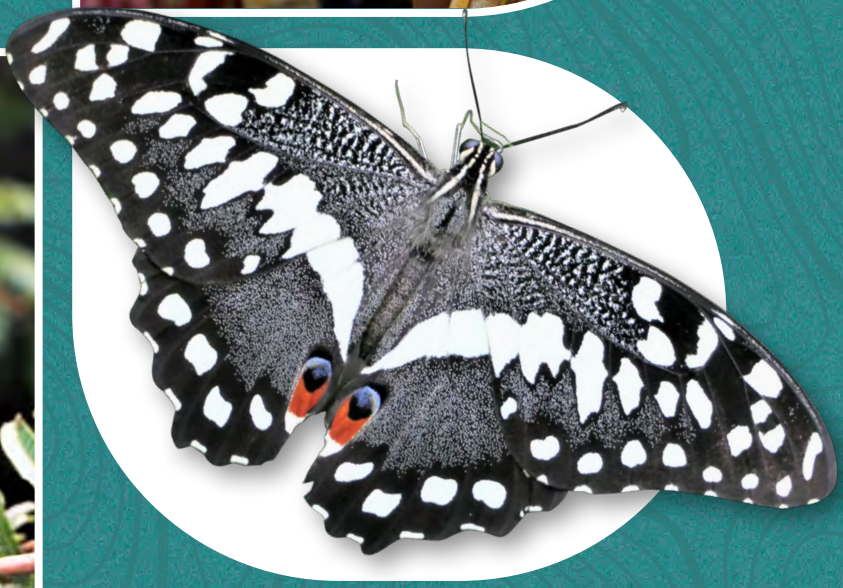
A catalogue of Dar es Salaam's native biodiversity

A guide for urban planners, decision-makers, plant nurseries and the public



This catalogue showcases a selection of Dar es Salaam City's native biodiversity, to inspire awareness of the beauty, uniqueness and usefulness of Dar es Salaam's special natural heritage

INTERACT-Bio
Integrated action on biodiversity

ICLEI Local Governments for Sustainability | CBC Cities Biodiversity Center

MUHAS

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The INTERACT-Bio project

The INTERACT-Bio project is funded through the International Climate Initiative (IKI) of the Federal Ministry for Economic Affairs and Climate Action (BMWK) in close cooperation with the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) and the Federal Foreign Office (AA) and implemented by ICLEI – Local Governments for Sustainability. The project, which ran from 2017 to 2024, aimed to improve the utilization and management of urban nature within rapidly expanding cities and the regions surrounding them. The project focused on urban communities in the Global South, specifically Brazil, Tanzania and India, where these fast-growing cities fall within biodiversity hotspots of global significance. The overarching goal was to enhance institutional integration to support the incorporation of nature into development and spatial planning. Interventions included the development of Local Biodiversity Strategies and Action Plans, natural asset mapping, outreach, national-sub-national dialogues, urban nature investment cases and pilot projects.

Executive summary

This catalogue was developed to showcase a selection of Dar es Salaam's terrestrial biodiversity. Dar es Salaam falls within the East African Coastal Forest biodiversity hotspot of global significance. This is an exceptional natural resource and some of the biodiversity elements seen here can be found nowhere else in the world. Remnants of this hotspot occur within Dar es Salaam city. The aim of this catalogue is to inspire awareness of the uniqueness of the city's natural heritage and the role and importance of native fauna and flora for local conservation efforts, local economies and for mitigating risks associated with climate change, food security and public health. Promoting and restoring natural heritage is therefore a critical urban policy and urban planning imperative. It is also a mission with important global implications. During the Convention on Biological Diversity's Conference of the Parties in December of 2022, ambitious new targets were set for contracting parties for the coming years, until 2030. Furthermore, the role of sub-national governments in contributing to national and global biodiversity targets was emphasised. Dar es Salaam is ideally positioned to address these challenges. As signatory to the Convention on Biological, Tanzania has a National Biodiversity Stategy and Action Plan and Dar es Salaam boasts a Local Biodiversity Strategy and Action Plan. Dar es Salaam is also a CitiesWithNature city (*https://citieswithnature.org/*), which means that all local biodiversity-related actions can be reported on the CitiesWithNature platform, to be counted as part of the global effort to secure biodiversity and its benefits to people.

The Dar es Salaam biodiversity catalogue is structured to provide background on how the catalogue was developed, with the main target audience being urban planners. The bulk of the catalogue lists native plant species and highlights how they can be selected and used in the city to achieve cooling, promote food security, provide medicinal resources and promote beautification and improved health. Plant species selection for the urban environment is emphasised. The cultivation and sourcing of native plants is also addressed, based on the results of a nursery survey. The survey shows that of all plants sold in nurseries, currently only 20% are indigenous. The catalogue also provides information on a selection of native animals in the city, information on invasive species as well as rare and endangered species in Dar es Salaam.

The approach of this catalogue was to provide a visual celebration of Dar es Salaam's biodiversity to inspire awareness and local action to unlock not only local conservation and livelihood opportunities but to also contribute to important national and global biodiversity ambitions.

Table of Contents

About the catalogue

Scope of the catalogue

The City of Dar es Salaam has a long history of greening, but with a disproportionate emphasis on exotic species such as ashok (*Saraca species*) and neem trees (*Azadirachta indica*). This catalogue was conceptualised following a recommendation made in the 2019 Thematic Atlas of Nature's Benefits to Dar es Salaam. On p. 58, the Atlas recommends that "Available knowledge on local biodiversity should be increased" and "Tree planting programmes should consider indigenous species as default options for new planting, especially those that are of special conservation significance, for example endemic or endangered." This recommendation sought to draw attention to Dar es Salaam's native plant species within the context of city greening.

This catalogue emphasises plant species that are native to the City of Dar es Salaam and surrounds. The Dar es Salaam area forms part of the East African coastal forest biodiversity hotspot. It also includes a selection of native fauna and invasive species present in Dar es Salaam, so as to create awareness of the existence of and threats to native biodiversity. The overarching purpose is to place spotlight on the uniqueness and usefulness of the remnant native biodiversity found here.

