PRACTICAL TIPS on understanding the wonder and importance of trees and the need for their conservation.

We hope this publication will inspire you to love and appreciate trees. Trees are working around the clock, providing us with vital life supporting systems free of charge. By protecting trees, we protect ourselves.

BASIC TREE BIOLOGY

Trees are essentially composed of four main parts: roots, stems, branches, and leaves. Flowers and seeds are some of the specialised structures on trees and develop periodically for the purposes of reproduction. Trees are defined by their size, generally ranging from 2 m to over 30 m!

_Trees are amazing!_ They’re complex organisms with numerous biological processes occurring inside them. Like other plants, trees are autotrophs, meaning they produce their own food through a process called photosynthesis, which takes place in chloroplasts within the leaves. Through photosynthesis, leaves use the sun’s energy to convert carbon dioxide from the atmosphere and water from the soil into sugar and oxygen (Fig. 1). Some of the carbon is stored in the tree’s biomass (leaves, branches, stems and roots) and the rest is released back into the environment as shown in Fig. 2. Through transpiration, trees release water back into the atmosphere and thus play an important role in the water cycle too.

![Fig. 1](image)

TREES ARE NOT THERE BY CHANCE!

Trees must compete with other plants for water, space, light and nutrients. Despite many competing factors and threats, indigenous trees have won their place in their environment and deserve to be there! In our area, trees occur in forest and bushland habitats.

Four local forest types exist, namely:
- **Southern Coastal Scarp Forest** – species-rich forests typically associated with deeply incised gorges, krantzes and scarpas.
- **KZN Coastal Forest** - occur from just above sea level to elevations of 560 m a.s.l.
- **KZN Dune Forest** – occur on the primary dune cordon beyond the salt spray zone.
- **Mangrove Forest** – three mangroves are found in eThekwini Municipality: Isipingo Estuary, Bayhead (Durban Bay) and Beachwood (Mngeni Estuary).

![Fig. 2](image)

TREES PROVIDE VITAL LIFE-SUPPORTING SERVICES FREE OF CHARGE!

People often take for granted the fact that without trees, we would not survive! Here are some facts about why trees are considered to be priceless:

**Trees regulate carbon and provide oxygen.** Trees are the most important natural resource we have. Increased carbon dioxide emissions are the major cause of global warming. Trees help to combat climate change by acting as a carbon sink; storing carbon in their organs.

**Trees regulate and improve water quality.** Trees reduce topsoil erosion, slow down water run-off, prevent harmful land pollutants contained in the soil from getting into waterways and ensure that groundwater supplies are continually replenished. Trees extract and use nutrients like nitrogen, phosphorus and potassium; by-products of urban living, which can pollute streams. Tree cover reduces storm water runoff and flood risk, thereby protecting properties from damage during extreme weather events.
Trees are like green pollution filters. They detoxify the air and remove gaseous pollutants by absorbing them with normal air components through the leaf surface.

Trees save energy and help to cool cities by reducing the heat island effect, which occurs in urban areas due to the absorption of sunlight by hard-surfaced areas. They shade buildings in the summer and block winter winds and can reduce building heating and cooling energy use. The evaporation from a single large tree can produce the cooling effect of 10 room-size air conditioners operating 24 hours per day!

Trees provide numerous economic benefits. Shaded and well-landscaped neighbourhoods have a positive influence on property values, speed of house sales and neighbourhood desirability. Trees enhance local economic stability by attracting businesses and tourists.

Trees can enhance traffic safety. Tall trees give the perception of making a street feel narrower and closely spaced trees give the perception of speed (they go by very quickly), slowing people down and reducing accident risk.

“
It’s the little things citizens do. That’s what will make the difference. My little thing is planting trees.”

Wangari Maathai, Nobel Laureate and Professor.

That one “little thing” inspired her to start the Green Belt Movement that planted over 47 million trees worldwide, including re-forester her native Kenya and improving the lives of over 900,000 women through economic empowerment.

