Dune Gazania	uBendle	common
coastal belt-inland	X	X	X	X	X	<i>Gerbera ambigua</i>	Pink and White Gerbera	ucabazane	uncommon
coastal belt						<i>Gladiolus crassifolius</i>	Thick-leaved Gladiolus		potential
coastal belt-inland		X	X	X	X	<i>Gladiolus dalenii</i>	African / Parrot Gladiolus	uHlakahle	available
coastal belt-inland		X	X	X	X	<i>Gladiolus papilio</i>	Butterfly Gladiolus	iButha	potential
dunes-inland		X				<i>Gloriosa superba</i>	Flame Lily	iHlamvu	available
coastal belt-inland		X	X	X	X	<i>Gomphocarpus physocarpus</i>	Milkweed	uMangwazane	available
dunes-coastal belt		X				<i>Grewia caffra</i>	Climbing Raisin	iLalanyathi	uncommon
coastal belt-above scarp		X	X	X		<i>Grewia lasiocarpa</i>	Forest Raisin	iLalanyathi	available
dunes-inland		X	X	X	X	<i>Grewia occidentalis</i>	Cross-berry	iLalanyathi	common
dunes-coastal belt		X	X	X		<i>Gymnosporia harveyana *</i>	Black Forest Spike-thorn	iNgqwangane-yahlathi	uncommon
coastal belt-above scarp			X	X		<i>Gymnosporia heterophylla **</i>	Common Spike-thorn	uSala	uncommon
dunes			X		X	<i>Gymnosporia nemorosa ***</i>	White Forest Spike-thorn	iNgqwangane	uncommon
dunes-inland		X	X	X	X	<i>Haemanthus albiflos</i>	Snowbrush Lily	uZeneke	common
coastal belt-scarp		X	X			<i>Haemanthus deformis</i>	Dwarf Haemanthus	uZeneke	uncommon
coastal belt-inland		X	X	X		<i>Halleria lucida</i>	Tree Fuchsia	Ubuthswala-benoni	common
coastal belt-above scarp		X	X	X		<i>Harpephyllum caffrum</i>	Wild Plum	umuGwenya	common
coastal belt-inland		X	X	X	X	<i>Helichrysum cymosum</i>	Impinho	iMpepho	available
coastal belt-above scarp		X	X	X		<i>Helichrysum kraussii</i>	Straw Everlasting	isiqoqo	available
coastal belt-above scarp		X	X			<i>Helichrysum populifolium</i>	Poplar Helichrysum		available
coastal belt-inland		X	X	X		<i>Heteromorpha trifoliata</i>	Parsley Tree	ubangandlala	available

* [= *Maytenus mossambicensis*]
** [= *Maytenus heterophylla* in part]
*** [= *Maytenus nemorosa*]

Form	Height	sun, semi, shade	Water needs	Flower colour and season	Other Points: NB Use locally indigenous sources	Drought tolerant
SH	2-7 m				Sep-Dec Edible fruit.	No
T	4-10 m				Jun-Oct Scented flowers. Edible fruit. Medicinal. Birds.	No
B	50 cm				Dec-Apr Medicinal.	Yes
SH	40 cm				Sep-Jan Delicious fruit.	No
SH	2-4 m				Jan-Mar Edible black fruit. Used for dune reclamation work. Birds.	No
T	5-10 m				Jun-Dec Edible fruit. Birds.	No
O	1.2 m				Aug-Jan Ornamental. Medicinal, magical.	Yes
FP	7-10 m				Apr-Jul Decorative. Medicinal. Poisonous. Birds.	Yes
FP	4-8 m				Jun-Aug Used for good luck. Birds.	Yes
S	45 cm				Sep-May Decorative. Birds.	No
HS	60 cm				Sep-Mar Smallish dense shrublet, spectacular yellow flowers	No
T	6-8 m				Oct-Jan Wood good for use in furniture.	No
GC	60 cm				Mar-Jul Medicinal	Yes
T	10-20 m			figs	Aug-Dec Tasty fruit. Birds.	Yes
SH/T	2-10 m		-	figs	Sep-Mar Attracts birds. Salt-spray and wind resistant.	Yes
T	20 m			figs	May-Dec Wind resistant. Attracts birds	No
T	3-13 m		-	figs	Aug-Mar Widespread KZN tree, small-medium, rock-splitter. Great for wildlife.	Yes
T	3-12 m		-	figs	Sep-Mar Decorative red leaves. Birds.	Yes
T	10-25 m		-	figs	Jun-Oct Birds. Withstands salt spray, wind resistant and fast growing.	Yes
T	10-20 m		-	figs	Sep-Mar Holds soil well. Invasive roots. Excellent for wildlife.	Yes
T	10-25 m				Sep-Mar Birds. Good in a pot.	Yes
T	10-35 m			figs	All Year Fast growing large tree , beautiful new leaves. Edible figs, birds. Medicinal.	No
CL	to canopy				Oct-Jan Stems used for thatch and baskets. Fruit eaten by birds.	No
B	30 cm				Jun-Aug Free flowering, decorative "iris".	No
T	4-10 m				Oct-Jan Beautiful red new leaves. Medicinal. Decorative. Birds eat fruit.	No
SH	2-5 m				Oct-Feb Scented. Decorative. Slow-growing.	No
S	60 cm				Nov-Feb Aloe like succulent with edible flowers. Medicinal.	Yes
GC	25 cm		-		All Year Decorative. Flowers edible. Medicinal.	Yes
GC	25 cm		-		All Year Decorative. Used as a love charm.	Yes
GC	35 cm				All Year Medicinal.	Yes
B	1 m				All Year Medicinal.	No
B	2 m				Feb-Jun Ornamental. Medicinal. For the vase. Birds.	No
B	1 m				Aug-Feb Used as a lucky charm.	No
B	2 m				Nov-Mar Ornamental. Medicinal. For the vase. Poisonous.	Yes
HS	2 m				All Year Large seed pod balls. Medicinal. Butterflies.	No
CL	2-6 m				Nov-Mar Edible fruit. Square stems used for building. Birds.	No
SH	3-10 m				Jan-Mar Decorative. Birds eat fruit.	No
SH	1-10 m				Oct-Jan Fast growing, edible fruit. Medicinal, magical. Decorative. Birds.	No
T	2-4 m				Oct-Mar Birds eat red fruit. Spiny shrub.	No
SH	2-6 m				Aug-Mar Medicinal. Wood for fuel, utensils. Hedge. Birds.	No
T	3-7 m				Aug-Mar Hedge. Birds.	No
B	40 cm				May-Sep Decorative. Medicinal. Protective charm against lightning.	No
B	10 cm		-		May-Oct Leaves flat-lying, flat growth form. Medicinal.	No
T	2-12 m				Apr-Aug Edible fruit. Medicinal, magical. Wood used. Browsed. Birds.	No
T	10-20 m				Mar-Aug Decorative, fast growing. Edible fruit. Medicinal. Wood used. Birds. Shade.	No
GC	1 m				Sep-Apr Good, bushy groundcover, aromatic leaves.	No
H	1 m				Jun-Sep Good, bushy groundcover, aromatic leaves.	No
HS	2 m				Feb-May Decorative bicoloured leaves.	No
T	2-6 m				Jan-Apr Decorative, shiny copper stems. Medicinal, magical.	No

Preferred zone	D	C	S	AS	DV	Scientific Name	Common Name	Zulu Name	Nursery availability
coastal belt-inland			X	X	X	<i>Heteropyxis natalensis</i>	Lavender Tree	iNkunzi	common
coastal belt	X	X				<i>Hewittia malabarica</i>	Hewitt's Morning Glory	iHlanzandulo	potential
coastal belt+kloof+inland		X	X		X	<i>Hibiscus calyphyllus</i>	Yellow Wild Hibiscus		uncommon
coastal belt+scarp		X				<i>Hibiscus diversifolius</i>	Prickly Hibiscus	uGagane	uncommon
coastal belt+scarp, inland		X	X		X	<i>Hibiscus pedunculatus</i>	Forest Pink Hibiscus	iNdola-ebomvu	common
coastal belt+scarp		X	X			<i>Hibiscus surattensis</i>	Prickly Wild Hibiscus Creeper	uVemvane-olukhulu	uncommon
dunes-coastal belt		X				<i>Hibiscus tiliaceus</i>	Wild Cotton Tree	umuLolwa	available
coastal belt-inland		X	X	X	X	<i>Hippobromus pauciflorus</i>	False Horsewood	uQhume	available
kloof-inland		X	X	X	X	<i>Huernia hystrix</i>	Porcupine Huernia	uSilelo	available
coastal belt,above scarp-inland	X	X		X	X	<i>Hyparrhenia hirta</i>	Thatching Grass		uncommon
coastal belt-inland			X	X	X	<i>Hyperacanthus amoenus</i>	Spiny Gardenia	isiBhembedu	uncommon
coastal belt-inland		X	X	X	X	<i>Hypericum aethiopicum</i>	Small Hypericum	isiMonyo	uncommon
dune-coastal belt	X					<i>Hyphaene coriacea</i>	Lala Palm	iLala	uncommon
coastal belt-inland		X	X	X	X	<i>Hypoestes aristata</i>	Ribbon Bush	uHlonyane	common
coastal belt-inland		X	X	X	X	<i>Hypoestes forskaolii</i>	White Ribbon Bush		available
coastal belt-above scarp	X		X	X		<i>Hypoxis angustifolia</i>	Small Hypoxis		available
coastal belt-inland			X	X	X	<i>Hypoxis hemerocallidea</i>	Star-flower	iNkomfe	common
coastal belt-inland		X	X	X	X	<i>Hypoxis rigidula</i>	Silver-leaved Star-flower	iNkomfe	uncommon
coastal belt-inland	X	X	X	X		<i>Ilex mitis</i>	African Holly	iPhuphuma	uncommon
coastal belt-above scarp	X	X	X	X		<i>Impatiens hochstetteri</i>	Common Wild Impatiens	iHlula	potential
coastal belt-inland		X	X	X	X	<i>Imperata cylindrica</i>	Cottonwool Grass		available
coastal belt-above scarp					X	<i>Indigofera jucunda</i>	River Indigo		common
coastal belt+scarp		X	X			<i>Indigofera micrantha</i>	Small White Indigo		uncommon
scarp		X	X			<i>Indigofera natalensis</i>	Forest Indigo		uncommon
dunes		X				<i>Ipomoea pes-caprae</i>	Dune Morning Glory	iSende-lengulube	uncommon
coastal belt-above scarp		X	X	X		<i>Isoglossa ciliata</i>	Hairy Isoglossa		potential
coastal belt-above scarp		X	X	X		<i>Isoglossa cooperi</i>	Mauve Isoglossa		potential
coastal belt-above scarp		X	X	X		<i>Isoglossa woodii</i>	Buck-wheat	uGomane	potential
dunes-above scarp			X	X		<i>Isolepis prolifera</i>	Trailing Sedge	iNcapha	uncommon
above scarp-inland		X		X	X	<i>Jasminum breviflorum</i>	Bushveld Jasmine		uncommon
coastal belt-inland	X		X	X	X	<i>Jasminum multipartitum</i>	Wild Jasmine	ihlo-lenkosazane	available
coastal belt						<i>Juncus kraussii</i>	Matting Rush	iNcema	common
coastal belt-above scarp		X	X	X		<i>Justicia campylostemon</i>	Honey Justicia	isiPheka	uncommon
coastal belt+scarp		X	X			<i>Justicia petiolaris</i>	Blue Justicia		available
coastal belt-inland		X	X	X	X	<i>Justicia protracta</i>	Veld Justicia		uncommon
dunes-inland		X	X	X	X	<i>Kalanchoe rotundifolia</i>	Common Kalanchoe	iDambisa	available
above scarp-inland		X		X	X	<i>Kalanchoe thrysiflora</i>	White Lady	utshwala-benyoni	available
coastal belt-above scarp		X	X	X		<i>Keetia gueinzii</i>	Climbing Turkey-berry	iGupe	available
coastal belt-inland		X	X	X		<i>Kiggelaria africana</i>	Wild Peach	uMunwe	available
dunes-inland		X	X		X	<i>Kleinia fulgens</i>	Coral Senecio		available
coastal belt-above scarp		X	X	X		<i>Kniphofia gracilis</i>	Graceful Poker		potential
coastal belt		X				<i>Kniphofia pauciflora</i>	Dainty Poker		available
dunes-coastal belt		X				<i>Kniphofia rooperi</i>	Winter Poker	iCacane	available
coastal belt		X				<i>Kniphofia tysonii</i>	Red-hot Poker	iCacane	uncommon
coastal belt		X				<i>Knowltonia bracteata</i>	Blistering Leaves		uncommon
dunes-scarp		X	X			<i>Kraussia floribunda</i>	Rhino-coffee	isikhukhankobe	available
coastal belt-above scarp		X	X	X		<i>Lagenaria sphaerica</i>	Wild Melon	uselwa	potential
coastal belt-above scarp	X	X	X	X		<i>Lagynias lasiantha</i>	Natal Medlar	umuTulwa	uncommon
coastal belt-inland	X	X	X	X	X	<i>Lantana rugosa</i>	Bird's Brandy	utshwala-benyoni	uncommon