> *"Available knowledge on local biodiversity should be increased."*

The choice of species showcased in the catalogue was constrained by funding and by the desire to create a

▾ Ashok trees (below right) and neem trees (below left) are common in Dar es Salaam. These species are exotic (i.e. not native) to Dar es Salaam or Tanzania. While they provide services such as hedging and shade, there are many tree species native to Dar es Salaam that should be considerd for planting.

somewhat limited, very first, inspirational attempt to showcase Dar es Salaam's native biodiversity. As a result, this catalogue contains only a subset of terrestrial native species and does not include marine or freshwater species. It also does not address important topics such as the requirements for ecosystem and wildlife species population viability or ecological connectivity in the urban landscape. Thus there is scope for future expansion of this catalogue.

Who should use this catalogue?

The aim of this catalogue is to raise awareness of the existence of native biodiversity and the ecosystem services, conservation value and other benefits associated with native species in the urban environment of Dar es Salaam. The primary target audience includes city officials, plant nurseries, non-government organisations (NGOs), the business sector, education institutions, naturalists and the general public.

The catalogue is a practical tool to help move from awareness to action and it should inspire city stakeholders to invest in the native natural heritage of Dar es Salaam.

How was the catalogue developed?

Between February 2020 and April of 2021, a specialist team of Dar es Salaam biodiversity experts, compiled and collated biodiversity information and photographs and selected a sub-set of fauna and flora species to showcase as part of this catalogue. A total of 72 plants species, 17 bird species, 4 amphibians, 5 reptiles, 4 mammal species and 6 alien invasive species were identified to include in the catalogue. A complete list of these species is provided in **Table 1** in the Annexure of this report. Species selection was based on expert evaluation in order to highlight the iconic nature of species, their conservation value and importantly, their usefulness and ability to provide benefits to people in the urban environment. Thus, some species are highlighted for their ability to provide shade while other were chosen for their medicinal and food importance and/or their ornamental value. A number of exotic invasive species are also presented in this catalogue to draw attention to the need to manage this particular threat to native species.

> *"Species were selected to highlight their iconic nature, their conservation value and importantly, their usefulness and ability to provide benefits to people in the urban environment."*

The catalogue also contains the results of a field survey of 32 nurseries across Dar es Salaam. The survey was conducted to determine whether nurseries cultivate and sell native plants and to explore the levels of awareness of native plant species among nursery owners.

Native plants and ecosystem services

For the native plant section of the catalogue, plant species were arranged according to the ecosystem services (i.e. benefits) they provide in a city context. This format allows city officials and other stakeholders to make decisions about species choice, based on the types of benefits to promote within a certain location (e.g. shade, food, ornament, habitat for other species). The ecosystem services approach also links greening efforts to policy objectives such as city cooling, reduced pollution and improved amenity value for people in the city.

Introduction

Cities need biodiversity

Dar es Salaam is Tanzania's major economic hub and one of the fastest growing cities in Africa. With a population of over 6 million and a growth rate of around 6.5% per annum, there is a high demand on land for infrastructure development. This places massive pressure on natural areas and often, biodiversity is displaced and degraded by urban development. Not surprisingly, urbanisation is considered as one of the most important drivers of biodiversity loss globally.

In Dar es Salaam, natural areas and pastoral and agricultural lands are being displaced by urban growth and densification to make way for residential, business and industrial development. Between 2002 and 2008 one third of Dar es Salaam's green areas (defined as woodland, riverine and grassland), was lost due to their conversion to urban and peri-urban development. At the same time, the people of Dar es Salaam are highly dependent on nature's benefits: Urban and peri-urban agriculture, artisanal fishing (coastal and freshwater) and nature-based tourism, support thousands of livelihoods in the City.

> *"The people of Dar es Salaam are highly dependent on nature's benefits."*

Nature and biodiversity therefore play a critical role in meeting societal needs. Urban communities depend on well-functioning ecosystems to sustain human well-being and economies. Nature and biodiversity can help address major societal challenges such as climate change, food security, water security, disaster risk and can support economic and social development. Other beneficial contributions include recreational and aesthetic enjoyment, promotion of social cohesion, and a sense of identity and place. When we allow biodiversity loss, we accept the loss of multiple benefits to our cities and to society.
With the increasing global trend to urbanise, we can expect further loss of native biodiversity, leading to negative effects on human health and quality of life in cities. While rapid urbanisation presents fundamental challenges, it also provides opportunities to design more liveable, healthy and resilient cities and to support global sustainability efforts.

BOX 1: DEFINITIONS: BIODIVERSITY, ECOSYSTEMS AND ECOSYSTEM SERVICES

Biodiversity can be described as the variety of life on Earth at various levels, from genes to micro-organisms to species and ecosystems. It refers to the numbers of different species, genetic variation between and within species, and the extent and variety of natural habitats and ecosystems. The diversity of species and crucially the interactions between these, are needed to ensure nature can deliver the ecosystem goods and services that people rely on.

Native species are species that originated and evolved/developed in its surrounding habitat and has adapted to living in that particular environment. Also known as endemic species or indigenous species.

Ecosystems are communities of interconnected organisms such as plants, animals and humans and the physical environment that they interact with. Ecosystems can be different sizes and can be for example marine, aquatic or terrestrial and they can be natural or man-made (e.g. a natural forest vs a plantation forest).

Ecosystem services are the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life. They are the benefits that people obtain from ecosystems. Ecosystems maintain biodiversity and the production of ecosystem goods, such as seafood, forage timber, biomass fuels, natural fibre, and many pharmaceuticals, industrial products, and their precursors. Ecosystem goods (such as food) and services (such as waste assimilation and opportunities for nature-based recreation) represent the benefits human populations derive, directly or indirectly, from ecosystem functions. (Millennium Ecosystem Assessment, 2005).

