

ZIMBALI GARDEN MAINTENANCE

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Guidelines for Garden Maintenance Contractors at the Zimbali Coastal Resort.

The Estate has positioned itself to use the local coastal vegetation as its landscaping theme. There are two primary reasons:

- The first being to enable the natural inhabitants of the Coastal Resort, like the Bushbuck, Common and Blue Duiker being the three most visible manifestations of this wildlife, to sustain themselves in the remnant patches of cover remaining after development.*
- The second reason is to make the human habitat as attractive for humans as it is for the local wildlife. To this end Zimbali has achieved this goal in that landscapers and owners “complain” that their garden plants are browsed and in some case over browsed.*

By using Bushbuck Fodder plants and other productive plant species used by all forms of wildlife including the human residents of the new western sections will contribute to the conservation efforts of the whole Resort.

On the new western precincts of the Resort there are less open space reservations as were present on the eastern side. With this in mind it is important that residents plant up their whole property not just the footprint area as was the case on the eastern side.

Again residents and their landscapers are encouraged to make use of the ZEMA professional environmental team to obtain the necessary advice as to which plants are best suited to the particular site conditions.

*ZEMA also would like to encourage residents to use appropriate plants so that tall trees **do not** block the views of the ocean in 10 years from the planting date. Rather use the productive shrubs that will give the privacy that you need, the cover and shelter the wildlife need but plus not create more work and expense when pruning needs to be thought about.*

This document is written in an attempt to remind owners and maintenance contractors of the need to enhance habitat value in your own gardens and those that contractors maintain on behalf of the owners.

On the original section of Zimbali the homes were built within the existing forest and many of the sea views were “blocked” by vegetation and ZEMA has a policy of opening port holes through the vegetation to allow for partial views of the ocean beyond.

There is a clear policy now for the trimming and pruning of tree and shrub branches touching buildings. The policy for opening “windows” for creating sea views is also in place.

Contractors and owners have generally adhered to the rules regarding pruning of vegetation around their houses and also pruning for views.

What ZEMA now would like to do is encourage owners to redirect the maintenance effort of their small gardens to a level that allows wildlife to have the best habitat that humans can provide without impinging unnecessarily on the human habitat.

Remember that if you buy at Zimbali you know before you sign your purchase agreement that this is a forest resort and that dense vegetation is part of what a forest is and that this vegetation gives you the privacy that you require and even demand from your other human neighbours.

Architects, Estate Agents and Landscape Contractors that work on the Estate need to know what the procedure is for opening sea views from forested sites and the types of plants that are suitable for the particular gardening requirements at Zimbali.

To this end ZEMA would like to ask that no raking of leaves be carried out on the planted sections of garden beds. It is not necessary to rake the soul out of the soil. The leaf “litter” is the compost that gets drawn into the soil by woodlice, earthworms and termites that then break down the leaves into the basic elements that are the nutrients that the plants need to grow. This vegetation in turn feeds and shelters the various animals on the Estate. You really only have to sweep or rake the sealed surfaces like pathways, decks and driveways. The leaves swept up here should then be scattered on the surface of the soil under shrubs and trees on your property. The added leaf layer of mulch acts as blotting paper

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to prevent water runoff and the subsequent soil erosion. This is especially noticeable on the steeper sites at Zimbali.

In fact this layer of leaves is your natural compost heap. Instead of piling the leaves in a conventional heap, or worse still, placing the leaves into black plastic bags for removal to a municipal landfill site. This organic matter stays on your property and becomes nutrients for the plants and soil. ZEMA has a wood chipping operation on the Resort where suitable trimmings of branches are chipped and these chips along with leaves swept up along paths are returned to the verges within the Estate. Even the leaves blown by the motorised blowers are blown back into the undergrowth along the road verges. This natural composting process saves ZEMA many thousands of Rands annually because ZEMA does not have to purchase as much commercially produced pine bark based compost.

These wood chips along with soil berms on the steeper sites help with the stormwater control on the various private and public sites. The berms physically slow the water and the organic matter in the form of chips helps to loosen the soil and allow for a faster infiltration of runoff water into a sandy soils. This surface stormwater control system has been in operation throughout Zimbali from the very beginning. Only certain very steep sites have underground piped stormwater controls.

An invisible advantage to all this leaf litter and wood chippings is that the soil fungi that are essential for healthy forest plant growth are able to live and absorb, as well as release, nutrients into the soil thus making these nutrients more readily available to the plants via their roots. These chippings are a natural inoculum for the soil especially in new gardens that are being installed on the depauperate soils of the abandoned canefields. Finally with the added fungal activity there are more termites and other subsurface organisms that feed the localised and increasingly rare Giant Legless Lizard.

A combination of compost mixed with wood chippings from the site and granular fertiliser on the Berea Red soils of Zimbali is a must. Especially on the new gardens that are being installed. The recommended rate of application for the Zimbali soils is 50grams/m² of 5:1:5 (28) or 2:3:2 (22). We would also recommend an application of Dolomitic Lime at 150grams/m² on all new garden installations. For optimal plant growth it is recommended that fertiliser and compost be added twice a year in early spring around August and then in mid summer during December to gardens in high sunlight areas for the first 3 growing seasons after planting the rate here would be 30grams/m² of 5:1:5 (28) or 2:3:2 (22). For lawn areas this application is done at the same frequency as above but for the life of the lawn. During the winter months let the garden rest and no fertilising or excessive watering need be done at all.