Form	Height	sun, semi, shade	Water needs	Flower colour and season	Other Points: NB Use locally indigenous sources	Drought tolerant	
T	4-10 m	☀️☀️	💧	✿	Sep-Mar	Scented leaves used in potpourri. Medicinal. Decorative.	No
CL	2 m	☀️	💧	✿	All Year	Climber with yellow flowers	No
HS	1.5 m	☀️☀️	💧	✿	All Year	Decorative large yellow flowers with maroon centres.	No
SH	3-10 m	☀️☀️	💧	✿	Aug-May	Scrambling, prickly shrub, beautiful large gold flowers with maroon centres	No
HS	1-2 m	☀️☀️	💧	✿	Nov-May	Bark used for twine. Medicinal.	No
HS	1.5 m	☀️☀️	💧	✿	Mar-May	Medicinal.	No
T	4-9 m	☀️	💧 - ⚡	✿	Aug-May	Fast-growing. Decorative.	No
SH	2-4 m	☀️☀️	💧	✿	Jul-Jan	Medicinal.	No
S	20 cm	☀️☀️	💧 - ⚡	✿	All Year	Clumping succulent with unusual star-shaped flowers attract butterflies.	Yes
G	1.5 m	☀️	💧	✿	Sep-Mar	Grazed. Used for thatching and mats/baskets. Stabilises soil.	Yes
T	3-8 m	☀️☀️	💧	✿	Nov-Mar	Scented. Decorative. Edible fruit. Medicinal. Wood for fences.	No
H	40 cm	☀️	💧	✿	Sep-Jan	Medicinal	No
FP	5 m	☀️	💧	✿	Nov-Feb	Edible fruit, sap tapped as a drink, fan-shaped blueish leaves used in basketware.	Yes
HS	1.5 m	☀️	💧	✿	Mar-Aug	Decorative. Leaves used as spinach. Butterflies.	No
GC	60 cm	☀️☀️	💧	✿	Feb-Dec	Butterflies.	No
B	20 cm	☀️	💧	✿	Jul-May	Small "bulb", best in groups or in pots.	No
B	40 cm	☀️	💧	✿	Aug-Apr	Leaves used for rope. Bulb used to blacken floors. Medicinal.	No
B	70 cm	☀️	💧 - ⚡	✿	Aug-Mar	Leaves used for rope. Medicinal.	No
T	8-20 m	☀️☀️☀️	💧 - ⚡	✿	Oct-Feb	Medicinal. Leaves for soap. Wood used. Birds. Decorative.	No
HS	40 cm	☀️	💧	✿	All Year	Soft plant for moist areas.	No
G	1.2 m	☀️	💧 - ⚡	✿	Aug-Jun	Used for thatching, paper, fuel. Stabilises soil. Ornamental.	Yes
SH	2-4 m	☀️	💧	✿	Dec-April	Decorative with profuse pink flowers attractive to butterflies.	No
SH	1-2 m	☀️	💧	✿	Dec-Apr	Very attractive, fine-leaved plant, attractive to bees.	No
SH	1-4 m	☀️	💧	✿	Dec-Mar	Decorative. Wood for fuel & fence poles.	No
GC	5-30 m	☀️	💧	✿	Dec-Mar	Groundcover for dunes.	Yes
GC	90 cm	☀️☀️	💧	✿	Sep-Apr	Flowers enjoyed by bees. Good herbaceous border.	No
GC	1 m	☀️	💧	✿	Feb-Mar	Flowers fairly large and attractive, does well in light shade.	No
HS	2-4 m	☀️	💧	✿	Mar-Jul	Birds, butterflies.	No
GC	30 cm	☀️	💧 - ⚡	✿	variable	Fine-leaved trailing sedge for damp soil.	No
CL	3 m	☀️	💧 - ⚡	✿	Nov-Mar	Scented flowers.	No
CL	3 m	☀️☀️	💧	✿	Aug-Jan	Decorative. Scented. Edible fruit, herb tea, pot-pourri. Birds.	No
G	1.5 m	☀️	💧	✿	Oct-Feb	Used to weave mats and beer strainers. Decorative, good form plant	No
HS	3 m	☀️☀️	💧 - ⚡	✿	Dec-May	Small shrub for lightly shaded areas. Flowers unusual.	No
GC	50cm	☀️	💧	✿	Nov-May	Does well in lightly shaded areas. Prune after flowering.	No
GC	1 m	☀️	💧 - ⚡	✿	Sep-Jun	Small, hardy herbaceous plant for sunny areas.	No
GC	60 cm	☀️☀️	💧 - ⚡	✿	Mar-Dec	Medicinal. Poisonous to stock.	Yes
S	1.5 m	☀️	💧 - ⚡	✿	Feb-Sep	Succulent with scented flowers, attractive foliage. Medicinal.	Yes
CL	canopy	☀️☀️	💧	✿	Sep-Nov	Vigorous climber likes damp areas. Edible fruit. Birds.	No
T	4-13 m	☀️	💧	✿	Aug-Jan	Magical. Wood used. Birds, butterflies.	No
S	60 cm	☀️☀️	💧 - ⚡	✿	Jan-Aug	Ornamental grey-leaved succulent with orange flowers.	Yes
B	1 m	☀️	💧	✿	Dec-Apr	Small poker for sunny, relatively dry areas.	No
B	50 cm	☀️	💧 - ⚡	✿	Sep-Nov	Decorative. Extinct in the wild.	No
B	1.4 m	☀️	💧 - ⚡	✿	Aug-Sep	Decorative. Medicinal. Birds.	No
B	2 m	☀️	💧	✿	Dec-May	Birds.	No
GC	60 cm	☀️	💧 - ⚡	✿	Oct-Mar	Medicinal.	No
SH	2-6 m	☀️☀️	💧 - ⚡	✿	Oct-Jan	Edible fruit. Birds.	No
CL	robust	☀️	💧	✿	Aug-Jun	Vigorous climber. Medicinal.	No
SH	2-5 m	☀️☀️	💧	✿	Oct-Jan	Edible fruit. Birds.	No
HS	1 m	☀️	💧	✿	Sep-May	Edible fruit. Medicinal. Birds, butterflies.	No

Preferred zone	D	C	S	AS	DV	Scientific Name	Common Name	Zulu Name	Nursery availability
coastal belt-inland		X	X	X	X	<i>Ledebouria cooperi</i>	Cooper's Squill	iCubudwana	available
coastal belt-scarp		X	X			<i>Ledebouria floribunda</i>	Large Ledebouria	isikholokhoto	potential
coastal belt-scarp	X		X	X	X	<i>Ledebouria ovatifolia</i>	Oval-leaf Ledebouria	iCubudwana	potential
coastal belt-inland		X	X	X	X	<i>Leonotis dubia</i>	Forest Leonotis	uMcwili	available
coastal belt-inland		X	X	X	X	<i>Leonotis intermedia</i>	Broad-leaved Leonotis	utshwala-bezinyoni obuncane	uncommon
coastal belt-inland		X	X	X	X	<i>Leonotis leonurus</i>	Wild Dagga	utshwala-bezinyoni	common
coastal belt-inland	X	X	X	X	X	<i>Lippia javanica</i>	Lemon Bush	uMsuzwane	uncommon
scarp-above scarp		X	X	X	X	<i>Littonia modesta</i>	Littonia	ihlamvu-lehlathi	potential
coastal belt+scarp-inland		X	X	X	X	<i>Lobelia erinus</i>	Edging Lobelia	iMpenjana	available
coastal belt		X	X			<i>Lobelia pteropoda</i>	Trailing Lobelia		potential
kloof-scarp		X	X			<i>Loxostylis alata</i>	Tierhout	isiBara	available
coastal belt, scarp-above scarp		X	X	X	X	<i>Ludwigia octovalvis</i>	Shrubby Ludwigia		uncommon
coastal belt-above scarp			X	X		<i>Ludwigia stolonifera</i>	Creeping Ludwigia		potential
coastal belt-above scarp		X	X	X	X	<i>Lycium acutifolium</i>	Hedgehog Bush		uncommon
coastal belt-above scarp		X	X	X		<i>Macaranga capensis</i>	Wild Poplar	iPhumela	available
coastal belt-scarp		X	X			<i>Mackaya bella</i>	River Bells	uZwathi	common
coastal belt-above scarp		X	X	X		<i>Macrotyloma axillare</i>	Lime-yellow Pea	umhlanzo-wenhliziyo	potential
dune-above scarp		X	X	X	X	<i>Maerua cafra</i>	Common Bush-cherry	uNtswantsane	potential
coastal belt		X				<i>Maerua nervosa</i>	Natal Bush-cherry	ithandana	potential
coastal belt, kloof		X	X	X		<i>Maerua racemulosa</i>	Forest Bush-cherry	uMphunziso	potential
above scarp-inland			X	X		<i>Maerua rosmarinoides</i>	Needle-leaved Bush-cherry	uNtswantswane	potential
coastal belt-inland	X	X	X	X		<i>Maesa lanceolata</i>	False Assegai	uMagupu	uncommon
coastal belt		X	X		X	<i>Manilkara discolor</i>	Forest Milkberry	uNweba	uncommon
coastal belt+scarp		X	X			<i>Margaritaria discoidea</i> *	Common Pheasant-berry	umadlozane	available
coastal belt-above scarp		X	X	X		<i>Maytenus peduncularis</i>	Cape Blackwood	uMnqayi	potential
dunes-coastal strip		X				<i>Maytenus procumbens</i>	Dune Koko Tree	umuPhophonono	available
coastal belt-inland		X		X	X	<i>Melinis nerviglumis</i>	Bristle-leaved Red Top		available
coastal belt-inland		X		X	X	<i>Melinis repens</i>	Natal Red Top		available
kloof-scarp		X	X			<i>Metarungia pubinervia</i>	Red Sunbird Bush		uncommon
coastal belt-inland		X	X	X	X	<i>Metroxylon aethiopicum</i> **	Kooboo Berry	uMnqayi	uncommon
coastal belt-kloof		X	X			<i>Microsorium punctatum</i>	Bird-nest Fern		uncommon
dunes-coastal belt		X				<i>Microsorium scolopendrium</i>	Dune Fern		available
coastal belt-above scarp		X	X	X		<i>Mikania natalensis</i>	Mikania	iHlozi	potential
coastal belt-above scarp		X	X	X		<i>Millettia grandis</i>	Umsimbithi	uMsimbithi	common
dunes-coastal belt		X				<i>Mimusops caffra</i>	Coastal Red Milkwood	umuHayihayi	common
dunes-above scarp		X	X	X		<i>Mimusops obovata</i>	Red Milkwood	uMnolwe	available
coastal belt, above scarp-inland		X		X	X	<i>Miscanthus capensis</i>	Daba Grass		available
coastal belt-above scarp		X	X	X		<i>Mitriostigma axillare</i>	Small False Loquat		available
coastal belt-above scarp		X	X	X		<i>Momordica balsamina</i>	African Cucumber	iNtshungu	potential
coastal belt-above scarp		X	X	X		<i>Momordica foetida</i>	Gifappel	iNtshungu	potential
coastal belt-above scarp		X	X	X		<i>Monanthotaxis caffra</i>	Dwaba-berry	umaVumba	available
coastal belt-above scarp		X	X	X		<i>Mondia whitei</i>	White's Ginger	uMondi	available
coastal belt-inland	X	X	X	X	X	<i>Moraea spathulata</i>	Large Yellow Moraea	iNdlolothi	uncommon
coastal belt-scarp			X	X		<i>Morella serrata</i> ***	Lance-leaved Waxberry	uLethi	uncommon
coastal belt-above scarp		X	X	X		<i>Murdannia simplex</i>	Murdannia		available
coastal belt-above scarp		X	X	X		<i>Nemesia denticulata</i>	Wild Nemesia		uncommon
dunes-coastal belt		X				<i>Nephrolepis biserrata</i>	Giant Forest Fern		available
coastal belt-above scarp		X	X	X		<i>Nuxia congesta</i>	Common Wild Elder	isiphofane	uncommon
coastal belt-inland		X	X	X		<i>Nuxia floribunda</i>	Forest Elder	umuHlambandlazi	common

* var. *fagifolia*
** [=Cassine *aethiopica*]
*** [=Myrica *serrata*]

Form	Height	sun, semi, shade	Water needs	Flower colour and season	Other Points: NB Use locally indigenous sources	Drought tolerant
B	25 cm				Oct-Feb Attractive spotted and striped leaves. Medicinal.	
B	35 cm				Oct-Jan Medicinal.	No
B	10 cm				Aug-Nov Medicinal.	No
HS	1 m				Feb-Jul Slender, much-branched shrub. Medicinal. Birds.	No
HS	2 m				Jan-Jun Medicinal. Birds.	No
HS	2 m				Feb-Sep Ornamental. Medicinal, charm to repel snakes. Birds, butterflies.	No
HS	2 m				All Year Leaves used in tea. Medicinal, magical. Cupboard freshener. Top butterfly plant.	No
B	2 m				Nov-Jan Medicinal.	No
GC	10-60 cm				All Year Medicinal. Butterflies.	No
GC	80 cm				Dec-May Ground cover for cool areas.	No
T	5-8 m				Aug-Dec Decorative. Medicinal.	No
HS	1.2 m				All Year Birds, butterflies.	No
HS	50 cm				All Year Edge of a pond, partly floats.	No
SH	1 m				All Year Spiny plant, small red fruit eaten by birds.	Yes
T	10-25 m				Oct-Jan Wood for furniture. Birds. Decorative, fast-growing.	No
SH	1-4 m				Aug-Nov Very decorative. Butterflies.	No
CL					Aug-Jun Medicinal.	No
T	2-9 m				Aug-Oct Ground roots used as chicory. Butterflies.	Yes
SH	1-3 m				Jun-Aug Pincushion flowers attract Butterflies.	Yes
SH	1-4 m				Jun-Oct Butterflies.	No
SH	2-5 m				Jun-Oct Butterflies.	No
T	3-5 m				Nov-Aug Scented flowers. Medicinal. Birds.	No
T	5-15 m				Sep-Dec Delicious fruit. Medicinal. Wood for hut building, sticks. Birds.	No
T	5-15 m				Dec-Mar Wood used. Medicinal. Birds, butterflies. Fast-growing, tall tree, rounded crown.	No
T	5-20 m				Oct-May Wood used to make fighting sticks, knobkerries, utensils.	No
SH	3-6 m				May-Aug Hedge. Birds.	No
G	90 cm				All Year Ornamental red inflorescence.	No
G	90 cm				Sep-Jun Stabilises disturbed soil. Used in flower arranging.	No
HS					Mar-May Red flowers attract sunbirds.	No
T	3-15 m				Jan-May Edible. Medicinal. Wood used for fuel, utensils. Birds. Slow-growing.	No
F	80 cm			n/a	n/a Attractive strap-leaved clumping fern	No
GC	50 cm			n/a	n/a Pleasing groundcover for sun or shade. Also for hanging baskets.	No
CL	vigorous				Apr-Sep Scented. Medicinal. Butterflies.	No
T	10-25 m				Nov-Mar Wood utilised. Decorative, velvet seedpods. Butterflies.	No
T	4-10 m				Jun-Oct Edible fruit. Wood used in hut building, boats. Decorative. Birds.	No
T	4-20 m				Sep-Dec Edible fruit. Medicinal. Wood for hut building. Birds.	No
G	2.4 m				Nov-Apr Thatching grass. Ornamental.	No
SH	3 m				Aug-Nov Decorative, scented. Birds.	No
CL	5 m				All Year Edible fruit. Leaves & green fruit cooked as spinach. Medicinal.	No
CL	7 m				Oct-Feb Edible leaves. Medicinal & used as insect repellent. Birds.	No
CL	10 m				May-Sep Edible red fruit; stems used to bind poles. Attracts butterflies.	No
CL	vigorous				Nov-Feb Robust climber. Medicinal. Threatened in the wild.	No
B	60 cm				Aug-Nov Leaves used for rope. Medicinal, magical. Poisonous to stock.	No
SH	2-6 m				Aug-Sep Boiled fruit used for candles/soap.	No
GC	60 cm				Sep-May Ground cover with mauve flowers.	No
GC	60 cm				All Year Annual stems from woody roots.	No
F	2 m			n/a	n/a Magnificent lush grower for shade. Birds' nests.	No
T	3-10 m				May-Jul Scented flowers attracts insects. Wood for posts, fuel.	No
T	3-10 m				May-Sep Scented flowers. Decorative. Medicinal. Wood for fencing.	No