INDIGENOUS VERSUS INVASIVE ALIEN TREES

Indigenous trees are those native to and characteristic of a particular region or country. Seven vegetation types and around 2,000 indigenous plant species occur naturally in Durban. On average, indigenous plants provide more food, resting and nesting sites for birds, mammals and other animals than exotic or invasive alien plants.

An invasive alien plant is any plant which does not occur naturally within a region and which has rapidly colonised land or water. At first glance, Durban looks lush with tree and forest cover. However, not all these trees are indigenous. Invasive alien plants have numerous impacts! They can displace indigenous plants and animals, increase the loss of water from catchments, increase the severity of fires and expand the range of disease-causing organisms.

Given the added competition resulting from invasive alien infestations, indigenous trees are under great threat! Sadly, some people are removing and destroying the already stressed and threatened indigenous trees!

INDIGENOUS TREES AND FORESTS FACE NUMEROUS THREATS

Spreading invasive alien plants can have drastic effects often outcompeting indigenous plants and totally transforming habitats from their natural state.

Habitat destruction has serious effects. In KZN, many of our indigenous forests have been removed to make way for infrastructure development, agricultural use and timber plantations. Eucalyptus and pine trees, typical in plantations, threaten indigenous trees by acidifying soil, consuming nutrients and leaching substances into the soil that repel other plants. Beneficial micro-organisms in plantation land are reduced for years after harvesting.

Over-exploitation of trees including bark harvesting for medicinal use, may lead to the death of a tree.

Cutting or removal of trees by landowners in order to create space or avoid maintenance associated with trees is devastating indigenous tree populations.
BEWARE, CERTAIN TREES ARE LEGALLY PROTECTED!

In South Africa, certain indigenous tree species and all trees occurring in natural forests are protected in terms of the National Forests Act of 1998. In compliance with the Act, the Department of Agriculture Forestry and Fisheries (DAFF) has published a list of 47 tree species that are protected in South Africa, of which 9 species occur locally as shown in Table 1.

In terms of the Act, no person may cut, disturb, damage, destroy or remove any protected tree; or collect, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister. Contravention of the Act is regarded as an offence, punishable by a fine or imprisonment for a period up to three years, or both. Furthermore, bark harvesting from natural forests without a licence is illegal under the Act, but provision is made for licensing resource harvesting for commercial purposes and users can apply for exemption for domestic and cultural uses.

**Table 1: Protected trees in the eThekwini Municipal area**

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>English Common Name</th>
<th>Other Common Names Afrikaans (A), Xhosa (X), Zulu (Z)</th>
<th>National Tree No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barringtonia racemosa</td>
<td>Powder-puff tree</td>
<td>Poeierkwasboom (A) / Ibogo (Z)</td>
<td>524</td>
</tr>
<tr>
<td>Bruguiera gymnorrhiza</td>
<td>Black mangrove</td>
<td>Swart-wortelboom (A) / Isikhangathi (X) / Isihlobane (Z)</td>
<td>527</td>
</tr>
<tr>
<td>Minusopsis caffra</td>
<td>Coastal Red-milkwood</td>
<td>Kusrooimekhou (A) / Umthunzi (X) / Umkhakhayi (Z)</td>
<td>583</td>
</tr>
<tr>
<td>Pittosporum vindoranum</td>
<td>Cheesewood</td>
<td>Kasuuri (A) / Umkwichwenke (X) / Umfasansvu (Z)</td>
<td>139</td>
</tr>
<tr>
<td>Podacarpus falcatus</td>
<td>Outeniqua yellowwood</td>
<td>Outeniquakweelkhou (A) / Umkhobha (X)</td>
<td>16</td>
</tr>
<tr>
<td>Podacarpus latifolius</td>
<td>Real yellowwood</td>
<td>Oprege-leelkhou (A) / Umcheya (X) / Umkhoba (Z)</td>
<td>18</td>
</tr>
<tr>
<td>Rhzophora mucronata</td>
<td>Red mangrove</td>
<td>Rooi wortelboom (A) / Isikhangathi (X) / Umhluwe (Z)</td>
<td>526</td>
</tr>
<tr>
<td>Sclerocarya birrea subsp. caffra</td>
<td>Marula</td>
<td>Maroela (A) / Umganu (Z)</td>
<td>360</td>
</tr>
<tr>
<td>Sideroxylon inerme subsp. inerme</td>
<td>White milkwood</td>
<td>Wit-melkhou (A) / Ximafana (X) / Umakhesalafingane (Z)</td>
<td>579</td>
</tr>
</tbody>
</table>