It is not necessary to disturb the soil by digging it over if the leaves are left in place. The digging damages the surface roots of your plants and also weakens the plants. Only dig the soil to remove weeds. Many of the so-called "weeds" in these natural plantings are actually local plants that are food plants for the various types of wildlife.

As far as the density of plants/m² is concerned ZEMA requires that groundcovers be planted at 10 plants/ m². On steeper slopes or embankments a density of 15 plants/m² is recommended. Larger plants in 1 to 3 litre packets is also recommended over the use of rooted cuttings known as "plugs" the larger plants have more established root systems and more vegetative growth to establish more quickly and be more resilient to Bushbuck browsing.

Shrubs are planted at 1shrub/m² as a minimum specification on any site.

Trees are planted when the space between buildings allows for the use of large trees.

Do not plant trees over services like sewer lines, water, telephone or electricity mains cables, stay away from soak pits and do not plant trees under the eaves of buildings.

Remember also to cater for future views out of the property its pointless planting a tree that will have to be pruned after five or ten years growth. Rather use a shrub in this position.

The numbers of plants to be used per unit area are only a guide and a **minimum** standard.

Domestic versus industrial type plantings

Because of the mix of uses on the Estate there are places that are common ground that have a domestic small scale feel to the plantings. Then on the other end of the scale are domestic

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gardens trying to become larger scale than suite the conditions. For example beds of single species are best used for visual effect around the hotel and road entrances but “detailed many species plantings” are better suited to the residential gardens where more attention to detail and care can be given by the resident and the garden maintenance team.

What I call the more visible “visitor” gardens like at car parking areas, reception area to a hotel and other high human use areas need to be simplified with a set of suitable plants that suit the adjoining area. Tough plants at a car park because humans always like taking short cuts to get to where they are going, means plants that can take some trampling plus make paths for the humans to use rather than pushing through a plant bed.

The domestic plantings tend to be a simple palette that has very little soul due to the use of the same 10-20 species. This was the general situation at Zimbali where owners and their landscape contractors tended to use species that the Bushbuck do not browse. This causes a knock on effect due to more homes being built the potential habitat decreases so forcing the same number of antelope to feed on less plant material but with less palatable species being planted the buck have less choice and now the animals are really hammering the vegetation to the point where animals are being removed to reduce the population density.

Due to this trend ZEMA has now instituted a policy that 75 species of plants must be planted as a minimum “yard stick” number of species used for any new garden design.

Plants both indigenous and exotic that should not be used in gardens

Rather use plants that will feed Bushbuck and maintain the forest understorey feel that is beginning to recover since the removal of a number of Bushbuck.

Even though these two plants, *Dietes grandiflora* and *Tulbaghia violacea* are indigenous they have very little habitat value other than visual appeal to humans. A third plant that has been over planted due to its unpalatability is *Senecio brachypodus*. It would be an idea not to use any more of these plants in the non-footprint areas now that the Bushbuck numbers are being reduced.

The invasive plant species that are beginning to be problematic in that they are taking up space that could be growing habitat but more seriously they are invasive and are now escaping at Zimbali:

Goosefoot or Arrowhead Plant - *Synгонium podophyllum*

Artillery Plant - *Pilea microphylla*

Creeping Charlie - *Pilea nummularifolia*

Sedum sp.

Mondo - Grass *Ophiopogon japonicus* and all its varieties

Flax Lily - *Dianella tasmanica* Cultivar *Variegata* and *Dianella tasmanica* normal green

Lily Turf, Lilyturf, Monkey Grass - *Liriope muscari*

Sword Fern - *Nephrolepis exaltata*

Bromeliads various species

Striped Inch Plant - *Tradescantia fluminensis*

Green Inch Plant - *Tradescantia zebrina*

Inch Plant - *Callisia elegans*

Rather use plants from this more extensive and palatable list for both humans and bushbuck. See the book titled, “112 plants for you and your Bushbuck”