Preferred zone	D	C	S	AS	DV	Scientific Name	Common Name	Zulu Name	Nursery availability
coastal belt-inland		X	X	X	X	<i>Nymphoides thunbergiana</i>	Small Yellow Waterlily		uncommon
coastal belt-scarp+inland		X	X		X	<i>Obetia tenax</i>	Mountain Nettle	uluzi	uncommon
scarp		X	X			<i>Ochna arborea</i>	Cape Plane	umbovane	potential
coastal belt-inland		X	X	X	X	<i>Ochna natalitia</i>	Natal Plane	umuBovu	common
coastal belt-inland		X	X	X	X	<i>Ochna serrulata</i>	Carnival Bush	umuBovu	available
coastal belt-inland		X	X	X	X	<i>Olea europaea subsp. africana</i>	Wild Olive	umuNgumo	common
coastal belt-above scarp		X	X	X		<i>Olea woodiana</i>	Forest Olive	umuNgumo	available
coastal belt-above scarp	X		X	X		<i>Oncinotis tenuiloba</i>	Magic Rope	uMzongazonga	uncommon
coastal belt-above scarp	X		X	X		<i>Oplismenus hirtellus</i>	Creeping Forest Grass		uncommon
coastal belt-scarp		X	X			<i>Oricia bachmannii</i>	Twin-berry Tree	uMozane	potential
coastal belt-inland	X	X	X	X	X	<i>Ornithogalum juncifolium</i>	Grass-leaved Chincherinchee	iNdlothi-encane	uncommon
coastal belt-inland		X	X	X	X	<i>Ornithogalum tenuifolium</i>	Common Chincherinchee		available
coastal belt		X				<i>Oxyanthus pyriformis</i>	Natal Loquat		available
coastal belt-inland		X	X	X	X	<i>Oxyanthus speciosus</i>	Wild Loquat	uMkhulu-omncane	uncommon
dunes-inland	X	X	X	X	X	<i>Panicum maximum</i>	Guinea Grass		available
dunes	X					<i>Passerina rigida</i>	Dune Gonna	uNyenyevu	potential
scarp			X			<i>Pavetta gracilifolia</i>	Small Bride's Bush		potential
coastal belt-scarp+inland		X	X		X	<i>Pavetta lanceolata</i>	Weeping Bride's Bush	umuDleza	common
dunes-coastal belt		X				<i>Pavetta revoluta</i>	Dune Bride's Bush	umuHlabambazo	available
coast-above scarp		X		X		<i>Pavonia burchellii</i>	Dainty Pavonia	indola-empofu	potential
coastal belt-inland		X	X	X	X	<i>Pavonia columella</i>	Pink Pavonia	indola-ebomvu	uncommon
coastal belt-above scarp		X	X	X		<i>Peddiea africana</i>	Green-flower Tree	iNtozane	available
dunes-coastal belt		X				<i>Pelargonium capitatum</i>	Rose-scented Pelargonium		available
scarp			X			<i>Pelargonium mutans</i>	Succulent Pelargonium		uncommon
kloofs-above scarp			X	X	X	<i>Peristrophe cernua</i>	False Buckwheat	uHlalwane oluncane	available
coastal belt-inland		X	X	X	X	<i>Persicaria senegalensis</i>	Silver Snake Root		uncommon
coastal belt-above scarp	X		X	X		<i>Persicaria serrulata</i>	Snake Root		potential
coastal belt-above scarp		X	X	X		<i>Phaulopsis imbricata</i>	Sticky Acanth	uMhlonyanе	uncommon
coastal belt-above scarp	X	X	X	X		<i>Phoenix reclinata</i>	Wild Date Palm	iSundu	common
coastal belt-inland		X		X	X	<i>Pittosporum viridiflorum</i>	Cheesewood	umfusamvu	available
coastal belt-above scarp		X	X	X		<i>Platycarpha glomerata</i>	Ground Rosette	usiphahluka	uncommon
scarp			X			<i>Plectranthus aliciae *</i>	Swedish Ivy	iBoza-lehlathi	common
coastal belt-above scarp			X	X		<i>Plectranthus ambiguus</i>	Large-flowered Plectranthus	iBoza-elincane	available
scarp-above scarp			X	X		<i>Plectranthus ciliatus</i>	Speckled Spur-flower	uMsuthuza	common
coastal belt-inland			X	X	X	<i>Plectranthus ecklonii</i>	Purple Spur-flower		common
coastal belt-inland		X	X	X	X	<i>Plectranthus fruticosus</i>	Forest Spur-flower		available
coastal belt+scarp-above scarp		X	X	X		<i>Plectranthus hadiensis</i>	Wild Purple Salvia	iBoza-lehlathi	available
scarp-above scarp		X	X	X		<i>Plectranthus laxiflorus</i>	Lemon-scented Spur-flower	uBebebe	uncommon
coastal belt-above scarp			X	X		<i>Plectranthus saccatus</i>	Stoep Jacaranda		common
scarp		X	X			<i>Plectranthus thunbergii **</i>	Gossip / Money Plant		available
scarp-inland	X	X	X	X	X	<i>Plectranthus zuluensis</i>	Zulu Spur-flower		common
kloof-scarp+inland		X	X		X	<i>Plumbago auriculata</i>	Blue Plumbago	umaBophe	common
above scarp-inland		X		X	X	<i>Plumbago zeylanica</i>	White Wild Plumbago		uncommon
coastal belt-inland		X	X	X	X	<i>Podocarpus falcatus</i>	Outeniqua Yellowwood	umuSonti	common
coastal belt-inland	X	X	X	X	X	<i>Podocarpus latifolius</i>	Real Yellowwood	umuKhoba	common
coastal belt-above scarp			X	X	X	<i>Pollichia campestris</i>	Waxberry	umhlungulu	uncommon
scarp-above scarp		X	X	X		<i>Polygala fruticosa</i>	Heart-leaved Polygala	ithethe	uncommon
coastal belt		X				<i>Polygala myrtifolia</i>	September Bush		common
coastal belt-inland		X	X	X	X	<i>Polygala virgata</i>	Purple Broom	ithethe	available
coastal belt-above scarp		X	X	X		<i>Potamogeton crispus</i>	Wavy-leaved Pondweed	iSaswane	potential

Form	Height	sun, semi, shade	Water needs	Flower colour and season	Other Points: NB Use locally indigenous sources	Drought tolerant
Aq					Oct-May Floating plant for small ponds.	No
T	3-6 m				Aug-Sep Butterflies; barrier plant (prickly hairs).	Yes
T	3-8 m				Nov-Feb Medicinal. Wood for posts, implement handles. Decorative.	No
T	3-6 m				Sep-Dec Scented yellow flowers, "mickey-mouse" berries. Medicinal. Decorative. Birds.	No
SH	1-6 m				Sep-Nov Medicinal. Red and black fruit. Very decorative.	No
T	5-10 m				Oct-Dec Edible fruit. Medicinal. Wood utilised. Birds.	No
T	10-25 m				Oct-Jan Attractive shape and dark, glossy foliage. Wood for sticks. Birds.	No
CL	canopy				Oct-Nov Scented. Magical.	No
GC	60 cm				Jan-Jun Birds.	No
T	10-20 m				Oct-Dec Butterflies.	No
B	40 cm				Sep-Feb Used traditionally for protection. Very decorative and delicate bulbous plant.	No
B	1 m				Sep-Feb Sap irritates skin. Used as a charm.	No
T	3-10 m				Sep-Jan Decorative. Birds.	No
T	4-10 m				Nov-Feb Birds.	No
G	2 m				Sep-Mar Used to make hay. Birds.	No
SH	2-5 m				Nov-Mar Bark used for twine. Sea-wind resistant.	No
SH	2 m				All Year Decorative.	No
SH	2-3.5 m				Nov-Jan Decorative. Birds.	No
SH	2-6 m				Nov-Mar Decorative. Birds.	No
HS	1 m				Aug-Jun Herbaceous plant for semi-shade borders.	No
HS	1.5 m				Nov-May Decorative. Medicinal.	No
SH	2-5 m				Sep-Feb Scented, attractive container plant. Poisonous. Birds eat fruit.	No
H	1 m				All Year Medicinal. Scented leaves.	Yes
GC	40 cm				Jun-Jan Good in a rockery. A rare KZN endemic.	No
HS	1 m				Apr-Aug Medicinal. Fast-growing, attracts birds and butterflies.	Yes
HS	3 m				Dec-Jun Likes wet, sunny areas.	No
GC	1 m				All Year Medicinal, annual.	No
GC	1 m				Mar-Aug Butterflies.	No
FP	3-10 m				Aug-Oct Edible dates, sap drunk. Used for brooms, baskets. Stabilises streams. Birds.	No
T	3-15 m				Sep-Nov Birds eat red seeds. Bark medicinal. Decorative.	No
GC					Nov-Feb Flat ground cover.	No
GC	50 cm				Feb-Nov Medicinal. Spreading ground cover.	No
GC	1.2 m				Mar-Apr Medicinal. Good container plant.	No
GC	60 cm				Sep-May Used as soap to wash clothes.	No
HS	2.5 m				Feb-May Medicinal. Ornamental. Butterflies.	No
HS	2 m				Jan-May Used as a fly repellent. Butterflies.	No
HS	1.5 m				All Year Medicinal, semi-succulent herb.	Yes
HS	50 cm				Oct-Jun Lemon-scented foliage. Medicinal.	No
H	50 cm				Nov-May Decorative.	No
GC	25 cm				Sep-Jun Excellent groundcover for shade, purplish leaf, white flowers	No
GC	30-50 cm				All year Sprawling, semi-shade loving.	No
SH	1-3 m				Sep-Apr Medicinal. Hedge. Butterflies.	Yes
HS	1 m				Apr-Nov Ground cover.	No
T	10-45 m			seeds	Dec-Jun Good quality timber. Birds. Decorative.	No
T	10-30 m				Dec-Feb Good quality timber. Birds. Decorative.	No
HS	30-80 cm				All Year Edible sweet fruit. Medicinal. Birds.	No
HS	1 m				Aug-May Decorative. Medicinal.	No
HS	1-3 m				May-Sep Decorative, long-flowering.	No
HS	3 m				Oct-Feb Decorative. Medicinal. For the vase.	No
Aq	1 m				Jul-Dec Eaten by ducks, fish; refuge for aquatic insects and molluscs.	No

Preferred zone	D	C	S	AS	DV	Scientific Name	Common Name	Zulu Name	Nursery availability
coastal belt-above scarp		X	X	X		<i>Potamogeton schweinfurthii</i>	Large-leaved Pondweed		potential
coastal belt-above scarp		X	X	X		<i>Potamogeton thunbergii</i>	Broad-leaved Pondweed		potential
coastal belt-inland		X	X	X	X	<i>Protea caffra</i>	Natal Sugarbush	uHlinkihlane	uncommon
scarp-inland	X	X	X	X	X	<i>Protea roupelliae</i>	Silver Sugarbush	uQhambathi	uncommon
coastal belt-above scarp	X	X	X	X		<i>Protorhus longifolia</i>	Red Beech	isiFice	common
coastal belt-inland	X	X	X	X	X	<i>Pseudarthria hookerii</i>	Velvet Bean	uphandosi	uncommon
coastal belt-above scarp			X	X		<i>Pseudechinolaena polystachya</i>	Dwarf Forest Grass		potential
coastal belt-inland		X	X	X	X	<i>Psychotria capensis</i>	Black Bird-berry	iZele	common
dunes-above scarp	X	X	X	X		<i>Psydrax obovata</i>	Quar	umuZilambuzi	available
dunes-inland		X	X	X	X	<i>Ptaeroxylon obliquum</i>	Sneezewood	uMthathe	available
coastal belt-above scarp		X	X	X		<i>Pteris vittata</i>	Finger Fern		uncommon
coastal belt-above scarp		X	X	X		<i>Pupalia lappacea</i>	Creeping Cock's Comb	isinama-esibomvu	available
coastal belt-scarp	X	X	X		X	<i>Putterlickia verrucosa</i>	False Forest Spike-thorn	umuHhabankonkani	uncommon
coastal belt-scarp		X	X	X		<i>Pycnostachys reticulata</i>	Slender Pycnostachys	uHlalwane	available
scarp		X	X	X		<i>Pycnostachys urticifolia</i>	Blue Boys	uHlalwane	available
coastal belt-above scarp		X	X	X		<i>Pyrenacantha scandens</i>	Blouboktoutjie	uMsekelo	uncommon
coastal belt-inland		X	X	X	X	<i>Ranunculus multifidus</i>	Common Buttercup	isijojokazana	uncommon
dune-scarp+inland		X	X	X	X	<i>Rapanea melanophloeos</i>	Boekenhout	isiCalabi	uncommon
coastal belt-inland		X	X	X	X	<i>Rauvolfia caffra</i>	Quinine Tree	umhlambamanzi	common
coastal belt-inland			X	X	X	<i>Rawsonia lucida</i>	Forest Peach	ithambo	uncommon
coastal belt+scarp-above scarp		X	X	X		<i>Rhinacanthus gracilis</i>	Dainty Spurs		uncommon
scarp		X	X			<i>Rhipsalis baccifera</i>	Hanging Wild Cactus	uGebeleweni	potential
dunes-above scarp		X	X	X		<i>Rhoicissus digitata</i>	Baboon Grape	isiNwazi	available
dunes-coastal belt+scarp-inland		X	X	X	X	<i>Rhoicissus rhomboidea</i>	Glossy Forest Grape	isiNwazi	available
coastal belt-above scarp		X	X	X		<i>Rhoicissus tomentosa</i>	Common Forest Grape	isiNwazi	available
dunes-inland		X	X	X	X	<i>Rhoicissus tridentata</i>	Bushman's Grape	isiNwazi	uncommon
coastal belt-inland		X	X	X	X	<i>Rhus chirindensis</i>	Red Currant	iNhlokoshiyane-enkulu	available
kloof-inland		X	X	X	X	<i>Rhus dentata</i>	Nana-berry	iNhlokoshiyane	available
coastal belt-kloof		X	X		X	<i>Rhus gueinzii</i>	Thorny Karree	uMphondo	available
dunes-coastal		X				<i>Rhus natalensis</i>	Natal Karree	iNhlokoshiyane	potential
dunes-coastal belt		X	X			<i>Rhus nebulosa</i>	Sand Taaibos		available
coastal belt-inland	X	X	X	X	X	<i>Rhus pentheri</i>	Common Crow-berry	iNhlokoshiyane	available
coastal belt+scarp	X		X	X		<i>Rhus rehmanniana</i>	Blunt-leaved Currant	iNhlokoshiyane	uncommon
coastal belt+scarp+inland		X	X		X	<i>Rinorea angustifolia</i>	White Violetbush	iThwakela	uncommon
coastal belt-above scarp		X	X	X		<i>Riocreuxia torulosa</i>	Candle-vine	uGwapha	potential
coastal belt+scarp		X	X			<i>Rotheca myricoides</i> *	Blue-flowered Tinderwood	umuBozwa	available
coasta+scarp-inland		X	X	X	X	<i>Rothmannia capensis</i>	Cape Gardenia	uMphazane-mkhulu	uncommon
coastal belt-inland		X	X	X	X	<i>Rothmannia globosa</i>	September Bells	uMphazane	common
coastal belt-inland		X	X	X	X	<i>Ruellia cordata</i>	Veld Violet		available
coastal belt-above scarp		X	X	X	X	<i>Ruttya ovata</i>	White Ruttya	uNhhlawana-lomfula	available
scarp		X	X	X	X	<i>Sandersonia aurantiaca</i>	Christmas Bells	ihlamvu-lasenhla	potential
dune-above scarp			X	X		<i>Sansevieria hyacinthoides</i>	Dune Tongue Plant	isikhwendle	available
coastal belt-above scarp			X	X		<i>Scabiosa columbaria</i>	Wild Scabiosa	iBheka	uncommon
dunes-coastal belt	X	X	X			<i>Scadoxus katherinae</i>	Katherine Wheel	idunjana	available
dunes-coastal belt		X	X			<i>Scadoxus membranaceus</i>	Dwarf Paintbrush	idumbi	uncommon
coastal belt-inland		X	X	X	X	<i>Scadoxus puniceus</i>	Snake Lily	idumbe-liko-Nhloyile	common
coastal belt-above scarp		X	X	X		<i>Schefflera umbellifera</i>	False Cabbage Tree	umuSengembuzi	uncommon
coastal belt-inland	X	X	X	X	X	<i>Schotia brachypetala</i>	Weeping Wattle	umuGxamu	common
coastal belt-above scarp		X	X	X	X	<i>Schrebera alata</i>	Jasmine Tree	umuGwenyahlungulu	available
above scarp-inland			X	X	X	<i>Scilla kraussii</i>	Dwarf Scilla	ichitha	available

* [=Clerodendrum myricoides]