Urban planning, municipal inter-departmental collaboration and civic stewardship offer opportunities to protect, enhance and restore nature to ensure that biodiversity and ecosystems continue to support human development and well-being (See **Box 1**). The role of sub-national governments, cities and other local actors are formally recognised as critically important by the Post-2020 Global Biodiversity Framework. This highlights the importance of municipal-scale action in securing nature's benefits for people living in cities.

> *"The role of sub-national governments, cities and other local actors are formally recognised as critically important by the Post-2020 Global Biodiversity Framework."*

Dar es Salaam: a growing city in a globally important biodiversity hotspot

The City of Dar es Salaam is located in a globally important biodiversity hotspot, known as the 'Eastern Arc Mountains and East African Coastal Forest' hotspot. The East African Coastal Forest Hotspot runs along the Tanzanian and Kenyan coasts from the border with Somalia in the north, to that with Mozambique in the south. Of the original 30 000 km^2, just 2 000 km^2 (i.e. 6.7%) of the hotspot remains. Biodiversity hotspots are areas of exceptional concentrations of endemic species (i.e. species found nowhere else in the world) that are simultaneously experiencing a high rate of habitat loss. For example, the African flame tree species, *Fernandoa magnifica* and the bird species, the tiny greenbul (*Phyllastrephus debilis*), are found only in the coastal forests of East Africa. Remnants of these coastal forests remain within Dar es Salaam City, pointing to an opportunity to restore the benefits provided by this unique natural heritage within an urban setting.

Dar es Salaam is also a designated Important Bird and Biodiversity Area (IBA), as defined by Birdlife International. This designation constitutes a global network of over 13 500 IBA sites. IBAs are sites of global significance for bird conservation, identified nationally through multi-stakeholder processes and using globally standardised, quantitative and scientifically agreed criteria to determine IBA designation.

Why protect and enhance native biodiversity in a city?

Ecosystems with higher biodiversity are better able to resist, recover and adapt to changes. Therefore biodiverse systems tend to be more stable and have greater resilience in the face of disturbances, or disruptive events. For example, studies show that more biodiverse forest ecosystems are more resilient to floods and drought and more disease resistant. In addition, psychological benefits to people increase with species richness of urban green spaces and therefore, the management of urban green spaces should emphasize biological complexity so as to enhance human well-being in addition to contributing to biodiversity conservation. Thus, biodiversity can support human dependence on nature (e.g. food and water security, disaster risk reduction), far better than compared to less biodiverse ecosystems.

Therefore, emphasis on diverse, intact natural ecosystems will have a positive impact on city resilience. Single-species tree plantations with fast-growing exotics certainly provide ecosystem services, for example timber and pulp, at a highly productive rate and yield, but such plantations would more easily succumb to disease. Thus, there are trade-offs to be made in the choice of species, ecosystems and their services, while keeping in mind that intact, native ecosystems offer some services that are difficult or impossible to substitute. During the COVID-19 pandemic, for example, the demand for native, wild medicinal plants in Dar es Salaam increased, indicating how different ecosystems can deliver different services at different times. Similarly, incorporating more native species can reduce risks. Any tree species (exotic or native) with a dense canopy and large leaf surface will contribute towards city cooling, air quality improvement and beautification. While this is true, a mix of indigenous and exotic trees and plants of various growth forms (e.g. trees, shrubs and vines) will create better air flow in the city and will provide greater resilience to floods and drought. This highlights the fact that in cities, we can plan for and design for the mix of species and types of ecosystems to achieve certain benefits and to reduce defined risks.

Adansonia digitata

> *“Native biodiversity connects people with their natural heritage. This in turn links people to their local culture, identity and sense of place.”*

Despite being mostly man-made, urban green and blue spaces can support biodiversity in the city. For example, a small private residential garden may not be able to support viable populations of biodiversity, but a few adjacent gardens linked with a green corridor such as a river or green belt, may result in a unit of sufficient size to sustain biodiversity elements such as indigenous birdlife.
The conservation and restoration of native forest patches, tree lanes and pocket parks in Dar es Salaam will bring something unique: It will support the restoration of local natural heritage. Native biodiversity connects people with their heritage, an important cultural ecosystem service. This in turn links people to their local culture, identity and sense of place. An enhanced stock of indigenous plants and tree species (and the habitats these create for other species) will also contribute to Tanzania’s status as a country of global biodiversity importance.

Plants provide important ecosystem services in cities

The importance of plants in cities

There is growing awareness of the diverse benefits (ecosystem services) that urban trees and plants can bring. They slow stormwater runoff and reduce erosion, improve air quality, cool urban areas, reduce noise and store carbon. They are also important features of green spaces that enhance recreation experiences, facilitate socialising and relaxation, support human health and well-being and increase property values. In this catalogue, we showcase the most well recognised ecosystem services associated with urban trees and plants, namely provision of shade, food, medicine and ornament. This catalogue offers lists of plant species native to Dar es Salaam suited to the desired ecosystem services. This section also outlines which species are suitable to plant on pavements and which may not suitable due to for example aggressive root systems that damage built infrastructure such as roads, pavements and walls.

▾ **BELOW: Motorbikes and riders stay cool under non-native trees *(Muntingia calabura)*.**

Indigenous trees provide shade and urban cooling

Cities have large areas of sealed surfaces which radiate heat. Heat is also stored in building materials such as concrete and tarmac, plus man-made heat release factors from industry, cars (vehicle emissions) and air conditioning. As a result, cities often have temperatures that are considerably higher than their more rural surroundings.

High urban temperatures are a major public health concern, especially during heat waves, as they can lead to severe health problems including an increased prevalence of heat-related deaths and heat-related disease. Climate projections for Dar es Salaam show that both day-time and night-time temperatures are set to increase in the coming decades. The impacts of urban heat on public health is a major policy issue and in Dar es Salaam, people living in informal settlements (70 – 75% of Dar es Salaam's population) are disproportionately affected.