Aeollanthus parvifolius sun

Aeollanthus rehmannii sun

Aerva parviflora sun or shade

Aneilema aequinoctiale shade

Aneilema dregeanum shade

Anthericum saundersiae sun or shade

Arctotheca prostrata sun

Asparagus densiflorus sun

Asparagus falcatus sun or shade

Asparagus plumosus

Asparagus setaceus sun or shade

Asparagus virgatus sun

Asystasia gangetica sun or shade

Barleria elegans sun

Barleria gueinzii sun

Barleria obtusa sun

Barleria prionitis sun

Barleria repens sun

Celosia trigyna sun or shade

Chlorophytum bowkeri shade

Chlorophytum comosum shade

Chlorophytum comosum variegatum shade

Chlorophytum comosum variegatum reverse shade

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Chlorophytum krookianum sun or shade
Chrysanthemoides monilifera sun
Cineraria atriplicifolia sun
Coleotrype natalensis shade
Crocosmia aurea sun or shade
Cyathula uncinulata sun
Deinbollia oblongifolia sun
Delosperma cooperi sun
Delosperma rogersii sun
Dicliptera clinopodia shade
Dicliptera heterostegia shade
Dimorphotheca fruticosa sun
Dracaena aletriformis shade
Drimiopsis maculata shade
Droguetia iners shade
Dyschoriste depressa sun
Dyschoriste rogersii sun
Helichrysum cymosum sun
Helichrysum panduratum sun
Helichrysum populifolium sun or shade
Hibiscus pedunculatus
Hoslundia opposita sun
Hypoestes aristata sun
Hypoestes forskalii shade
Ipomoea pes-capre sun
Isoglossa cooperi shade
Isoglossa woodii shade
Justicia betonica sun
Justicia campylostemon shade
Justicia capensis sun or shade
Justicia flava sun
Justicia petiolaris shade
Justicia protracta sun
Laportea peduncularis shade
Leonotis dubia sun or shade
Leonotis intermedia sun
Leonotis leonurus sun
Leucas lavandulifolia sun
Metarungia pubinervia shade
Microglossa mespilifolia sun
Microsorium punctatum shade
Microsorium scolopendrium shade
Ocimum reclinatum sun
Oplismenus hirtellus shade
Orthosiphon labiatus sun
Pelargonium capitatum sun
Peristrophe cernua sun
Phaulopsis imbricata sun
Plectranthus ciliatus shade
Plectranthus ecklonii three varieties purple, pink and white shade
Plectranthus fruticosus shade
Plectranthus hereroensis sun or shade
Plectranthus lucidus shade
Plectranthus madagascariensis shade
Plectranthus madagascariensis var. "Lynne" shade
Plectranthus madagascariensis var. "Green variegation" shade
Plectranthus petiolaris shade
Plectranthus purpuratus subsp. *tongaensis* shade
Plectranthus saccatus subsp. *saccatus* shade
Plectranthus verticillatus shade
Plectranthus zuluensis shade
Polygala virgata sun
Pouzolzia mixta sun
Pseudechinolaena polystachya sun or shade
Pseuderanthemum hildebrandtii sun or shade
Pseuderanthemum subviscosum sun or shade
Pupalia atropurpurea sun or shade
Pupalia lappacea sun
Rhinacanthus gracilis **two colour forms white and purple** shade
Ruellia cordata sun
Selaginella kraussiana shade
Setaria megaphylla sun
Stenochlaena tenuifolia shade
Tectaria gemmifera shade

There is also a need to select the most suitable plants for either sun, semi-shade and shade. Plus plants that will live under eaves where less rainfall and dew falls on the plants allowing pests like mealy bug to infest the plants.

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Fencing for Bushbuck

Use the Stafix Electric Fencing System which consists of an energiser that is operated on two torch batteries with the polywire, stakes and insulators the whole system to protect a garden from browsing Bushbuck till the plants are established costs about R3 000,00. This system works well for the first 3-6 months, once the plants are established then the wire can be removed allowing the animals to browse without killing the plants.

Edging planted beds between lawns and natural vegetation

This is another gardening task that humans undertake in an effort to create a clean and tidy look but unless done skilfully this edging gives the gardens a worn and overworked feel. It tends to be done when house servants, contractors and their staff have a need to be seen to have “done something, anything”. It is fine to trim a clean crisp narrow line along the edge between a flowerbed and a lawn but it is another thing to dig a trench 200mm wide on the edge of the same area. Use a pair of sheep shears or a clipper or strimmer not a garden spade. Rather have the lawn crisply cut without an edge and redirect the effort into mulching and dead heading plants.

Don't rake the leaves out of planted areas leave this mulch of leaf litter in place.

ZEMA would like to discourage the use of concrete imitation cobblestone edging to areas of lawn. This is not in keeping with the architectural language of the Resort.

Irrigation

Use this resource sparingly by planting local plants and using micro nozzles or even drip irrigation in the domestic and hotel gardens to reduce water use. The Golf Course, to remain at its current standard, needs to have the irrigation system that already exists but follow the industry trends and reduce where they can when new technologies are introduced. This water is drawn from the streams that run through the Resort.

Frankly residential gardens should not be irrigated via automatic systems at all. The plants and the soil conditions should be such that the plants do not need constant watering once the garden has been established.

All homes should be fitted with large rainwater tanks (20 000litres as a minimum) and these tanks should be connected to the irrigation system for each garden. These tanks could also be used as emergency domestic water but again this is an additional cost that owners might not want to incur. As far as I am aware there are only a handful of these tanks that have been installed in Zimbali.

Water usage

Think about water harvesting and storage of stormwater runoff for irrigation and even the dual economic flushing systems for toilets.

Make water wise gardening a way of life with residents, golf course and hotel. This all helps the concentrated environment of humans on the Estate. Using less potable water for keeping plants alive is a plus and it has an economic value to the shareholders.