Form	Height	sun, semi, shade	Water needs	Flower colour and season	Other Points: NB Use locally indigenous sources	Drought tolerant
Aq	20 cm				Sep-Apr Aquatic plant with pink flowers.	No
Aq	1 m				Sep-Apr Medicinal. Eaten by ducks and fish.	No
SH	2-6 m				Oct-Mar Nectar attracts birds.	No
T	3-7 m				Aug-Apr Nectar attracts birds.	No
T	10-25 m				Sep-Dec Medicinal. Wood for furniture, planks. Birds eat purple fruit.	No
HS	3 m				Sep-Jun Spindly shrub, best in groups.	No
G	20 cm				Dec-Mar Lawn grass for shade, delicate. Birds.	No
SH	3-8 m				Aug-Jan Decorative, good indoor plant. Medicinal. Birds.	No
T	7-12 m				Nov-Jan Wood for fencing, hut building and fuel. Birds.	No
T	7-20 m				Aug-Nov Scented, decorative autumn foliage. Wood, insect repellent. Medicinal, magical.	No
F	70 cm			n/a	n/a Hardy adaptable fern for containers/retaining blocks	No
GC	90 cm				Oct-Jul Medicinal. Attractive ground cover.	No
SH	1-4 m				Jul-Oct Decorative. Hedge.	No
HS	1 m				Jan-May Used as a mouthwash.	No
HS	1-3 m				Jan-May Fast growing.	No
CL	1-2 m				Aug-Apr Leaves cooked as spinach. Medicinal. Birds?	No
H	50 cm				Sep-May Medicinal.	No
T	3-6 m				May-Jul Medicinal, magical. Wood for furniture. Small purple fruit attracts birds.	No
T	7-15 m				May-Oct Decorative. Medicinal. Wood for drums. Birds and butterflies.	No
T	6-15 m				Sep-Nov Decorative. Butterflies.	No
HS	1.2 m				Mar-Sep Herbaceous plant for semi-shade areas, prune after flowering.	No
S	30-90 cm				All Year Epiphytic. Medicinal. Birds.	Yes
CL	1-2 m				Mar-Jul Attractive scrambler, russet new leaves. Fruit for birds.	Yes
CL	3-6 m				Feb-Jun Edible fruit. Stems for ropes. Decorative. Birds eat fruit.	Yes
CL					Feb-Apr Edible fruit. Decorative. Birds.	Yes
CL	2 m				Feb-Jun Edible fruit. Decorative. Birds.	Yes
T	3-20 m				Aug-Jan Lovely tree with attractive leaves, profuse berries attract birds. Medicinal.	No
SH	1-5 m				Aug-Nov Edible fruit. Decorative. Birds.	No
T	3-8 m				Sep-Feb Edible fruit. Wood for sticks, fuel. Medicinal. Hedge or barrier plant. Birds.	No
SH	3-7 m				Aug-Mar Hedge.	No
SH	1-4 m				Feb-Apr Birds. Hedge.	No
T	2-6 m				Aug-Mar Much branched shrub, profuse brown berries eaten by birds.	No
T	2-6 m				Dec-Apr Wood used for fence poles. Birds.	No
SH	2-7 m				Oct-Dec Scented flowers. Decorative. Birds.	No
CL	5 m				Oct-Apr Scented. Medicinal. Wood used. Decorative.	No
SH	3-12 m				Oct-Jan Use local form. Decorative. Edible fruit. Medicinal.	No
T	5 m				Dec-Feb Decorative, large scented flowers.	No
SH	4-7 m				Aug-Nov Scented. Decorative.	No
GC	20 cm				Sep-Dec Used as a love charm.	No
CL	2 m				Dec-May Scrambling shrub with white, speckled flowers. Butterflies and carpenter bees	No
B	60 cm				Nov-Jan Used as an aphrodisiac and lucky charm. For the vase.	No
GC	60 cm				Sep-May Medicinal, magical. Birds use leaf fibre for nest-building.	Yes
GC	1.5 m				All Year Decorative. Medicinal. Ground to a perfumed powder. Butterflies	No
B	1.2 m				Jan-Mar Used to make love charms. Birds. Decorative.	No
B	50 cm				Dec-Apr Decorative red fruit.	Yes
B	1 m				Jul-Feb Decorative orange flower head. Medicinal. Birds.	Yes
T	6-20 m				Jan-May Medicinal. Decorative. Provides shade. Birds.	No
T	3-22 m				Aug-Nov Beautiful, deciduous. Red flowers, sunbirds. Bonsai. Furniture wood. Medicinal.	No
SH	4-8 m				Oct-Feb Scented. Decorative.	No
B	25 cm				Jan Purple flower spikes.	Yes

Preferred zone	D	C	S	AS	DV	Scientific Name	Common Name	Zulu Name	Nursery availability
above scarp-inland			X	X	X	<i>Scilla natalensis</i>	Blue Squill	ichitha	common
coastal belt-inland		X	X	X	X	<i>Scilla nervosa</i>	White Scilla	ingcino	uncommon
coastal belt-above scarp	X	X	X	X	X	<i>Sclerocarya birrea</i>	Marula	umuGanu	available
coastal belt-above scarp	X	X	X	X	X	<i>ScleroCroton (Sapium) *</i>	Duikerberry	umhlalampunzi	available
coastal belt-above scarp	X	X	X	X	X	<i>Scopolia zeyheri</i>	Thorn Pear	idungamuzi-lehlati	uncommon
dune-above scarp	X	X	X	X	X	<i>Scutia myrtina</i>	Cat-thorn	usondela	available
coastal belt-above scarp	X	X	X	X	X	<i>Seemannaralia gerrardii</i>	Wild Maple	umaweni	uncommon
scarp-kloof	X	X	X	X	X	<i>Selaginella kraussiana</i>	Moss Fern		available
kloof		X	X			<i>Senecio barbertonicus</i>	Succulent Bush Senecio		available
dune-above scarp	X	X	X			<i>Senecio brachypodus</i>	Climbing Forest Senecio		available
coastal belt-above scarp	X	X	X			<i>Senecio deltoideus</i>	Scrambling Senecio		uncommon
coastal belt-above scarp	X	X	X			<i>Senecio macroglossus</i>	Flowering Ivy		common
coastal belt-above scarp	X	X	X			<i>Senecio medley-woodii</i>	Medley-wood's Senecio		uncommon
coastal belt-scarp	X	X				<i>Senecio pleistocephalus</i>	Honey Senecio		uncommon
coastal belt-above scarp	X	X	X	X		<i>Senecio tamoides</i>	Canary Creeper	iHlozi-elikhulu	common
coastal belt-above scarp	X	X	X			<i>Setaria megaphylla</i>	Broad-leaved Bristle Grass		available
coastal belt-above scarp	X	X	X			<i>Setaria sphacelata</i>	Bristle Grass		uncommon
coastal belt-above scarp	X	X	X			<i>Shirakiopsis (Sapium) elliptica</i>	Jumping-seed Tree	uMdlampunzi	uncommon
dunes-above scarp	X	X	X			<i>Sideroxylon inerme</i>	White Milkwood	aMasethole-amhlope	available
dunes-above scarp	X	X	X			<i>Smilax anceps</i>	Leg Ripper	iYala	uncommon
dunes-coastal strip						<i>Solanum geniculatum</i>	Rankaartappel		uncommon
coastal belt-scarp		X				<i>Solanum giganteum</i>	Red Bitter-apple		uncommon
coastal belt-above scarp	X	X	X	X		<i>Spirostachys africana</i>	Tamboti	uMthombothi	available
dunes-above scarp	X	X	X			<i>Stachys aethiopica</i>	Wild Sage		uncommon
coastal belt-scarp	X	X	X	X		<i>Stangeria eriopus</i>	Stangeria	iMfingo	uncommon
coastal belt-above scarp	X	X	X			<i>Stapelia gigantea</i>	Carrion Flower	ililo-elikhulu	available
coastal belt		X				<i>Stenochlaena tenuifolia</i>	Climbing Fern		uncommon
dunes-above scarp	X	X	X			<i>Strelitzia nicolai</i>	Dune Strelitzia	isiGude	common
scarp	X	X	X			<i>Streptocarpus gardenii</i>	Major Garden's Streptocarpus		uncommon
scarp		X	X			<i>Strophanthus speciosus</i>	Common Poison Rope	amaSebele	uncommon
coastal belt-above scarp	X	X	X	X		<i>Strychnos decussata</i>	Cape Teak	uMphathawenkosi	available
coastal belt-above scarp	X	X	X			<i>Strychnos gerrardii</i>	Gulagula	uMguluguhla	available
scarp		X				<i>Strychnos henningsii</i>	Natal Teak	uMqalothi	uncommon
coastal belt-above scarp	X	X	X			<i>Strychnos mitis</i>	Yellow Bitterberry	uManana	uncommon
coastal belt-above scarp		X	X			<i>Strychnos spinosa</i>	Spiny Monkey Orange	uMhlala	common
coastal belt-above scarp	X	X	X			<i>Strychnos usambarensis</i>	Little Monkey Orange	iNdlynge	uncommon
coastal belt-above scarp	X	X	X			<i>Suregada africana</i>	Common Canary-berry	uMhlebezi-omhlope	uncommon
coastal belt-above scarp	X	X	X			<i>Sutera floribunda</i>	Kerriebos	usikisiki-lwehlathi	uncommon
coastal belt-above scarp	X	X	X			<i>Syncolostemon densiflorus</i>	Pink Plume	isidlekesenqomfi	available
coastal belt-above scarp	X	X	X	X		<i>Syzygium cordatum</i>	Water Berry	umdoni	common
scarp		X	X			<i>Syzygium gerrardii</i>	Forest Water Berry	umdoni-wehlati	available
coastal belt-above scarp	X	X	X			<i>Tabernaemontana ventricosa</i>	Forest Toad Tree	uKhamamasane	common
scarp		X				<i>Talbotia elegans</i>	Talbotia		potential
coastal-above scarp		X	X			<i>Tarchonanthus parvicapitulatus **</i>	Wild Camphor Bush	igqebea-elimhlophe	uncommon
coastal belt-above scarp	X	X	X			<i>Tarchonanthus trilobus</i>	Broad-leaved Camphor Bush	isimemela	available
coastal belt-scarp		X	X			<i>Tarenna pavettoides</i>	False Bride's Bush	uMuthi-KaShaka	available
dunes-kloof	X	X				<i>Teclea gerrardii</i>	Zulu Cherry-Orange	umozane	available
dunes-above scarp	X	X	X	X		<i>Tecomaria capensis</i>	Cape Honeysuckle	iNcwincwi	common
coastal belt-above scarp	X	X	X			<i>Tephrosia grandiflora</i>	Pink Bush Pea	ihlozane	available
scarp		X	X			<i>Tephrosia inandensis</i>	White Bush Pea	ihlozane	uncommon

Form	Height	sun, semi, shade	Water needs	Flower colour and season	Other Points: NB Use locally indigenous sources		Drought tolerant
B	1 m				Sep-Dec	Used to make soap. Medicinal. Poisonous to sheep.	Yes
B	40 cm				Sep-Feb	Medicinal.	Yes
T	7-17 m				Jan-Mar	Edible, nutritious fruit. Medicinal. Wood used. Shade-provider. Birds.	Yes
T	4-10 m				Sep-Jan	Medicinal. Wood for building, furniture. "Jumping bean" seeds	No
T	3-15 m				Apr-Sep	Scented. Birds eat fruit.	No
SH	2-15 m				Jan-Jun	Spiny vigorous scrambler, good barrier plant, berries for birds	No
T	4-20 m				Mar-Jun	Wood used for carving. Decorative.	Yes
GC	15 cm					Low spreading groundcover for moist areas	No
HS	2 m				Aug-Sep	Form succulent. Grow in full sun. Low maintenance.	Yes
CL	4-6 m				Apr-Jul	Butterflies.	Yes
CL	1-3 m				Apr-Sep	Prolific herbaceous scrambler, stabilises dunes. Butterflies.	No
CL	1-3 m				Mar-Jul	Attractive non-vigorous climber, lemon daisies.	No
HS	2 m				Jun-Jul	Grey-leaved succulent shrub with yellow daisies for hot, dry areas.	Yes
CL	2-4 m				Nov-Jun	Honey scented climber, attracts butterflies.	Yes
CL	2-10 m				Mar-Jul	Medicinal. Decorative. Birds. Butterflies.	No
G	1-2 m				Sep-Jun	Grazed. Birds esp manekins love the seeds. Butterflies.	No
G	1-2 m				Sep-Jun	Grazed. Ornamental.	No
T	10-20 m				Nov-Mar	Medicinal. Evergreen tree in riverine areas.	No
T	4-15 m				Nov-Apr	Medicinal. Wood for poles, implements and boats. Birds.	No
CL	1-2 m				All Year	Scrambling climber in grassland and thicket	No
GC	30-40 cm				Feb-Aug	Scrambling shrublet with white-mauve flowers and black berries	No
T	2-5 m				Dec-Apr	Medicinal. Leaves used to curdle milk. Birds.	No
T	5-10 m				Jul-Sep	Medicinal, poisonous. Wood used. Insect-repellant. Jumpingbean seeds.	Yes
GC	30 cm				Oct-May	Medicinal.	No
FP	0.5-1,5 m			cones	May-Oct	Rare fern-like form plant. Medicinal. Birds.	No
S	30 cm				Mar-May	Decorative. Medicinal. Butterflies.	Yes
F	2-4 m			n/a	n/a	Decorative new rusty-red foliage.	No
FP	3-12 m				All Year	Decorative. Fast-growing. Screen / windbreak. Roots interfere with walls. Birds.	No
H	20 cm				Nov-Apr	Good pot plant	No
CL	3-20 m				Sep-Dec	Decorative, Striking yellow "spider" flowers.	No
T	3-10 m				Jan-Aug	Medicinal. Poles for building, sticks. Drought resistant. Birds.	No
T	10-25 m				Apr-Nov	Edible fruit.	No
T	3-12 m				Oct-Jan	Medicinal. Timber used. Birds.	No
T	7-20 m				Nov-Feb	Wood for sticks. Fruit eaten by birds.	No
T	3-7 m				Mar-Sep	Edible fruit. Leaves browsed by stock. Medicinal. Wood for fuel.	No
T	3-15 m				Jan-May	Birds eat fruit.	No
SH	4-8 m			tiny	Aug-Oct	Wood used for hut building and sticks.	No
HS	1 m				Jan-May	Medicinal. Much-branched aromatic perennial herb.	No
HS	2 m				Oct-Jun	Decorative and aromatic.	No
T	5-12 m				Sep-Feb	Edible fruit. Medicinal, magical. Wood used. Decorative, fast-growing. Birds.	No
T	15-30 m				Sep-Feb	Edible fruit. Medicinal. Wood for furniture. Birds.	No
T	4-15 m				Sep-Dec	Scented. Decorative. Medicinal. Wood for planks. Toad-like fruit for birds.	No
PP	40 cm				Dec-Mar	Lithophytic plant on krantz faces and rocks. Good container plant.	No
T	5 m				Mar-Nov	Medicinal. Wood used. Binds sand. Withstands salt-spray	Yes
T	2-8 m				Feb-Sep	Small tree, attractive bi-coloured leaves; cream flowers.	No
T	3-8 m				Oct-Feb	Large shrub for damp shade, scented cream flowers in profusion	No
T	3-15 m				Aug-Jan	Neat. Birds and butterflies.	No
SH	3 m				All Year	Ornamental. Medicinal. Good hedge plant. Birds, butterflies.	No
HS	2 m				All Year	Medicinal. Prolific flowering and self-seeding.	No
HS	1 m				All Year	Profuse white flowers.	No