The cooling effect of urban trees and plants can play a significant role in making urban areas more liveable and better adapted to the pressures from a changing, warming climate. Studies show that cities can be cooled significantly with increased tree canopy cover. The greatest cooling happens when canopy cover exceeded 40% and the cooling effect appears to be greatest at the size of a typical city block (60–90 m^2).

Table 1 below lists a selection of trees, native to the Dar es Salaam area that are suited to providing shade.

TABLE 1: A selection of trees native to Dar es Salaam that are effective at providing shade and cooling.

	English name	Swahili name	Scientific name	Notes
	Golden bean tree	Mtalawanda	*Markhamia obtusifolia*	Good for shade, medicine and ornament
	**Tamarind**	Mkwaju	*Tamarindus indica*	Also produces a lovely edible fruit
	**Natal mahogany**	Mdodoma Also Mti Maji	*Trichilia emetica*	Also good for timber, food and ornament
	Buffalo thorn	Mkunazi	*Ziziphus mucronata*	Thorny. Also good for hedging.

Indigenous urban food plants

Local food production is an important source of livelihood and common source of income for people in many cities around the world. Urban agriculture and small-scale food production systems can be viewed as an environmental solution to urban challenges because food-producing plants can help reduce greenhouse gases, enhance greening and biodiversity in cities by providing habitats for pollinators and other wildlife. Most notably, they support local food production, contribute to organic waste flows and foster important socio-cultural values. Policy makers are increasingly interested in urban agriculture as a way to advance sustainable development objectives.

In Dar es Salaam, people grow food both in the built up areas and at the urban fringe. Farm land occupies about 27.8% of the total municipal area and supports around 35 000 households. Farmers in Dar es Salaam earn more than double the national average in income and 52% of all Dar es Salaam's farmers are women. Due to the prevalence of urban farming in Dar es Salaam, the city currently has a high degree of food independence which means that the city is robust against any shortage of food supply from outside of the city. Despite the benefits of urban farming, the rate of loss of agricultural land in Dar es Salaam is high due to growing competition for land and water.

Urban agriculture in Dar es Salaam takes place in any open pockets of land such as roadsides, along railway tracks, under power lines and in river valleys and flood plains. Dar es Salaam offers a rich variety of indigenous food plants from trees to edible grasses and edible plant parts such as seeds and fruits. These species can provide an important source of food and biological diversity alongside exotic food plant species.

Table 2 presents a list of indigenous plant species that produce food and which can be grown for food production as well as other ecosystem services.

TABLE 2: A list of native food plant species in Dar es Salaam.

	English name	Swahili name	Scientific name	Notes
	**Lucky bean tree, mahogany bean, pod mahogany**	Mbambakofi, mukambakusi, Mkongo	*Afzelia quanzensis*	Formerly common, now rare due to its valuable wood
	Wild custard apple	Mtopetope Mwitu	*Annona senegalensis*	Shrub or small tree, 2-6 meters tall
	**Tassel berry**	Linene	*Antidesma venosum*	Potential medicinal plant; good for streambank planting. Fruits popular with animals and birds.
	Coast gold leaf, Benin ironwood	Mwiza	*Bridelia micrantha*	Coastal, riverine and swamp forest species; provides habitat for marine organisms
	Native Currant	Mtanda-mboo	*Carissa spinarum*	Can be used for making drinks and jam.
	Governor's plum	Ramontchi	*Flacourtia indica*	Also good for hedging
	**White berry-bush**	Mkwambe	*Flueggea virosa*	Grows easily, white berries, loved by birds.
	False brandy bush, donkey berr	Mfukufuku, mkone, mkole	*Grewia bicolor*	Edible, medicinal and good for hedging
	False marula	Mpwipwi	*Lannea schweinfurthii*	Edible and medicinal
	Pheasant-berry, egossa red pear or bushveld peacock-berry	Mlakwale (Kwere), Mshembeshembe (Shambaa)	*Margaritaria discoidea*	Also medicinal and ornamental

	English name	Swahili name	Scientific name	Notes
	**Forest red milkwood, Round-fruited red milkwood**	Mgama (Swahili)	*Mimusops obtusifolia*	Edible and medicinal
	**Camel's foot**	Msegese	*Piliostigma thonningii*	Unusual leaves, shaped like a camel's foot. Edible and medicinal
	Duiker-berry, Kudu-berry	Mlagambihi (Nyaturu), Mselekanga (Shambaa), Msolo (Lugulu), Msangati (Fipa)	*Pseudolachnostylis maprouneifolia*	Also good for ornament and shade
	**Marula**	Mng'ong'o	*Sclerocarya birrea*	Deserves more cultivation
	Violet tree	Nengonengo, Mwaiguruka	*Securidaca longepedunculata*	Also medicinal
	**White milkwood**	Mkoko bara	*Sideroxylon inerme*	Also medicinal and good for ornament
	Tamarind	Mkwaju	*Tamarindus indica*	Deserves more cultivation
	Natal mahogany	Mdodoma	*Trichilia emetica*	Also good for ornament, shade and timber

	English name	Swahili name	Scientific name	Notes
	Bushveld signal grass		*Urochloa mosambicensis*	Can also be used to control soil erosion
	**Black plum**	Mfulu, furu	*Vitex doniana*	Deserves more cultivation
	**Smelly-berry fingerleaf**	Sungwi	*Vitex mombassae*	Edible, medicinal, ornament and shade
		Sungwi	*Vitex zanzibarensis*	Edible fruit and wood, medicinal, ornament and shade

Sclerocarya birrea

The value of medicinal plants in cities

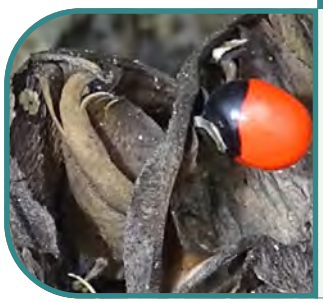
Urbanisation brings unique health challenges resulting from urban populations living in high densities, diseases that are more easily spread in an urban setting plus the stresses generally associated with urban life. Although modern medicine is often easily available in cities, traditional medicines can still be a highly effective, accessible and affordable health care resource. As a result, traditional medicine plays a large role in many urban societies today. During the COVID pandemic for example, many people in Dar es Salaam turned to harvesting medicinal plant resources.