![Photo: Minusopsis caffra, Coastal Red-milkwood](image)

**IMPORTANT EVENTS CELEBRATING TREES**

**21 March – World Forestry Day.** Aims to promote the importance, sustainable use and management of forests.

**1 - 7 September – National Arbour Week.** All citizens and organisations are encouraged to participate in community “greening” events, including tree planting and creating awareness about the importance of trees.

**Annual – Trees of the Year.** To raise awareness during Arbour Week, two of the 2 000 indigenous tree species in South Africa are promoted; one common and one rare species. Trees of the year 2012 – 2020 are listed in the Table 2 below.

**Table 2: Trees of the year 2012 - 2020**

<table>
<thead>
<tr>
<th>Year</th>
<th>Botanical and Common Tree Names</th>
<th>Rare (Uncommon) Trees</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Syzygium cordatum, Water berry, Waterbessie</td>
<td>Protorhus longifolius, Red beech, Rooibooekenhout</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bruguiera gymnorrhiza, Black mangrove, Swart-wortelboom</td>
</tr>
<tr>
<td>2013</td>
<td>Virgilia oroboides, Blossom tree, Keurbloom</td>
<td>Grewia occidentalis, Cross-berry, Kruibessie</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Barringtonia racemosa, Powder-puff tree, Poeierkwas-boom</td>
</tr>
<tr>
<td>2014</td>
<td>Genus Heteropyxis, Lavender trees, Laventelbome</td>
<td>Yepris lanceolata, White ironwood, Witysberhout</td>
</tr>
<tr>
<td>2015</td>
<td>Combretum kraussii, Forest bushwillow, Bosvaderlandswig</td>
<td>Heteromorpha arborescens, Parsley tree, Wildgeierseliebos</td>
</tr>
<tr>
<td>2016</td>
<td>Ficus thoningii, Common wild fig, Gewone wildevy</td>
<td>Maerua caffra, Common bush-cherry, Gewone witbos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maerua angolensis, Bean-bean tree, Knoppiesboomkieboom</td>
</tr>
<tr>
<td>2017</td>
<td>Ziziphus mucronata, Buffalo-thorn, Blinkblaar wag-n-bietjie</td>
<td>Euidea pseudoebenia, Ebony tree, Ebbeboom</td>
</tr>
<tr>
<td>2018</td>
<td>Genus Podacarpus, Yellowwoods, Geelhoutbome P. elongatus, P. falcatus, P. henkelii, P. latifolius</td>
<td>Bosia albitrunca, Shepherd’s tree, Witgat</td>
</tr>
<tr>
<td>2019</td>
<td>Sclerocarya birrea, Marula, Maroela</td>
<td>Philoptera violacea, Apple-leaf, Appelblaar</td>
</tr>
<tr>
<td>2020</td>
<td>Ekebergia copensis, Cape ash, Essenhout</td>
<td>Adansonia digitata, Baobab, Kremetart</td>
</tr>
</tbody>
</table>

**Annual – Champion Trees.** DAFF run an annual project to identify Champion Trees; trees that have exceptional importance and deserve national protection due to their remarkable size, age, aesthetic, cultural, historic or tourism value.