Preferred zone	D	C	S	AS	DV	Scientific Name	Common Name	Zulu Name	Nursery availability
scarp		X	X		X	<i>Tetradenia riparia</i>	Iboza / Ginger Bush	iBoza	common
scarp		X	X	X		<i>Tetraselago natalensis</i>	Blue Haze	usikisiki-lwehlathi	potential
coastal-above scarp		X	X	X		<i>Thelypteris dentata</i>	Frond Fern		uncommon
above scarp		X		X		<i>Themeda triandra</i>	Rooigras		available
coastal belt-above scarp		X	X	X		<i>Thunbergia alata</i>	Black-eyed Susan		common
coastal belt-above scarp		X	X	X		<i>Thunbergia atriplicifolia</i>	Natal Primrose	isiphondo-esincane	uncommon
coastal belt-above scarp		X	X	X		<i>Thunbergia dregeana</i>	Haarbossie	isiphondo	potential
coastal belt-above scarp			X	X		<i>Thunbergia natalensis</i>	Blue Thunbergia	isiphondo-esikhulu	uncommon
dune-coastal belt						<i>Tinospora caffra</i>	Orange Grape Creeper	isidumuke	uncommon
coastal belt-above scarp		X	X	X		<i>Trema orientalis</i>	Pigeonwood	ubathini	common
coastal belt-inland		X	X	X		<i>Tricalysia capensis</i>	Cape Coffee	iNdulwane	uncommon
coastal belt-inland		X	X	X	X	<i>Tricalysia lanceolata</i>	Jackal Coffee	iSanwane	available
coastal belt-above scarp		X	X	X		<i>Tricalysia sonderiana</i>	Coast Coffee	iNkweza	uncommon
coastal belt-above scarp			X	X		<i>Trichilia dregeana</i>	Forest Mahogany	umkhuhlu	common
coastal belt-above scarp		X	X	X		<i>Trichilia emetica</i>	Natal Mahogany	umkhuhlu	common
scarp		X	X			<i>Trichocladus crinitus</i>	Black Hazel	isitha	uncommon
kloof-above scarp		X	X	X		<i>Trichocladus ellipticus</i>	White Hazel	uNgqonci	uncommon
coastal belt-above scarp		X	X	X		<i>Trichocladus grandiflorus</i>	Green Hazel	uGabavu	uncommon
coastal belt-above scarp		X	X	X	X	<i>Trimeria grandifolia</i>	Wild Mulberry	Idlebenlendlovu	available
coastal belt-above scarp		X	X	X	X	<i>Tritonia lineata</i>	Yellow Tritonia	isidwi esimpofu	uncommon
coastal belt-above scarp		X	X	X		<i>Triumfetta pilosa</i>	Burs	uVemvane	potential
above scarp		X		X	X	<i>Tulbaghia acutiloba</i>	Wild Garlic	ishaladi-lezinyoka	uncommon
dune-above scarp		X	X	X		<i>Turraea floribunda</i>	Wild Honeysuckle Tree	umadlozane	available
coastal belt-above scarp		X	X	X		<i>Turraea obtusifolia</i>	Small Honeysuckle Tree		available
coastal belt-above scarp		X	X	X	X	<i>Typha capensis</i>	Bulrush	iNgcongolo	available
coastal belt-above scarp		X	X	X		<i>Urera trinervis</i>	Climbing Nettle		uncommon
coastal belt-above scarp		X	X	X		<i>Uvaria caffra</i>	Small Cluster-pear	iNkonjane	uncommon
coastal belt-inland		X	X	X	X	<i>Vangueria infausta</i>	Natal Wild Medlar	umviyo	available
coastal belt-scarp		X	X			<i>Vangueria randii</i>	Natal Bush Medlar	umviyo-wehlathi	uncommon
coastal belt-above scarp		X	X	X	X	<i>Vepris lanceolata</i>	White Ironwood	uMozane	available
above scarp		X		X	X	<i>Vernonia capensis</i>	Grassland Vernonia		uncommon
coastal belt-above scarp		X	X	X	X	<i>Vernonia natalensis</i>	Silver Vernonia	ileleva	available
coastal belt-above scarp		X	X	X		<i>Vitellariopsis marginata</i>	Natal Bush Milkwood	amasethole / umbumbulu	uncommon
coastal belt-above scarp		X	X	X		<i>Voacanga thouarsii</i>	Wild Frangipani	iNomfi	available
coastal belt-above scarp			X	X	X	<i>Wahlenbergia grandiflora</i>	Giant Bell Flower	umnqantula	potential
coastal belt-above scarp		X	X	X	X	<i>Watsonia densiflora</i>	Natal Watsonia	isidwa	uncommon
coastal belt-above scarp		X	X	X		<i>Watsonia pillansii</i>	Pillan's Watsonia		available
coastal belt-above scarp		X	X	X	X	<i>Wrightia natalensis</i>	Saddle Pod	uMpengende	uncommon
coastal belt-above scarp		X	X	X		<i>Ximenia caffra</i>	Natal Sourplum	uMthundulukea	uncommon
dunes-scarp		X				<i>Xylotheca kraussiana</i>	African Dog-rose	uMbalekani	available
coastal belt-above scarp		X	X	X		<i>Xymalos monospora</i>	Lemonwood	umuHlwehlwe	uncommon
coastal belt-above scarp		X	X	X		<i>Zantedeschia aethiopica</i>	White Arum Lily	intebe	common
above scarp			X	X		<i>Zantedeschia albomaculata</i>	Spotted-leaved Arum	intebe	uncommon
dunes-above scarp		X	X			<i>Zanthoxylum capense</i>	Small Knobwood	amabele-entombi	available
scarp		X	X			<i>Zanthoxylum davyi</i>	Forest Knobwood	umuNungumabele	uncommon
dunes-above scarp			X	X	X	<i>Ziziphus mucronata</i>	Buffalo Thorn	Umlahlankosi	common

Form	Height	sun, semi, shade	Water needs	Flower colour and season	Other Points: NB Use locally indigenous sources		Drought tolerant
HS	2 m				May-Aug	Medicinal tea from leaves. Birds, butterflies. Decorative.	Yes
HS	0.5-1 m				Jan-Jun	Low grassland herb with decorative heads of blue flowers.	No
F	0.5-1 m		-	n/a	n/a	Adaptable fern for moist banks and marsh.	No
G	1 m				Oct-Jul	Grazed, leaf blades reddish when old.	No
CL	4 m				All Year	Ornamental. Butterflies.	No
GC	40cm				Oct-Mar	Love potion, green fruits for hair wash.	No
HS	1 m				Oct-Apr	Medicinal, hair wash.	No
HS	70cm				Oct-Mar	Used as a charm for a happy marriage.	No
CL	5-10 m				Oct-Feb	Orange fruit eaten by birds.	Yes
T	5-15 m				Sep-Mar	Very fast growing. Leaves eaten as spinach. Medicinal. Birds, butterflies.	No
SH	2-5 m				April-Sep	Fruit eaten by birds.	No
T	3-7 m				Jul-Oct	Leaves for flower arranging. Hedge plant. Wood utilised. Birds.	No
SH	8 m				Sep-Dec	Scented. Hedge plant. Birds.	No
T	10-35 m				Oct-Dec	Medicinal. Furniture wood. Shade. Good indoor plant (young). Birds, butterflies.	No
T	5-20 m				Sep-Nov	Medicinal. Wood used. Seeds eaten. Shade-provider. Birds, butterflies.	No
SH	2-4 m				Aug-Dec	Wood used for household implements. Decorative. Orange fruit for birds.	No
SH	3-7 m				Sep-Dec	Decorative goldish flowers with unusual spherical shape. Used for firewood.	No
T	7-15 m				Oct-Dec	Decorative. Uncommon.	No
T	4-10 m				Aug-Feb	Decorative. Birds eat mulberry like fruit.	No
B	40 cm				Aug-Nov	Medicinal.	No
HS	1.5 m				Feb-May	Stems for twine. Used to wash hair. Butterflies.	No
B	15-45 cm				Aug-Nov	Used as culinary herb. Used traditionally to repel snakes.	Yes
T	3-10 m				Sep-Feb	Scented flowers. Decorative. Medicinal, magical. Butterflies and birds.	No
SH	1-3 m				All Year	Decorative. Medicinal.	No
G	1,5-2 m				Dec-Mar	Leaves for weaving. Seeds to stuff pillows. Medicinal. Birds.	No
CL	2-6 m			tiny	Nov-Feb	Attractive-leaved climber clings to rough walls. Butterflies.	Yes
CL					Aug-Mar	Edible fruit. Attracts butterflies.	No
T	3-5 m				Nov-Apr	Edible, nutritious fruit. Medicinal. Considered unlucky. Birds.	No
T	7 m				Oct-Dec	Edible fruit.	No
T	5-20 m				Dec-Jan	Medicinal. Wood used. Birds and butterflies.	No
GC	1 m				Jul-Jan	Ornamental. Butterflies.	No
GC	60 cm				Jul-Jan	Ornamental. Butterflies.	No
T	4-10 m				Sep-Nov	Edible fruit. Decorative red new leaves. Wood for sticks. Birds.	No
T	7-15 m				Aug-Mar	Decorative. Edible large fruit attracts birds. Poles for hut building.	No
HS	70 cm				Aug-Sep	Decorative.	No
B	1.2 m		-		Nov-Jun	Decorative. Medicinal.	No
B	1.2 m				Sep-Apr	Ornamental. For the vase.	No
T	3-8 m				Sep-Nov	Medicinal. Wood used for doors, furniture, punts, net floats.	Yes
SH	1-6 m				Sep-Mar	Tasty fruit. Butterflies.	No
SH	1-7 m				Oct-Feb	Edible fruit. Medicinal. Birds, butterflies. Decorative.	No
T	8-24 m				Nov-May	Wood used for furniture. Characteristic peeling bark. Medicinal. Birds.	No
B	1 m		-		All Year	Ornamental spotted leaves. Edible. Medicinal. For the vase. Birds.	No
B	60cm				Oct-April	Grows in rock outcrops. Medicinal. For the vase. Birds.	No
T	2-15 m		-		Oct-Feb	Birds, butterflies. Medicinal.	No
T	10-24 m				Oct-Jan	Large tree with large woody knobs on trunk. Good timber. Butterflies.	No
T	3-10 m		-		Oct-Jan	Edible fruit. Medicinal, magical. Wood. Spiny, good for wildlife. Decorative.	Yes



APPENDIX B: National Protected Tree List

Tree No.	Botanical Name	English Common Names	Other Common Names
168	<i>Acacia erioloba</i>	Camel Thorn	Kameeldoring (A), Mogohlo (NS), Mogotlho (T)
169	<i>Acacia haematoxylon</i>	Grey Camel Thorn	Vaalkameeldoring (A), Mokholo (T)
467	<i>Adansonia digitata</i>	Baobab	Kremetart (A), Seboi (NS), Mowana (T)
207	<i>Afzelia quanzensis</i>	Pod Mahogany	Peulmahonie (A), Mutokota (V), Inkehli (Z)
251	<i>Balanites maughamii subsp. maughamii</i>	Torchwood	Groendoring (A), Ugobandlovu (Z)
524	<i>Barringtonia racemosa</i>	Powder-puff Tree	Poeierkwasbom (A), Iboqo (Z)
122	<i>Boscia albitrunca</i>	Shepherd's Tree	Witgat (A), Mohlopi (NS), Mothlopi (T), Muvhombwe (V), Umgqomogqomo (X), Umvithi (Z)
198.1	<i>Brachystegia spiciformis</i>	Msasa	Msasa (A)
684	<i>Breonadia salicina</i>	Matumi	Mingerhout (A), Mohlome (NS), Mutu-lume (V), Umfomfo (Z)
527	<i>Bruguiera gymnorhiza</i>	Black Mangrove	Swart-wortelboom (A), Isikhangati (X), Isihlobane (Z)
531.1	<i>Cassipourea swaziensis</i>	Swazi Onionwood	Swazi-uiehout (A)
404	<i>Catha edulis</i>	Bushman's Tea	Boesmanstee (A), Mohlatse (NS), Igqwaka (X), Umhlwazi (Z)
525	<i>Ceriops tagal</i>	Indian Mangrove	Indiese wortelboom (A), Isinkaha (Z)
320	<i>Cleisanthus schlechteri var. schlechteri</i>	False Tamboti	Vals-tamobotie (A), Umzithi (Z)
453.8	<i>Colubrina nicholsonii</i>	Pondo Weeping Thorn	Pondo-treurdoring (A)
539	<i>Combretum imberbe</i>	Leadwood	Hardekool (A), Mohwelere-tshipi (NS), Motswiri (T), Impondondlovu (Z)
570	<i>Curtisia dentata</i>	Assegai	Assegai (A), Umgxina (X), Umagunda (Z)
416	<i>Elaeodendron transvaalensis</i>	Bushveld Saffron	Bosveld-saffraan (A), Monomane (T), Ingwavuma (Z)
436.2	<i>Erythrophysa transvaalensis</i>	Bushveld Red Balloon	Bosveld-rooiklapperbos (A), Mofalatsane (T)
598	<i>Euclea pseudebenus</i>	Ebony Guarri	Ebbehout-ghwarrie (A)
54	<i>Ficus trichopoda</i>	Swamp Fig	Moerasvy (A), Umvubu (Z)
77	<i>Leucadendron argenteum</i>	Silver Tree	Silwerboom (A)
552	<i>Lumnitzera racemosa var. racemosa</i>	Tonga Mangrove	Tonge-wortelboom (A), Isikhaha-esibomvu (Z)
407	<i>Lydenburgia abbottii</i>	Pondo Bushman's Tea	Pondo-boesmanstee (A)
406	<i>Lydenburgia cassinoides</i>	Sekhukhuni Bushman's Tea	Sekhukhuni-boesmanstee (A)
583	<i>Mimusops caffra</i>	Coastal Red Milkwood	Kusrooimelkhout (A), Umthunzi (X), Umkhakhayi (Z)
191	<i>Newtonia hildebrandtii var. hildebrandtii</i>	Lebombo Wattle	Lebombo-wattel (A), Umfomothi (Z)
118	<i>Ocotea bullata</i>	Stinkwood	Stinkhout (A), Umhungulu (X), Umnukane (Z)
373.2	<i>Ozoroa namaquensis</i>	Gariep Resin Tree	Gariep-harpuisboom (A)
238	<i>Philenoptera violacea</i>	Apple-leaf	Appelblaar (A), Mphata (NS), Mohata (T), Isihomohomo (Z)
139	<i>Pittosporum viridiflorum</i>	Cheesewood	Kasuur (A), Kgalagangwe (NS), Umkhwenkwe (X), Umfusamvu (Z)
15	<i>Podocarpus elongatus</i>	Breede River Yellowwood	Breederivier-geelhout (A)
16	<i>Podocarpus falcatus</i>	Outeniqua Yellowwood	Outeniequa-geelhout (A), Mogobagoba (NS), Umkhoba (X), Umsonti (Z)
17	<i>Podocarpus henkelii</i>	Henkel's Yellowwood	Henkel-se-geelhout (A), Umsonti (X)(Z)
18	<i>Podocarpus latifolius</i>	Real Yellowwood	Opregte-geelhout (A), Mogobagoba (NS) Umcheya (X), Umkhoba (Z)
88	<i>Protea comptonii</i>	Saddleback Sugarbush	Barberton-suikerbos (A)
88.1	<i>Protea curvata</i>	Serpentine Sugarbush	Serpentynsuikerbos (A)
147	<i>Prunus africana</i>	Red Stinkwood	Rooi-stinkhout (A), Umkhakhase (X), Umdumezulu (Z)
236	<i>Pterocarpus angolensis</i>	Wild Teak	Kiaat (A), Moroto (NS), Mokwa (T), Mutondo (V), Umvangazi (Z)
526	<i>Rhizophora mucronata</i>	Red Mangrove	Rooi-wortelboom (A), Isikhangathi (X), Umhlume (Z)
360	<i>Sclerocarya birrea subsp. caffra</i>	Marula	Maroela (A), Morula (NS), Umnganu (Z)
303	<i>Securidaca longepedunculata</i>	Violet Tree	Krinkhout (A), Mmaba (T)
579	<i>Sideroxylon inerme subsp.inerme</i>	White Milkwood	Wit-melkhout (A), Ximafana (X), Umakhwelingqane (Z)
226.1	<i>Tephrosia pondoensis</i>	Pondo Fish-poison Pea	Pondo-gifertjie (A)
488	<i>Warburgia salutaris</i>	Pepper-bark Tree	Peperbasboom (A), Molaka (NS), Mulanga (V), Isibaha (Z)
19	<i>Widdringtonia cedarbergensis</i>	Clanwilliam Cedar	Clanwilliam-seder (A)
21	<i>Widdringtonia schwarzii</i>	Willowmore Cedar	Baviaanskloof-seder (A)

APPENDIX C: Protected and Specially Protected Species in terms of the Natal Nature Conservation Ordinance No. 15 of 1974

(Note that these lists are as originally published, and some of the species or common names may have changed.)