Throughout history, the unique knowledge about the use of wild flora and fauna was developed by traditional societies who lived close to nature and experimented with plants and animals for medicinal purposes. This knowledge forms the basis of traditional medicines today. Such traditional knowledge and practices evolved and became more refined over time and the knowledge and practices became incorporated into local culture, art, belief and folklore of traditional communities.

Similar to people in rural areas, urban dwellers can hold rich medicinal plant knowledge. While some studies suggest that local knowledge of herbal medicines is perishing, other studies have demonstrated the adaptive nature of urban medicinal plant knowledge and challenge the views that such knowledge is being lost with urbanisation. Scholars agree though that traditional herbal medicinal plants and practices in urban settings are not sufficiently understood.

Table 3 below lists a number of plant species in the city of Dar es Salaam that offer potential medicinal value. Note that medicinal uses mentioned here are not exhaustive and are based on a combination of desktop research and expert knowledge. They do not reflect professional medical or ethno-medicinal advice.

TABLE 3: A list of plant species in the city of Dar es Salaam that offer potential medicinal benefits.



English name	Swahili name	Scientific name	Notes
Equirity bean or rosary pea	Ombulu (Luo)j	*Abrus precatorius*	Antibacterial properties and leaves are thought to ease fever, cough and cold.
Lucky bean tree, mahogany bean, pod mahogany	Mbambakofi, mukambakusi, Mkongo	*Afzelia quanzensis*	Root infusion is a remedy for bilharzia and eye problems. Species now rare due to its valuable wood
Multi-stemmed false-thorn	Mkenge	*Albizia petersiana*	Needs more research on medicinal value
Large-leaved False-thorn	Mkenge	*Albizia versicolor*	Roots and bark can treat anaemia, swollen glands and destroy parasitic worms. Bark is used to relieve coughs, headache and sinusitis.

Pseudolachnostylis maprouneifolia

Rauvolfia mombasiana

Salvadora persica

Margaritaria discoidea

	English name	Swahili name	Scientific name	Notes
	Wild custard apple	Mtopetope Mwitu	*Annona senegalensis*	Shrub or small tree, 2-6 meters tall. Used to treat respiratory, skin and eye ailments.
	Tassel berry	Linene	*Antidesma venosum*	Root extract used for the treatment of heart diseases; an infusion of roots and leaves is good for coughs. Good for streambank planting. Fruits popular with animals and birds.
	**Coast gold leaf, Benin ironwood**	Mwiza	*Bridelia micrantha*	A wide range of ethno-medicinal uses for humans and animals, including burns, constipation, gastric ulcers, cough headache and rheumatism. Coastal, riverine and swamp forest species; Also provides habitat for marine organisms.
	**Native Currant**	Mtanda-mboo	*Carissa spinarum*	Effective in the treatment of inflammation, arthritis, epilepsy and cancer.
	Bushveld grape	Chazi	*Cissus rotundifolia*	Medicinal climber. Anti-diabetic and used in treatment of burns and skins disease.
	Small-leaved sickle bush	Mtunduru	*Dichrostachys cinerea*	Medicinal: roots used as a local anaesthetic. Also, hard, termite resistant wood.
	**Coral tree**	Muungu	*Erythrina sacleuxii*	Used against malaria, toothache, insomnia, asthma and cancer

	English name	Swahili name	Scientific name	Notes
	White berry-bush	Mkwambe	*Flueggea virosa*	Roots used as contraceptive and in treatment of sexually transmitted diseases and to relieve malaria. Grows easily, white berries, loved by birds.
	False brandy bush, donkey berr	Mfukufuku, mkone, mkole	*Grewia bicolor*	Used for treating skin lesions and as a tranquilizer. Good for hedging.
	**Grey nicker, nicker bean, or nicker nut**	Msoro	*Guilandina bonduc*	Leaves have antidepressant properties and can be used to treat sinusitis. Leaves and bark considered effective against parasitic worm and fever. Large doses of the plant are believed to be poisonous.
	Sausage tree	Mwegea	*Kigelia africana*	Used to treat inflammation, dysentery and cancer. Can make drinkable juice.
	False marula	Mpwipwi	*Lannea schweinfurthii*	Used against reproductive system ailments, respiratory disorders, injuries, headaches and gastro-intestinal disorders.
	**Pheasant-berry, egossa red pear or bushveld peacock-berry**	Mlakwale (Kwere), Mshembeshembe (Shambaa)	*Margaritaria discoidea*	Used as a laxative, against parasitic worms and to ease toothache (bark). Also ornamental.
	**Camel's foot**	Msegese	*Piliostigma thonningii*	Leaves and bark used to treat ulcers, wounds, heart pain, arthritis, malaria, pyrexia, leprosy, sore throat, diarrhoea, toothache, gingivitis, cough, and bronchitis.

	English name	Swahili name	Scientific name	Notes
	Duiker-berry, Kudu-berry	Mlagambihi (Nyaturu), Mselekanga (Shambaa), Msolo (Lugulu), Msangati (Fipa)	*Pseudolachnostylis maprouneifolia*	Bark extract used to treat diarrhoea. Also considered effective against pneumonia. It can make a beautiful shade tree in parks and other public open spaces.
	**Lesser quinine-tree**	Mbozamakii (Shambaa)	*Rauvolfia mombasiana*	Root and bark used to treat malaria, venereal diseases, asthma, tuberculosis, stomach complaints and skin problems. In Kenya and Tanzania the grated root or stem bark is used with cassava flour as a rat poison.
	**Toothbrush tree**	Msiga or Mswaki	*Salvadora persica*	Used as herbal toothpaste as it prevents tooth decay and has anti-cancer properties.
	Marula	Mgongo	*Sclerocarya birrea*	The bark can be used to treat dysentery, diarrhoea, rheumatism and is preventative against malaria. The bark extract is also a remedy for haemorrhoids.
	Violet tree	Nengonengo, Mwaiguruka	*Securidaca longepedunculata*	Used to treat a great diversity of ailments including headaches, tuberculosis and constipation. The roots are poisonous. The bark is also used to make soap and the fibre used to make fishing nets and baskets. Also ornamental.
	White milkwood	Mkoko bara	*Sideroxylon inerme*	Bark and roots are used to treat broken bones, fevers, to dispel bad dreams, and to treat gall sickness. Also ornamental.