Any person or organisation can nominate indigenous or non-indigenous trees for Champion status. Once listed as protected by notice, Champion Trees will have special protected status in terms of the National Forests Act of 1998. Champion trees may not be cut, disturbed or damaged without a license.
ETHEKWINI MUNICIPALITY’S COMMITMENT TO TREES

The eThekwini Municipality Environmental Planning and Climate Protection Department (EPCPD) administers the planning and protection of the Durban Metropolitan Open Space System (D’MOSS). D’MOSS is an overlay or development control area in the town planning schemes, which encompasses areas of significance for biodiversity conservation. It comprises a series of interconnected open spaces that incorporates areas of high biodiversity value, delivering a range of ecosystem goods (e.g. food, raw materials for craft and building) and services (e.g. formation of soil, erosion control, water supply and regulation, climate regulation, cultural and recreational opportunities, pollination, nutrient cycling and waste treatment). The EPCPD assesses the implications of any proposed development in D’MOSS. In terms of the EPCPD Development Guidelines, development within a forested area is not supported; generally a minimum buffer of 40 m must be maintained from the forest canopy drip line and the buffer must be managed as an ecotone area, i.e. an area of transition from one ecosystem to another.

The EPCPD have a number of projects underway to replenish lost trees in an attempt to mitigate and adapt to the effects of climate change, while simultaneously providing opportunities for social upliftment. One of these projects is the Buffelsdraa Community-based Reforestation Project, which is planting 520 ha of forest at the regional landfill site near Verulam. This project has already catalysed two more initiatives, namely the Inanda Mountain Restoration project and the uMbilax Community Ecosystem Based Adaptation project (CEBA: www.durbanceb.org).

The eThekwini Municipality Natural Resources Division (NRD) is responsible for the management and maintenance of our nature reserves and certain public open spaces. The NRD is very active in controlling invasive alien plants and animals that pose threats to our natural areas. The NRD also implements the requirements of the Tree Planting and Removal Policy, which provides best management practices for planting, tree pruning, tree removal and species selection to protect public trees from death and damage caused by improper or inadequate tree maintenance.

With so much effort, time and financial resources being made available to forest protection, reforestation projects and tree maintenance, it’s obvious that any unwarranted removal of indigenous trees would be counterproductive!

WHAT CAN YOU DO?

Great things happen when you plant a tree! Adding indigenous trees to any environment in which trees naturally occur, will have countless benefits and will improve pride of place, contribute to food security, create wildlife-friendly habitats and contribute towards enhancing biodiversity.

We have selected a few ‘must have’ trees for your garden as shown below.

Great things happen when you remove invasive alien plants! By removing invasive plants, you make conditions favourable for indigenous nature to return and thrive. Never cut, damage or destroy any tree without verifying its status.

Great things happen when people work together! Create awareness within your community around the importance of trees. You can make a difference by speaking out when you see indigenous trees being destroyed or harmed. Contact your local Conservancy to see how you can get involved.

Information is power! Have fun by learning to identify indigenous and invasive plant species in your environment. The EPCPD has published posters on invasive alien plants and indigenous alternatives and also have a green landscaping guideline available online (http://www.durban.gov.za/City_Services/development_planning_management/environmental_planning_climate_protection/Publications/Pages/default.aspx).

Also visit the izilhlala zeTheku: Durban Celebrates Trees blog where people celebrate and record indigenous trees online: http://izilhlalazetheku.blogspot.com/

For more information contact:
• eThekwini Municipality Environmental Planning and Climate Protection Department, 031 311 7875 / www.durban.gov.za
• eThekwini Municipality Parks, Leisure and Cemeteries Department, 031 266 0049 / www.durban.gov.za
• Department of Agriculture, Forestry and Fisheries, 033 392 7700 / http://forestry.daf.gov.za/webapp
• Ezemvelo KZN Wildlife 033 845 1002 / www.kznwildlife.com
• Botanical Society of South Africa – for a list of nurseries which stock indigenous plants and landscapers who use indigenous plants. Email: botsoc-kzn@jmnweb.co.za / www.botsoc-kzn.org.za
• WESSA Stop the Spread Campaign at 033 266 2603 / http://wessa.org.za/what-we-do/stop-the-spread.htm
• Your local conservancy

All photographs courtesy of Richard Boon (EPCPD), except for the Cape-chestnut by Guy Upfold.

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