Protection Status: Protected Specially Protected

GAME and BIRDS

Scientific Name	Common Names	Scientific Name	Common Names
<i>Cephalophorus monticola</i>	Blue Duiker	<i>Hippotragus equinus</i>	Roan Antelope
<i>Cephalophorus natalensis</i>	Red Bush Duiker	<i>Manis temminckii</i>	Pangolin
<i>Cercopithecus albogularis</i>	Samango Monkey	<i>Oreotragus oreotragus</i>	Klipspringer
<i>Connochaetes gnu</i>	Black Wildebeest	<i>Orycteropus afer</i>	Antbear
<i>Connochaetes taurinus</i>	Blue Wildebeest	<i>Panthera pardus</i>	Leopard
<i>Equus burchelli</i>	Zebra	<i>Raphicerus melanotis</i>	Grysok
<i>Galago crassicaudatus</i>	Bush Baby	<i>Lycaon pictus</i>	Wild Dog
<i>Hippopotamus amphibius</i>	Hippopotamus	<i>Leo panthera</i>	Lion
<i>Hippotragus niger</i>	Sable Antelope	<i>Pelecanus rufescens</i>	Pinkbacked Pelican
<i>Kobus ellipsiprymnus</i>	Waterbuck	<i>Mycteria ibis</i>	Yellowbilled Stork
<i>Neotragus moschatus</i>	Suni	<i>Ciconia ciconia</i>	White Stork
<i>Ourebia ourebi</i>	Oribi	<i>Geronticus calvus</i>	Bald Ibis
<i>Pelea capreolus</i>	Grey Rhebuck	<i>Phoenicopterus ruber</i>	Greater Flamingo
<i>Phacochoerus aethiopicus</i>	Warthog	<i>Phoenicopterus minor</i>	Lesser Flamingo
<i>Raphicerus campestris</i>	Steenbok	<i>Sagittarius serpentarius</i>	Secretary Bird
<i>Redunca arundinum</i>	Reedbuck	<i>Pandion haliaetus</i>	Osprey
<i>Redunca fulvorufula</i>	Mountain Reedbuck	<i>Ardeotis kori</i>	Kori Bustard
<i>Syncerus caffer</i>	Buffalo	<i>Neotis denhami</i>	Stanley Bustard
<i>Taurotragus oryx</i>	Eland	<i>Terathopius ecaudatus</i>	Bateleur
<i>Tragelaphus angasi</i>	Nyala	<i>Gypaetus barbatus</i>	Bearded Vulture
<i>Tragelaphus scriptus</i>	Bushbuck, female	<i>Grus carunculatus</i>	Wattled Crane
<i>Tragelaphus strepsiceros</i>	Kudu	<i>Balearica regulorum</i>	Crowned Crane
<i>Alcelaphus buselaphus</i>	Red Hartebeest	<i>Poicephalus robustus</i>	Brown-necked / Cape Parrot
<i>Anas hottentota</i>	Hottentot Teal	<i>Tauraco corythaix</i>	Knysna Loerie
<i>Anas sparsa</i>	African Black Duck	<i>Bucorvus leadbeateri</i>	Ground Hornbill
<i>Dendrocygna bicolor</i>	Fulvous Whistling Duck	<i>Hirundo atrocaerulea</i>	Blue Swallow
<i>Guttera pucherani</i>	Crested Guineafowl	<i>Falco peregrinus</i>	Peregrine Falcon
<i>Netta erythrophthalma</i>	Southern Pochard	<i>Cryptolybia woodwardi</i>	Woodward's Barbet
<i>Nettapus auritus</i>	Pygmy Goose	<i>Mandingoa nitidula</i>	Green Twinspot
<i>Oxyura maccoa</i>	Macqua Duck	<i>Hypargos margaritatus</i>	Pinkthroated Twinspot
<i>Sarkidiornis melanotos</i>	Knob-billed Duck	<i>Gyps coprotheres</i>	Cape Vulture
<i>Anas smithii</i>	Cape Shoveler	<i>Neophron percnopterus</i>	Egyptian Vulture
<i>Tadorna cana</i>	South African Shelduck	<i>Gypohierax angolensis</i>	Palmut Vulture
<i>Thalassornis leuconotus</i>	Whitebacked Duck		
<i>Acinonyx jubatus</i>	Cheetah		
<i>Alcelaphus lichtensteini</i>	Lichtenstein's Hartebeest		
<i>Ceratotherium simum</i>	Square-lipped / White Rhinoceros		
<i>Loxodonta africana</i>	Elephant (African)		
<i>Damaliscus lunatus</i>	Tsessebe		
<i>Diceros bicornis</i>	Black Rhinoceros		
<i>Giraffa camelopardalis</i>	Giraffe		

AMPHIBIANS, REPTILES and SNAKES

FAMILY <i>Testudinidae</i>	All indigenous Tortoises
<i>Bitis gabonica</i>	Gaboon Adder
<i>Crocodylus niloticus</i>	Nile Crocodile
<i>Varanus niloticus</i>	Nile Monitor Lizard (water leguan)
<i>Varanus exanthematicus</i>	Tree Monitor Lizard (rock leguan)
<i>Python sebea</i>	Python

PLANTS

Scientific Name	Common Names	Scientific Name	Common Names
● ALL plants indigenous to South Africa except those specially protected or unprotected	ALL	● <i>Protea dracomontana</i>	Proteas
● ALL Zamiaceae	All Cycads	● <i>Protea gaguedi</i>	Proteas
● <i>Stangeria eriopus</i>	Stangeria	● <i>Protea roupelliae</i>	Proteas
● ALL Liliaceae	All Lilies, Irises	● <i>Protea simplex</i>	Proteas
● ALL Amaryllidaceae	All Watsonias, Aloes, Blood Flowers	● <i>Protea subvestita</i>	Proteas
● ALL Iridaceae	Clivias, Christmas Bells, Climbing Bells, Crinums, Haworthias, Gladioli, Brunsvigias, Dieramas, Fire Lilies, Catherine Wheels, Wind Balls, Spider Lilies, Butter Lilies, Pineapple Flowers, Red Hot Pokers, Chinkerinchees, Squills, iFafa Lilies, Tulips, Harebells, Grassbells, Chinese Lanterns	● <i>Protea welwitschii subsp. hirta</i>	Proteas
● ALL Orchidaceae	All Orchids	● ALL <i>Adenium</i>	Impala lilies
● ALL Cyathea	All Tree Ferns	● <i>Pachypodium saundersii</i>	Spiny impala lily
● ALL Ceropagia	All Ceropagias	● ALL <i>Stapelia</i>	Succulent Asclepiads
● <i>Gerbera aurantiaca</i>	Hilton daisy	● ALL <i>Huernia</i>	Succulent Asclepiads
● ALL Dioscoreaceae	All Elephants foot	● ALL <i>Caralluma</i>	Succulent Asclepiads
		● ALL <i>Duvalia</i>	Succulent Asclepiads
		● ALL <i>Stultitia</i>	Succulent Asclepiads
		● ALL <i>Brachystelma</i>	Succulent Asclepiads
		● ALL <i>Nymphaeacea</i>	Water lilies
		● ALL <i>Zantedeschia</i>	Arum lilies
		● ALL <i>Velloziaceae</i>	Black-stick lilies, Monkeys tails
		● <i>Ocotea bullata</i>	Black Stinkwood
		● <i>Millettia grandis</i>	Kaffir Ironwood

APPENDIX D: Threatened or Protected Species

listed under the National Environmental Management Act: Biodiversity Act of 2004

In: Invertebrata Am: Amphibia Pi: Pisces Rep: Reptilia Av: Aves Ma: Mammalia Fl: Flora

CRITICALLY ENDANGERED SPECIES

Indigenous species facing an extremely high risk of extinction in the wild in the immediate future

Scientific Name	Common Names	Type
<i>Labeo seeberi</i>	Clanwilliam Sandfish	Pi
<i>Caretta caretta</i>	Loggerhead Sea Turtle	Rep
<i>Dermochelys coriacea</i>	Leatherback Sea Turtle	Rep
<i>Eretmochelys imbricata</i>	Hawksbill Sea Turtle	Rep
<i>Grus carunculatus</i>	Wattled Crane	Av
<i>Hirundo atrocaerulea</i>	Blue Swallow	Av
<i>Neophron percnopterus</i>	Egyptian Vulture	Av
<i>Poicephalus robustus</i>	Cape Parrot	Av
<i>Bunolagus monticularis</i>	Riverine Rabbit	Ma
<i>Chrysospalax villosus</i>	Rough-haired Golden Mole	Ma
<i>Adenium swazicum</i>	Swaziland Impala Lily	Fl
<i>Aloe pillansii</i>	False Quiver Tree	Fl
<i>Diaphananthe millarii</i>	Tree Orchid	Fl

Scientific Name	Common Name	Type
<i>Dioscorea ebutsiniorum</i>	Wild Yam	Fl
<i>Encephalartos aemulans</i>	Ngotshe Cycad	Fl
<i>Encephalartos brevifoliolatus</i>	Escarpment Cycad	Fl
<i>Encephalartos cerinus</i>	Waxen Cycad	Fl
<i>Encephalartos dolomiticus</i>	Wolkberg Cycad	Fl
<i>Encephalartos heenanii</i>	Woolly Cycad	Fl
<i>Encephalartos hirsutus</i>	Venda Cycad	Fl
<i>Encephalartos inopinus</i>	Lydenburg Cycad	Fl
<i>Encephalartos latifrons</i>	Albany Cycad	Fl
<i>Encephalartos middelburgensis</i>	Middelburg Cycad	Fl
<i>Encephalartos nubimontanus</i>	Blue Cycad	Fl
<i>Encephalartos woodii</i>	Wood's Cycad	Fl

ENDANGERED SPECIES

Indigenous species facing a high risk of extinction in the wild in the near future,
although they are not a critically endangered species

Scientific Name	Common Names	Type	Scientific Name	Common Name	Type
<i>Colophon spp – All species</i>	Stag Beetles	In	<i>Damaliscus lunatus</i>	Tsessebe	Ma
<i>Barbus andrewi</i>	Whitefish	Pi	<i>Diceros bicornis</i>	Black Rhinoceros	Ma
<i>Barbus serra</i>	Sawfin	Pi	<i>Equus zebra</i>	Mountain Zebra	Ma
<i>Pristis microdon</i>	Largetooth Sawfish	Pi	<i>Lycaon pictus</i>	African Wild Dog	Ma
<i>Chelonia mydas</i>	Green Turtle	Rep	<i>Neamblysomus gunningi</i>	Gunning's Golden Mole	Ma
<i>Cordylus giganteus</i>	Giant Girdled Lizard	Rep	<i>Ourebia ourebi</i>	Oribi	Ma
<i>Lepidochelys olivacea</i>	Olive Ridley Turtle	Rep	<i>Paraxerus palliates</i>	Red Squirrel	Ma
<i>Psammobates geometricus</i>	Geometric Tortoise	Rep	<i>Petrodromus tetradactylus</i>	4-toed Elephant-shrew	Ma
<i>Anthropoides paradiseus</i>	Blue Crane	Av	<i>Angraecum africæ</i>	Tree Orchid	Fl
<i>Balearica regulorum</i>	Grey Crowned Crane	Av	<i>Encephalartos arenarius</i>	Dune Cycad	Fl
<i>Ephippiorhynchus senegalensis</i>	Saddle-billed Stork	Av	<i>Encephalartos cupidus</i>	Blyde River Cycad	Fl
<i>Gypaetus barbatus</i>	Bearded Vulture	Av	<i>Encephalartos horridus</i>	Eastern Cape Blue Cycad	Fl
<i>Gyps africanus</i>	White-backed Vulture	Av	<i>Encephalartos laevifolius</i>	Kaapsehoop Cycad	Fl
<i>Gyps coprotheres</i>	Cape Vulture	Av	<i>Encephalartos lebomboensis</i>	Lebombo Cycad	Fl
<i>Necrosytes monachus</i>	Hooded Vulture	Av	<i>Encephalartos msinganus</i>	Msinga Cycad	Fl
<i>Pelecanus rufescens</i>	Pink-backed Pelican	Av	<i>Jubaeopsis caffra</i>	Pondoland Coconut	Fl
<i>Scotopelia peli</i>	Pel's Fishing Owl	Av	<i>Siphonochilus aethiopicus</i>	Wild Ginger	Fl
<i>Torgos tracheliotus</i>	Lappet-faced Vulture	Av	<i>Warburgia salutaris</i>	Pepper-bark Tree	Fl
<i>Amblysomus robustus</i>	Robust Golden Mole	Ma	<i>Newtonia hilderbrandi</i>	Lebombo Wattle	Fl

VULNERABLE SPECIES

Indigenous species facing a high risk of extinction in the wild in the medium-term future,
although they are not critically endangered or endangered species