	English name	Swahili name	Scientific name	Notes
	**Black plum**	Mfulu, furu	*Vitex doniana*	Used to treat diarrhoea and dysentery and in the treatment of eye ailments and liver disease.
	Smelly-berry fingerleaf	Sungwi	*Vitex mombassae*	Leaves can be used to treat snake bite. Edible fruit, also good for ornament and shade.
	**Knob wood**	Mjafari or Mkunungu	*Zanthoxylum chalybeum*	A solution made from this species used in the treatment of malaria, sickle cell disease, measles, skin infections, and coughs.
	Coral knobwood, lime Prickly ash, wild lime	Mjafari or Mkunungu	*Zanthoxylum holtzianum*	Dried root powder is used as a porridge to treat convulsion in Tanzania. Shrub or small tree, occasionally climbing
	Buffalo thorn	Mkunazi	*Ziziphus mucronata*	A solution of root extract is used as a painkiller and to treat dysentery. A solution of the bark and the leaves is used for respiratory ailments and swellings of the skin. In East Africa, roots are used for treating snake bites. Also good for hedging.

The ornamental value of plants in the city

Ornamental plants are important positive elements in urban and peri-urban settings. Selected appropriately, ornamental plants species can support a number of other ecosystem services, not only beautification: A combination of species and different growth forms can be used as noise and dust barriers and species with high density foliage can be used for wind protection. They can create shade and reduce temperatures and areas for relaxing and they can enhance biodiversity. Ornamental plants can be grown in soil, on rooftops, against vertical walls and indoors to provide a suite of benefits to people.

Ornamental plants and gardens have always been sources of inspiration, fostering social bonds between people throughout human civilization and are sources of creative inspiration for culture, arts, educational and spiritual values, and identity. The benefits (ecosystem services) provided by urban plants are well recognised, but the specific benefits associated with ornamental species have only recently attracted major research interest.

Ornamental plants can enhance moods, aid recovery from mental fatigue, reduce stress and improve creative performance and productivity. Flowers create happiness and the presence of ornamental plants reduces mental fatigue and physical discomfort. In the context of child development, learning skills and concentration are sharpened when there are plants in the learning environment. The table below (Table 4) showcases a number of ornamental plant species native to the Dar es Salaam area.

TABLE 4: A list of selected ornamental plant species native to Dar es Salaam.

	English name	Swahili name	Scientific name	Notes
	**Equirity bean or rosary pea**	Ombulu (Luo)j	*Abrus precatorius*	Also medicinal
	**Multi-stemmed False-thorn**	Mkenge	*Albizia petersiana*	Also medicinal and good for shade
	**Large-leaved False-thorn**	Mkenge	*Albizia versicolor*	Also medicinal and good for shade


Albizia petersiana


Hibiscus schizopetalus


Annona senegalensis


Dichrostachys cinerea

	English name	Swahili name	Scientific name	Notes
	Aloe	Shubiri	*Aloe massawana*	Grows easily; attracts sunbirds and other pollinators
	Wild Custard Apple	Mtopetope mwitu	*Annona senegalensis*	Attractive tree with edible fruit
	**Curved flower woody**	Muganga (Pogoro)	*Chassalia umbraticola*	Shrub
	**Peruvian Grape Ivy, Venezuelan Treebine, Succulent Grape**	Chazi	*Cissus rotundifolia*	Also medicinal
	kola tree or kola nut	Mkavi (Shambaa), Muungu (Lugulu)	*Cola pseudoclavata*	Attractive flower
	**Ball of Fire, Powderpuff combretum, Thailand Powderpuff**	No common name	*Combretum constrictum*	Flowering tree
	Small-leaved Sickle bush	Mtunduru	*Dichrostachys cinerea*	Also medicinal
	Coral tree	Muungu maghome (Shambaa)	*Erythrina sacleuxii*	IUCN near threatened status
	**Pencil tree, pencil cactus, milk bush**	Mnyaa	*Euphorbia tirucalli*	Also used for hedging
	Yellow-resin gardenia	Mlemandembo	*Gardenia transvenulosa*	

	English name	Swahili name	Scientific name	Notes
	**False brandy bush, donkey berry**	Mfukufuku, mkone, mkole	*Grewia bicolor*	Medicinal, edible and used in hedging
	East African Fringed Hibiscus	Mgongonyoka (Swahili)	*Hibiscus chizopetalus*	Should replace the Chinese hibiscus which is commonly grown, always flowering, showy flowers
	**Sausage tree**	Mwegea	*Kigelia africana*	Well-loved tree. Can make a beer from the fruit, but poisonous fresh.
	Golden Bell-bean	Mtalawanda	*Markhamia obtusifolia*	Also medicinal
	Violet tree	Nengonengo (Sukuma), Siguluka (Makonde)	*Securidaca longepedunculata*	Also medicinal
	**Buffalo thorn**	Mkunazi	*Ziziphus mucronata*	Thorny, also good for hedging

Plants create a sense of being in contact with nature and this has positive psychological effects on people, making them feel more relaxed and restored, enhancing social cohesion, improving fitness by promoting outdoor physical activities, and improving physical health through the strengthening of the immune system. Visual characteristics of plants such as flower and leaf colour, shape and size, as well as the emission of scents, are not only appreciated for their beauty: These connections with nature lead to higher psychological well-being. Plants can also support recovery from physical injury and trauma. To this effect, some health care facilities invest in the establishment of 'healing gardens' which are areas in or near hospitals and health care centres with diverse shrubs and flowers that stimulate the human senses and which contribute to the treatment of illnesses and recovery to health.

Plant carefully to avoid infrastructure damage

In an urban environment, plants should be carefully selected such that they do not pose risk to infrastructure. Some species have aggressive root systems that can lift pavements and crack walls and even grow into and block drain pipes in search of water. The tables below show which native trees in Dar es Salaam are pavement-friendly (Table 5) and which species pose a risk to built infrastructure in the city (Table 6).

TABLE 5: A list of shrub and tree species suited to pavement planting (no aggressive root systems) in Dar es Salaam or have growth forms that do not damage built infrastructure.

	English name	Swahili name	Scientific name	Notes
	Equirity bean or rosary pea	Ombulu (Luo)j	*Abrus precatorius*	Climber. Suitable for home gardens.
	**Desert rose**	Mdafu	*Adenium obesum*	Attractive succulent, always flowering, needs little water. Suitable for home gardens.
	**Aloe**	Shubiri	*Aloe massawana*	Succulent. Grows easily; attracts sunbirds and other pollinators. Suitable for home gardens.
	African fan palm	Mvumo Mupama Muhama	*Borassus aethiopum*	Palm species. Suitable for home yards and road isles.
	Native currant	Mtanda-mboo	*Carissa spinarum*	Large shrub. Food plant. Suitable for town reserves* and botanical gardens.
	Curved flower woody	Muganga (Pogoro)	*Chassalia umbraticola*	Shrub. Suitable for home and office gardens.
	Peruvian Grape Ivy, Venezuelan Treebine, Succulent Grape	Chazi	*Cissus rotundifolia*	Vigorous climber. Also medicinal. Suitable for town reserves* and home gardens.
	Glorybower, bagflower and bleeding-heart.	Oloibaskoni (Maasai)	*Clerodendrum cephalanthum*	Scrambling tree or shrub. Suitable for town reserves*

	English name	Swahili name	Scientific name	Notes
	kola tree or kola nut	Mkavi (Shambaa), Muungu (Lugulu)	*Cola pseudoclavata*	Evergreen tree or shrub, 5-21 m tall. Also ornamental with striking flowers. Good for home and office gardens.
	**Ball of Fire, Powderpuff combretum, Thailand Powderpuff**	No common name	*Combretum constrictum*	Flowering shrub or tree. Crimson flowers, highly attractive. 1.5 – 3 m tall. Suitable for parks and gardens and containers. Attracts birds and butterflies. Good for road isles and home gardens.
	African myrrh	Mbambaa (Shambaa), Mlawa (Nyaturu), Mponda (Sukuma), Mtono (Hehe), Mzingazinga (Pare)	*Commiphora africana*	Small, much-branched tree with a bizarre appearance. Medicinal. Good accent plant in town reserves*.
	Bermuda grass, dog's tooth grass, Bahama grass, devil's grass, couch grass, wiregrass and scutch grass	Mbudu Garantli (Iraqw)	*Cynodon dactylon*	Grass species. Can combat soil erosion. Can be invasive but good for road isles, sidewalks and town reserves*
		Mwengele, Mwengere, Mwenjere	*Cyphostemma adenocaule*	Herbaceous climber. Medicinal.
	Pemba palm	Mpapindi (Swahili)	*Dypsis pembana*	Palm species found only in Tanzania. Fronds are not heavy, hence not dangerous when they fall. Suitable for town reserves*
	**East African sago-palm**	Mkwanga Msapo	*Encephalartos hildebrandtii*	A native cycad species. Deserves wider cultivation. Good for home and office gardens and road isles.
	Diamond leaf, diamond-leaved euclea, magic guarri, and toothbrush tree	Mdaa/Mswaki	*Euclea divinorum*	Evergreen shrub or small tree. Up to 9 m high. Fruits attract birds; flowers attract insects. Suitable for town reserves*, home yards and botanical gardens.
	Pencil tree, pencil cactus, milk bush	Mnyaa	*Euphorbia tirucalli*	Succulent, usually 3-5 m in height. Useful in hedging.

	English name	Swahili name	Scientific name	Notes
	Ramontchi, Governor's plum	Mng'unga (Matengo), Mgogola (Gogo), Mkalifumbula (Pogoro), Mpuguswa (Sukuma)	*Flacourtia indica*	Shrub or small tree with attractive fruit. Also useful in hedging and border-planting.
	**Bushweed**	Mkwamba (Swahili)	*Flueggea virosa*	Grows easily and low maintenance. White berries loved by birds. Good for planting in town reserves* and along rivers.
	Yellow-resin gardenia	Mlemandembo	*Gardenia transvenulosa*	Ornamental shrub. Good for home and botanical gardens.
	False brandy bush, donkey berry	Mfukufuku, mkone, mkole	*Grewia bicolor*	Hardy shrub or tree. Bright yellow flowers. Medicinal plant. Fruits are edible. Used also for hedging. Good for planting in home yards and open spaces.
	**Grey nicker, nicker bean, or knicker nut**	Msoro	*Guilandina bonduc*	A large sprawling shrub or vine up to 8 m and scrambles over other vegetation. Attractive yellow flowers. Good for enhancing home borders.
	East African Fringed Hibiscus	Mgongonyoka (Swahili)	*Hibiscus chizopetalus*	Should replace the Chinese hibiscus which is commonly grown, always flowering, showy flowers. Suitable for road isles and home gardens.
	**East African doum palm**	Mkoma Mkoche	*Hyphaene compressa*	Uniquely branched, unlike most palms which are not branched. Suitable for planting in town reserves*