Scientific Name	Common Names	Type	Scientific Name	Common Name	Type
<i>Peripatopsis alba</i>	White Cave Velvet Worm	In	<i>Tyto capensis</i>	Grass Owl	Av
<i>Epinephelus andersoni</i>	Catface Rockcod	Pi	<i>Acinonyx jubatus</i>	Cheetah	Ma
<i>Labeobarbus capensis</i>	Clanwilliam Yellowfish	Pi	<i>Cercopithecus mitis</i>	Samango Monkey	Ma
<i>Labeobarbus kimberleyensis</i>	Vaal-Orange Largemouth Yellowfish	Pi	<i>Chrysospalax trevelyanii</i>	Giant Golden Mole	Ma
<i>Myxus capensis</i>	Freshwater Mullet	Pi	<i>Cricetomys gambianus</i>	Giant Rat	Ma
<i>Oreochromis placidus</i>	Black Tilapia	Pi	<i>Damaliscus pygargus pygargus</i>	Bontebok	Ma
<i>Serranochromis meridianus</i>	Lowveld Largemouth	Pi	<i>Dendrohyrax arboreus</i>	Tree Hyrax	Ma
<i>Trigonocephalus occipitalis</i>	White-headed Vulture	Av	<i>Hippotragus equinus</i>	Roan Antelope	Ma
<i>Aquila rapax</i>	Tawny Eagle	Av	<i>Manis temminckii</i>	Pangolin	Ma
<i>Ardeotis kori</i>	Kori Bustard	Av	<i>Neamblysomus julianae</i>	Juliana's Golden Mole	Ma
<i>Ciconia nigra</i>	Black Stork	Av	<i>Neotragus moschatus</i>	Suni	Ma
<i>Circaetus fasciolatus</i>	Southern Banded Snake Eagle	Av	<i>Otomops martiensseni</i>	Large-eared Free-tailed Bat	Ma
<i>Eupodotis caerulescens</i>	Blue Korhaan	Av	<i>Panthera leo</i>	Lion	Ma
<i>Falco fasciinucha</i>	Taita Falcon	Av	<i>Panthera pardus</i>	Leopard	Ma
<i>Falco naumannii</i>	Lesser Kestrel	Av	<i>Philantomba monticola</i>	Blue Duiker	Ma
<i>Falco peregrinus</i>	Peregrine Falcon	Av	<i>Aloe albida</i>	Grass Aloe	Fl
<i>Geronticus calvus</i>	Bald Ibis	Av	<i>Encephalartos eugene-maraisii</i>	Waterberg Cycad	Fl
<i>Neotis ludwigii</i>	Ludwig's Bustard	Av	<i>Encephalartos ngoyanus</i>	Ngoye Dwarf Cycad	Fl
<i>Polemaetus bellicosus</i>	Martial Eagle	Av	<i>Merwilla plumbea</i>	Blue Squill	Fl
<i>Terathopius ecaudatus</i>	Bateleur	Av	<i>Zantedeschia jucunda</i>	Yellow Arum Lily	Fl



PROTECTED SPECIES

Indigenous species of high conservation value or national importance that require national protection

Scientific Name	English Common Names	Type	Scientific Name	English Common Names	Type
<i>Aloeides clarki</i>	Coega Copper Butterfly	In	<i>Aonyx capensis</i>	Cape Clawless Otter	Ma
<i>Ceratogyrus spp – All</i>	Horned Baboon Spiders	In	<i>Atelerix frontalis</i>	South African Hedgehog	Ma
<i>Echinodiscus bisperforatus</i>	Pansy Shell	In	<i>Ceratotherium simum</i>	White Rhinoceros	Ma
<i>Dromica spp – All</i>	Tiger Beetles	In	<i>Connochaetes gnou</i>	Black Wildebeest	Ma
<i>Graphipterus assimilis</i>	Velvet Ground Beetle	In	<i>Crocuta crocuta</i>	Spotted Hyaena	Ma
<i>Hadogenes spp – All</i>	Flat Rock Scorpions	In	<i>Felis nigripes</i>	Black-footed Cat	Ma
<i>Haliotis midae</i>	South African Abalone	In	<i>Parahyaena brunnea</i>	Brown Hyaena	Ma
<i>Harpactira spp – All</i>	Common Baboon Spiders	In	<i>Leptailurus serval</i>	Serval	Ma
<i>Ichnestoma spp – All</i>	Fruit Chafer Beetles	In	<i>Loxodonta africana</i>	African elephant	Ma
<i>Manticora spp – All</i>	Monster Tiger Beetles	In	<i>Lutra maculicollis</i>	Spotted-necked Otter	Ma
<i>Megacephala asperata</i>	Tiger Beetle	In	<i>Mellivora capensis</i>	Honey Badger	Ma
<i>Megacephala regalis</i>	Tiger Beetle	In	<i>Raphicerus sharpei</i>	Sharpe's Grysbok	Ma
<i>Nigidius auriculatus</i>	Stag Beetle	In	<i>Redunca arundinum</i>	Reedbuck	Ma
<i>Oonotus adspersus</i>	Stag Beetle	In	<i>Vulpes chama</i>	Cape Fox	Ma
<i>Oonotus interioris</i>	Stag Beetle	In	<i>Adenia wilmsii</i>	No common name	Fl
<i>Oonotus rex</i>	Stag Beetle	In	<i>Aloe simii</i>	No common name	Fl
<i>Oonotus sericeus</i>	Stag Beetle	In	<i>Clivia mirabilis</i>	"Oorlogskloof" Bush Lily	Fl
<i>Opisthacanthus spp – All</i>	Creeping Scorpions	In	<i>Disa macrostachya</i>	No common name	Fl
<i>Opistophthalmus spp – All</i>	Burrowing Scorpions	In	<i>Disa nubigena</i>	No common name	Fl
<i>Platychile pallida</i>	Tiger Beetle	In	<i>Disa physodes</i>	No common name	Fl
<i>Prosopocoilus petitclerci</i>	Stag Beetle	In	<i>Disa procera</i>	No common name	Fl
<i>Prothyma guttipennis</i>	Tiger Beetle	In	<i>Disa sabulosa</i>	No common name	Fl
<i>Pterinochilus spp – All</i>	Golden Baboon Spiders	In	<i>Encephalartos altesteinii</i>	Bread Palm	Fl
<i>Pyxicephalus adspersus</i>	Giant Bullfrog	Am	<i>Encephalartos caffer</i>	Breadfruit Tree	Fl
<i>Pyxicephalus edulis</i>	African Bullfrog	Am	<i>Encephalartos dyerianus</i>	Lowveld Cycad	Fl
<i>Anchichoerops natalensis</i>	Natal Wrasse	Pi	<i>Encephalartos friderici-guilielmi</i>	No common name	Fl
<i>Brycinus lateralis</i>	Striped Robber	Pi	<i>Encephalartos ghellinckii</i>	No common name	Fl
<i>Carcharodon carcharius</i>	Great White Shark	Pi	<i>Encephalartos humilis</i>	No common name	Fl
<i>Epinephelus lanceolatus</i>	Brindle Bass	Pi	<i>Encephalartos lanatus</i>	No common name	Fl
<i>Epinephelus tukula</i>	Potato Bass	Pi	<i>Encephalartos lehmannii</i>	No common name	Fl
<i>Hydrocynus vittatus</i>	Tigerfish	Pi	<i>Encephalartos longifolius</i>	No common name	Fl
<i>Latimeria chalumnae</i>	Coelacanth	Pi	<i>Encephalartos natalensis</i>	Natal Giant Cycad	Fl
<i>Lithognathus lithognathus</i>	White Steenbras	Pi	<i>Encephalartos paucidentatus</i>	No common name	Fl
<i>Nothobranchius orthonotus</i>	Spotted Killifish	Pi	<i>Encephalartos princeps</i>	No common name	Fl
<i>Nothobranchius rachovii</i>	Rainbow Killifish	Pi	<i>Encephalartos senticosus</i>	No common name	Fl
<i>Polysteganus undulosus</i>	Seventy-four Seabream	Pi	<i>Encephalartos transvenosus</i>	Modjadje Cycad	Fl
<i>Pristis zijsron</i>	Longcomb Sawfish	Pi	<i>Encephalartos trispinosus</i>	No common name	Fl
<i>Varicorhinus nelspruitensis</i>	Incomati Chiselmouth	Pi	<i>Encephalartos umbeluziensis</i>	No common name	Fl
<i>Bitis gabonica</i>	Gaboon Adder	Rep	<i>Encephalartos villosus</i>	No common name	Fl
<i>Bitis schneideri</i>	Namaqua Dwarf Adder	Rep	<i>Euphorbia clivicola</i>	No common name	Fl
<i>Bradypodion taeniabronchum</i>	Smith's Dwarf Chameleon	Rep	<i>Euphorbia meloformis</i>	No common name	Fl
<i>Cordylus cataphractus</i>	Armidillo Girdled Lizard	Rep	<i>Euphorbia obesa</i>	No common name	Fl
<i>Crocodylus niloticus</i>	Nile crocodile	Rep	<i>Harpagophytum procumbens</i>	Devil's Claw	Fl
<i>Python natalensis</i>	African Rock Python	Rep	<i>Harpagophytum zeyherii</i>	Devil's Claw	Fl
<i>Bucorvus leadbeateri</i>	Southern Ground-Hornbill	Av	<i>Hoodia gordonii</i>	Ghaap	Fl
<i>Circus ranivorus</i>	African Marsh Harrier	Av	<i>Hoodia currorii</i>	Ghaap	Fl
<i>Neotis denhami</i>	Denham's Bustard	Av	<i>Protea odorata</i>	Swartland Sugarbush	Fl
<i>Spheniscus demersus</i>	Jackass Penguin	Av	<i>Stangeria eriopus</i>	No common name	Fl

APPENDIX E - Weed and Invader Plants

listed under the Conservation of Agricultural Resources Act

Botanical name	Common name	Category
<i>Acacia baileyana</i> F.Muell.	Bailey's wattle	3
<i>Acacia cyclops</i> A.Cunn. ex G.Don	Red eye	2
<i>Acacia dealbata</i> Link	Silver wattle	1 (WC) 2 (rest of SA)
<i>Acacia decurrens</i> (Wendl.) Willd.	Green wattle	2
<i>Acacia elata</i> A.Cunn. ex Benth. (<i>A. terminalis</i> misapplied in SA)	Pepper tree wattle	3
<i>Acacia implexa</i> Benth.	Screw-pod wattle	1
<i>Acacia longifolia</i> (Andr.) Willd.	Long-leaved wattle	1
<i>Acacia mearnsii</i> De Wild.	Black wattle	2
<i>Acacia melanoxylon</i> R.Br.	Australian blackwood	2
<i>Acacia paradoxa</i> DC. (= <i>A. armata</i> R.Br.)	Kangaroo wattle	1
<i>Acacia podalyriifolia</i> A.Cunn. ex G.Don	Pearl acacia	3
<i>Acacia pycnantha</i> Benth.	Golden wattle	1
<i>Acacia saligna</i> (Labill.) H.L.Wendl.	Port Jackson/Port Jackson willow	2
<i>Achyranthes aspera</i> L.	Burweed	1
<i>Agave sisalana</i> Perrine	Sisal hemp, Sisal	2
<i>Ageratina adenophora</i> (Spreng.) R.M.King & H.Rob. (= <i>Eupatorium adenophorum</i> Spreng.)	Crofton weed	1
<i>Ageratina riparia</i> (Regel) R.M.King & H.Rob. (<i>Eupatorium riparium</i> Regel)	Mistflower	1
<i>Ageratum conyzoides</i> L.	Invading ageratum	1
<i>Ageratum houstonianum</i> Mill (Excluding cultivars)	Mexican ageratum	1
<i>Ailanthus altissima</i> (Mill.) Swingle	Tree-of-heaven	3
<i>Albizia lebbeck</i> (L.) Benth.	Lebbeck tree	1
<i>Albizia procera</i> (Roxb.) Benth.	False lebbeck	1
<i>Alhagi maurorum</i> Medik. (= <i>A. camelorum</i> Fisch.)	Camel thorn bush	1
<i>Anredera cordifolia</i> (Ten.) Steenis (<i>A. baselloides</i> (Kunth) Baill. misapplied in SA)	Madeira vine, Bridal wreath	1
<i>Araujia sericifera</i> Brot.	Moth catcher	1
<i>Ardisia crenata</i> Sims (<i>A. crispa</i> misapplied in SA)	Coralberry tree, Coral Bush	1 (NP, KZN, MP)
<i>Argemone mexicana</i> L.	Yellow-flowered Mexican poppy	1
<i>Argemone ochroleuca</i> Sweet subsp. <i>Ochroleuca</i> (= <i>A. subfusiformis</i> G.B.Ownbey)	White-flowered Mexican poppy	1
<i>Arundo donax</i> L.	Giant reed, Spanish reed	1
<i>Atriplex lindleyi</i> Moq. Subsp. <i>inflata</i> (F.Müll.) P.G.Wilson	Sponge-fruit saltbush	3
<i>Atriplex nummularia</i> Lindl. Subsp. <i>Nummularia</i>	Old man saltbush	2
<i>Azolla filiculoides</i> Lam.	Azolla, Red water fern	1
<i>Bauhinia purpurea</i> L.	Butterfly orchid tree	3
<i>Bauhinia variegata</i> L.	Orchid tree	3
<i>Bryophyllum delagoense</i> (Eckl. & Zeyh.) Schinz (= <i>B. tubiflorum</i> Harv.; <i>Kalanchoe tubiflora</i> Raym. – Hamet; <i>K. delagoensis</i> Eckl. & Zeyh.)	Chandelier plant	1
<i>Caesalpinia decapetala</i> (Roth) Alston (= <i>C. separia</i> Roxb.)	Mauritius thorn	1
<i>Campuloclinium macrocephalum</i> (Less.) DC. (= <i>Eupatorium macrocephalum</i> Less.)	Pom pom weed	1
<i>Canna indica</i> L. (Excluding hybrid cultivars)	Indian shot	1
<i>Cardiospermum grandiflorum</i> Sw.	Balloon vine	1
<i>Casuarina cunninghamiana</i> Miq.	Beefwood	2
Special condition: Not for use in dune stabilisation		
<i>Casuarina equisetifolia</i> L.	Horsetail tree	2
Special condition: Not for use in dune stabilisation		
<i>Cereus jamacaru</i> DC. (<i>C. peruvianus</i> misapplied in SA)	Queen of the Night	1
<i>Cestrum aurantiacum</i> Lindl.	Yellow or Orange cestrum	1
<i>Cestrum elegans</i> (Brongn.) Schtdl. (= <i>C. purpureum</i> (Lindl.) Standl.)	Crimson cestrum	1
<i>Cestrum laevigatum</i> Schtdl.	Inkberry	1
<i>Cestrum parqui</i> L'Hér.	Chilean cestrum	1
<i>Chromolaena odorata</i> (L.) R.M.King & H.Rob. (<i>Eupatorium odoratum</i> L.)	Chromolaena / Triffid weed	1
<i>Cinnamomum camphora</i> (L.) J.Presl	Camphor tree	1 (NP, KZN and MP)
<i>Cirsium vulgare</i> (Savi) Ten. (= <i>C. lanceolatum</i> Scop.)	Spear thistle, Scotch thistle	1

Botanical Name	Common name	Category
<i>Convolvulus arvensis</i> L.	Field bindweed, Wild morning-glory	1
<i>Cortaderia jubata</i> (Lem.) Stapf	Pampas grass	1
<i>Cortaderia selloana</i> (Schult.) Asch. & Graebn. (Excl. sterile cultivars)	Pampas grass	1
<i>Cotoneaster franchetii</i> Boiss.	Cotoneaster	3
<i>Cotoneaster pannosus</i> Franch.	Silver-leaf cotoneaster	3
<i>Cuscuta campestris</i> Yunck.	Common dodder	1
<i>Cuscuta suaveolens</i> Ser.	Lucerne dodder	1
<i>Cytisus monspessulanus</i> L. (= <i>C. candicans</i> (L.) DC., <i>Genista monspessulana</i> (L.) L. Johnson)	Montpellier broom	1
<i>Cytisus scoparius</i> (L.) Link (= <i>Genista scaparia</i> (L.) Lam.)	Scotch broom	1
<i>Datura ferox</i> L.	Large thorn apple	1
<i>Datura innoxia</i> Mill.	Downy thorn apple	1
<i>Datura stramonium</i> L.	Common thorn apple	1
<i>Echinopsis spachiana</i> (Lem.) Fiedrich & Rowley (= <i>Trichocereus spachianus</i> (Lem.) Riccob.)	Torch cactus	1
<i>Echium plantagineum</i> L. (= <i>E. lycopsis</i> L.)	Patterson's curse	1
<i>Echium vulgare</i> L.	Blue echium	1
<i>Egeria densa</i> Planch. (= <i>Elodea densa</i> (Planch.) Casp.)	Dense water weed	1
<i>Eichhornia crassipes</i> (C.Mart.) Solms	Water hyacinth	1
<i>Elodea canadensis</i> Michx.	Canadian water weed	1
<i>Eriobotrya japonica</i> (Thunb.) Lindl.	Loquat	3
<i>Eucalyptus camaldulensis</i> Dehnh.	Red river gum	2
<i>Eucalyptus cladocalyx</i> F.Muell.	Sugar gum	2
<i>Eucalyptus diversicolor</i> F.Muell.	Karri	2
<i>Eucalyptus grandis</i> W.Hill ex Maiden (<i>E. saligna</i> Sm. (p.p.)	Saligna gum, Rose gum	2
<i>Eucalyptus lehmannii</i> (Schauer) Benth.	Spider gum	1 (WC), 2 (rest of SA)
<i>Eucalyptus paniculata</i> Sm.	Grey ironbark	2
<i>Eucalyptus sideroxylon</i> A.Cunn. ex Woolls	Black ironbark, Red ironbark	2
<i>Eugenia uniflora</i> L.	Pitanga, Surinam cherry	1 (NP, KZN and MP), 3 (rest of SA)
<i>Gleditsia triacanthos</i> L. (Excluding sterile cultivars)	Honey locust, Sweet locust	2
<i>Grevillea robusta</i> A.Cunn. ex R.Br.	Australian silky oak	3
<i>Hakea drupacea</i> (C.F.Gaertn.) Roem. & Schult. (<i>H. suaveolens</i> R.Br.)	Sweet hakea	1
<i>Hakea gibbosa</i> (Sm.) Cav.	Rock hakea	1
<i>Hakea sericea</i> Schrad. & J.C.Wendl.	Silky hakea	1
<i>Harrisia martinii</i> (Labour.) Britton & Rose. (= <i>Eriocereus martinii</i> (Labour.) Riccob.)	Moon cactus, Harrisia cactus	1
<i>Hedychium coccineum</i> Sm.	Red ginger lily	1
<i>Hedychium coronarium</i> J. König	White ginger lily	1
<i>Hedychium flavescens</i> Roscoe	Yellow ginger lily	1
<i>Hedychium gardnerianum</i> (Ker Gawl.)	Kahili ginger lily	1
<i>Hypericum perforatum</i> L.	St. John's wort, Tipton weed	2
Special condition: Controlled cultivation		
<i>Ipomoea alba</i> L.	Moonflower	1 (NP, KZN and MP), 3 (rest of SA)
<i>Ipomoea indica</i> (Burm.f.) Merr. (= <i>I. congesta</i> R.Br.)	Morning glory	1 (NP, KZN and MP), 3 (rest of SA)
<i>Ipomoea purpurea</i> (L.) Roth	Morning glory	3
<i>Jacaranda mimosifolia</i> (Excludes sterile cultivar 'Alba')	Jacaranda	3
All seed producing species (and hybrids) of <i>Lantana</i> that are non-indigenous to Africa.	Lantana, Tickberry, Cherry pie	1
<i>Lepidium draba</i> L. (= <i>Cardaria draba</i> (L.) Desv.)	Pepper-cress, Hoary cardaria, White top	1
<i>Leptospermum laevigatum</i> (Gaertn.) F.Muell.	Australian myrtle	1
<i>Leucaena leucocephala</i> (Lam.) de Wit (= <i>L. glauca</i> Benth.)	Leucaena	1 (WC), 2 (rest of SA)
<i>Ligustrum japonicum</i> Thunb.	Japanese wax-leaved privet	3
<i>Ligustrum lucidum</i> Aiton	Chinese wax-leaved privet	3
Special condition: Only for use as rootstock if authorised by the Executive Official in terms of regulation 15C(5)		
<i>Ligustrum ovalifolium</i> Hassk.	Californian privet	3
<i>Ligustrum sinense</i> Lour.	Chinese privet	3

Botanical Name	Common name	Category
<i>Ligustrum vulgare</i> L.	Common privet	3
<i>Lilium formosanum</i> A. Wallace (= <i>L. longiflorum</i> Thunb. var. <i>formosanum</i> Baker) (<i>L. longiflorum</i> misapplied in SA)	St Joseph's lily, Trumpet lily, Formosa lily	3
<i>Litsea glutinosa</i> (Lour.) C.B.Rob. (= <i>L. sebifera</i> Pers.)	Indian laurel	1
<i>Lythrum salicaria</i> L.	Purple loosestrife	1
<i>Macfadyena unguis-cati</i> (L.) A.H.Gentry	Cat's claw creeper	1
<i>Melia azedarach</i> L.	"Syringa", Persian lilac	3
<i>Metrosideros excelsa</i> Sol. ex Gaertn. (= <i>M. tomentosa</i> A.Rich.)	New Zealand christmas tree	3
<i>Mimosa pigra</i> L.	Giant sensitive plant	3
<i>Montanoa hibiscifolia</i> Benth.	Montanoa / Tree daisy	1
<i>Morus alba</i> L. (Excluding cultivar 'Pendula')	White / Common mulberry	3
Special condition: Only for use as rootstock if authorised by the Executive Official in terms of regulation 15C(5)		
<i>Myoporum tenuifolium</i> G.Forst. subsp. <i>Montanum</i> (R.Br.) Chinnock (= <i>M. montanum</i> R.Br.) (<i>M. acuminatum</i> misapplied in SA)	Manatoka	3
<i>Myriophyllum aquaticum</i> (Vell.) Verdc.	Parrot's feather	1
<i>Myriophyllum spicatum</i> L.	Spiked water-milfoil	1
<i>Nassella tenuissima</i> (Trin.) Barkworth (= <i>Stipa tenuissima</i> Trin.)	White tussock	1
<i>Nassella trichotoma</i> (Nees) Arech. (= <i>Stipa trichotoma</i> Nees)	Nassella tussock	1
<i>Nephrolepis exaltata</i> (L.) Schott (Polypodium exaltatum L., excluding cultivars)	Sword fern	3
<i>Nerium oleander</i> L. (Excluding sterile, double-flowered cultivars)	Oleander	1
<i>Nicotiana glauca</i> Graham	Wild tobacco	1
<i>Opuntia aurantiaca</i> Lindl.	Jointed cactus	1
<i>Opuntia exaltata</i> A.Berger (= <i>Austrocylindropuntia exaltata</i> (A.Berger) Backeb.)	Long spine cactus	1
<i>Opuntia ficus-indica</i> (L.) Mill. (= <i>O. megacantha</i> Salm-Dyck) Excluding all spineless cactus pear cultivars and selections	Mission / Sweet prickly pear	1
<i>Opuntia fulgida</i> Engelm. (<i>O. rosea</i> misapplied in SA.)	Rosea cactus	1
<i>Opuntia humifusa</i> (Raf.) Raf. (<i>O. compressa</i> (Salisb.) J.Macbr. illegitimate)	Creeping / Large flowered prickly pear	1
<i>Opuntia imbricata</i> (Haw.) DC. (= <i>Cylindropuntia</i> (Haw.) Knuth)	Imbricate cactus, Imbricate prickly pear	1
<i>Opuntia lindheimeri</i> Engelm. (= <i>O. tardospina</i> Griffiths)	Small round-leaved prickly pear	1
<i>Opuntia monacantha</i> Haw. (<i>O. vulgaris</i> Mill. misapplied)	Cochineal / Drooping prickly pear	1
<i>Opuntia spinulifera</i> Salm-Dyck	Saucépan cactus, Large roundleaved prickly pear	1
<i>Opuntia stricta</i> (Haw.) Haw. (= <i>O. dillennii</i> (Ker Gawl.) Haw.)	Pest pear of Australia	1
<i>Orobanche minor</i> Sm.	Lesser broomrape, Clover broomrape	1
<i>Paraserianthes lophantha</i> (Willd.) Nielsen (= <i>Albizia lophantha</i> (Willd.) Benth.)	Australian Albizia, Stink bean	1
<i>Parthenium hysterophorus</i> L.	Parthenium	1
<i>Passiflora caerulea</i> L.	Blue passion flower	1
<i>Passiflora mollissima</i> (Kunth) L.H.Bailey	Banana poka, Bananadilla	1
<i>Passiflora suberosa</i> L.	Devil's pumpkin, Indigo berry	1
<i>Passiflora subpeltata</i> Ortega	Granadina	1
<i>Pennisetum setaceum</i> (Forssk.) Chiov. (Excluding sterile cultivar 'Rubrum')	Fountain grass	1
<i>Pennisetum villosum</i> R.Br. ex Fresen.	Feathertop	1
<i>Pereskia aculeata</i> Mill.	Pereskia / Barbados gooseberry	1
<i>Phytolacca dioica</i> L.	Belhambra	3
<i>Pinus canariensis</i> C.Sm.	Canary den	2
<i>Pinus elliotti</i> Engelm.	Slash pine	2
<i>Pinus halepensis</i> Mill.	Aleppo pine	2
<i>Pinus patula</i> Schltdl. & Cham.	Patula pine	2
<i>Pinus pinaster</i> Aiton	Cluster pine	2
<i>Pinus radiata</i> D.Don	Radiata pine, Monterey pine	2
<i>Pinus roxburghii</i> Sarg. (= <i>P. longifolia</i> Roxb.)	Chir pine, longifolia pine	2
<i>Pinus taeda</i> L.	Loblolly pine	2
<i>Pistia stratiotes</i> L.	Water lettuce	1
<i>Pittosporum undulatum</i> Vent.	Australian cheesewood, Sweet pittosporum	1
<i>Plectranthus comosus</i> Sims (= <i>Coleus grandis</i> Cramer) (<i>Plectranthus barbatus</i> Andr. Misapplied in SA)	'Abyssinian' coleus, Woolly plectranthus	3

Botanical Name	Common name	Category
<i>Pontederia cordata</i> L.	Pickerel weed	3
<i>Populus alba</i> L.	White poplar	2
<i>Populus x canescens</i> (Aiton) Sm.	Grey poplar, Matchwood poplar	2
<i>Prosopis glandulosa</i> Torr. Var. <i>torreyana</i> (Benson) Johnst. (and hybrids)	Honey mesquite	2
<i>Prosopis velutina</i> Wooton (and hybrids)	Velvet mesquite	2
<i>Psidium cattleianum</i> Sabine (= <i>P. littorale</i> Raddi var. <i>longipes</i> (O.Berg) Fosb.)	Strawberry guava	3
<i>Psidium guajava</i> L. (and hybrids)	Guava	2
<i>Psidium guineense</i> Sw.	Brazilian guava	3
<i>Psidium x durbanensis</i> Bajnath ined.	Durban guava	1
<i>Pueraria lobata</i> (Willd.) Ohwi	Kudzu vine	1
<i>Pyracantha angustifolia</i> (Franch.) C.K.Schneid. (Excluding cultivars)	Yellow firethorn	3
<i>Pyracantha crenulata</i> (D.Don) M.Roem.	Himalayan firethorn	3
<i>Rhus succedanea</i> L. (= <i>Toxicodendron succedaneum</i> (L.) Kuntze	Wax tree	1
<i>Ricinus communis</i> L	Castor-oil plant	2
<i>Rivina humilis</i> L.	Rivina, Bloodberry	1
<i>Robinia pseudoacacia</i> L.	Black locust	2
Special condition: Only for use as rootstock if authorised by the Executive Official in terms of regulation 15B(10)		
<i>Rorippa nasturtium-aquaticum</i> (L.) Hayek (= <i>Nasturtium officinale</i> R.Br.)	Watercress	2
<i>Rosa rubiginosa</i> L. (= <i>R. eglanteria</i> L.)	Eglantine, Sweetbriar	1
<i>Rubus cuneifolius</i> Pursh and hybrid <i>R. x proteus</i> C.H.Stirt.	American bramble	1
<i>Rubus fruticosus</i> L. agg.	European blackberry	2
<i>Salix babylonica</i> L. – not to be confused with the indigenous <i>S. mucronata</i> Thunb. (= <i>S. capensis</i> , <i>S. subserrata</i> , <i>S. woodii</i>)	Weeping willow	2
<i>Salix fragilis</i> L. – not to be confused with the indigenous <i>S. mucronata</i> Thunb. (= <i>S. capensis</i> , <i>S. subserrata</i> , <i>S. woodii</i>)	Crack or brittle willow	2
<i>Salvinia molesta</i> D.S.Mitch. (and other species of the Family Salviniaceae)	Kariba weed	1
<i>Schinus terebinthifolius</i> Raddi	Brazilian pepper tree	1 (KZN), 3 (rest of SA)
<i>Senna bicapsularis</i> (L.) Roxb. (= <i>Cassia bicapsularis</i> L.)	Rambling cassia	3
<i>Senna didymobotrya</i> (Fresen.) Irwin & Barneby (= <i>Cassia didymobotrya</i> Fresen.)	Peanut butter cassia	3
<i>Senna pendula</i> (Willd.) Irwin & Barneby var. <i>glabrata</i> (Vogel) Irwin & Barneby (= <i>Cassia coluteoides</i> Collad.)		3
<i>Sesbania punicea</i> (Cav.) Benth.	Red sesbania	1
<i>Solanum elaeagnifolium</i> Cav.	Silver-leaf bitter apple	1
<i>Solanum mauritianum</i> Scop.	Bugweed	1
<i>Solanum seaforthianum</i> Andr.	Potato creeper	1
<i>Solanum sisymbriifolium</i> Lam.	Wild tomato, Dense-thorned bitter apple	1
<i>Sorghum halepense</i> (L.) Pers.	Johnson grass, Aleppo grass	2
<i>Spartium junceum</i> L.	Spanish broom	1
<i>Syzygium cumini</i> (L.) Skeels	Jambolan	3
<i>Syzygium jambos</i> (L.) Alston	Rose apple	3
<i>Tamarix chinensis</i> Lour.	Chinese tamarisk	1 (NC, WC and EC), 3 (rest of SA)
<i>Tamarix ramosissima</i> Ledeb.	Pink tamarisk	1 (NW and EC), 3 (rest of SA)
<i>Tecoma stans</i> (L.) Kunth	Yellow bells	1
<i>Thelechitonia trilobata</i> (L.) H.Rob. & Cuatrec. (= <i>Wedelia trilobata</i> (L.) A.Hitchc.)	Singapore daisy	1 (KZN), 3 (rest of SA)
<i>Thevetia peruviana</i> (Pers.) K.Schum. (= <i>T. nerifolia</i> A.Juss. ex Steud.)	Yellow oleander	1
<i>Tipuana tipu</i> (Benth.) Kuntze (= <i>T. speciosa</i> Benth.)	Tipu tree	3
<i>Tithonia diversifolia</i> (Hemsl.) A.Gray	Mexican sunflower	1
<i>Tithonia rotundifolia</i> (Mill.) S.F.Blake	Red sunflower	1
<i>Toona ciliata</i> M.Roem. (= <i>Cedrela toona</i> Rottler)	Toon tree	3
<i>Triplaris americana</i> L.	Triplaris, Ant Tree	1
<i>Ulex europaeus</i> L.	European gorse	1
<i>Xanthium spinosum</i> L.	Spiny cocklebur	1
<i>Xanthium strumarium</i> L.	Large cocklebur	1

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