English name	Swahili name	Scientific name	Notes
False marula	Mpwipwi	*Lannea schweinfurthii*	Small to medium-sized deciduous tree, up to 9 m in height (when cultivated). Suitable for home gardens and open spaces
Pheasant-berry, egossa red pear or bushveld peacock-berry	Mlakwale (Kwere), Mshembeshembe (Shambaa)	*Margaritaria discoidea*	Medium to tall tree. Attractive berries. The wood is hard and durable. Cultivated easily from seed. Suitable for planting in town reserves*, home gardens, public and private office compounds
Golden bell-bean	Mtalawanda	*Markhamia obtusifolia*	Shrub or small to medium tree. Striking yellow flowers and long fruit capsule. Suitable for planting in town reserves*
Forest red milkwood	Mgama (Swahili)	*Mimusops obtusifolia*	Shrub or branched tree up to 20 m tall. Suitable for planting in home gardens and town reserves*
Guinea grass		*Panicum maximum*	Grass species. Can be planted to combat erosion along roads.
Lesser quinine-tree	Mbozamakii (Shambaa)	*Rauvolfia mombasiana*	Shrub or tree. Fruits orange to red in colour. Suitable for planign along rivers, e.g. the Msimbazi valley and town reserves*
 **Rubber vine, Bungo fruit, mbungo,**	Mbungo, (pl. mabungo)	*Saba comorensis*	Liana with attractive, white flowers and edible fruit. Suitable for planting in town reserves*
Violet tree	Nengonengo (Sukuma), Siguluka (Makonde)	*Securidaca longepedunculata*	Small to medium-sized tree that grows up to 6 m high. Attractive, pink to purple flowers. Suitable for parks and town reserves*.
Pink jacaranda	Mhande (Shambaa)	*Stereospermum kunthianum*	Shrub or tree with abundant, fragrant pink or purple flowers. Suitable for planting in parks and town reserves*. Also medicinal.

	English name	Swahili name	Scientific name	Notes
	**Portia tree, Pacific rosewood, Indian tulip tree, or milo**	Mitakawa	*Thespesia populnea*	Flowering (yellow) coastal tree, up to 10 m in height. Good for planting in town reserves* and public spaces.
	**Bushveld signal grass**		*Urochloa mosambicensis*	Tufted perennial grass. Can be planted to combat soil erosion for example next to roadsides.

**Town Reserves: Some institutions have dedicated natural forest patches untouched for conservation purpose. University of Dar es Salaam has large patches of these, The Mloganzila campus for MUHAS on the outskirts of the city has the largest of all. Dar es Salaam is expanding very fast, as such the city councils should in forehand set aside some reserves for germplasm conservation, carbon sequestration and city cooling. River ecosystems would make ideal corridor reserves.*

Hyphaene compressa

Table 6 below is a list of species native to Dar es Salaam that are not suitable for pavement planting as their root systems or other structures pose a risk to built infrastructure. However, this does not mean that they should not be selected for planting. It means that they can be planted carefully in settings where they will provide benefits without creating problems, for example, lifting pavements and roads due to strong and extensive root systems.

TABLE 6: A list of plant species that are not suited to pavement planting and may pose risks to built infrastructure.

	English name	Swahili name	Scientific name	Notes
	**African baobab**	Mbuyu	*Adansonia digitata*	Large succulent tree with many uses and spiritual connotations. Can reach enormous proportions, up to 25 m in height and up to 28 m in girth. Good for planting in town reserves*
	**Lucky bean tree, mahogany bean, pod mahogany**	Mbambakofi, mukambakusi, Mkongo	*Afzelia quanzensis*	Deep rooted, can grow up to 35 m in height. Suitable for planting in open spaces, office compounds and home gardens
	Multi-stemmed False-thorn	Mkenge	*Albizia petersiana*	Deciduous tree or shrub, up to 20m tall. Suitable to planting in open spaces such as school yards or hospital precincts. Good shade tree.
	Large-leaved False-thorn	Mkenge	*Albizia versicolor*	Large deciduous tree, up to 20 m in height, girth up to 1.5 m. Suitable to planting in open spaces such as school yards or hospital precincts. Good shade tree.
	**Wild Custard Apple**	Mtopetope mwitu	*Annona senegalensis*	Shrub or small tree, occasionally up to 11 m. Suitable for home gardens, public open spaces and town reserves*. Attractive tree with edible fruit

	English name	Swahili name	Scientific name	Notes
	**Tassel-berry**	Msekela (Fipa), Mtompa (Fipa), Muindi (Shambaa), Umumwelaminzi (Nyiha), Linene (Nyamwezi)	*Antidesma venosum*	Small tree or shrub, with dense crown, up to 15 m tall. Suitable for planting in town reserves*
	Baphia or camwood	Mkuruti	*Baphia kirkii*	Rare tree. Grows very well and fast, with sweet-smelling flowers. Suitable for town reserves* and botanical gardens.
	**Coast goldleaf, Benin ironwood**	Mwiza	*Bridelia micrantha*	Suitable for planting in town reserves*
	Sjambok pod or Long-tail cassia	Mkundekunde (Swahili)	*Cassia abbreviata*	Small to medium-sized deciduous tree up to 7 m in height.
	African blackwood, grenadilla, or mpingo	Mpingo	*Dalbergia melanoxylon*	Small, fast-growing deciduous tree, up to 7 m in height. Valuable wood, good for carving and used to make musical instruments. Attractive flowers. Suitable for planting in town reserves*
	Dune soap-berry, soap-berry	Mmoyomoyo	*Deinbollia borbonica*	Shrub or small tree, up to 4.5 m tall. Good timber, hardwood for carvings. Suitable for planting in town reserves* and home gardens.
	**Small-leaved Sickle bush**	Mtunduru	*Dichrostachys cinerea*	Deciduous shrub or small tree, up to 7 m high. Not suited to small gardens. Hard, durable wood, can produce high quality firewood. Can be planted to combat erosion in erosion-prone areas.

	English name	Swahili name	Scientific name	Notes
	Abyssinian coral tree, Red-hot-poker tree	Mwamba ngoma Halamba (Lugulu), Mkalalwanhuva (Nyamwezi)	*Erythrina abyssinica*	Flowering tree. Soft trunk wood suitable for carving. Suitable for planting in town reserves*
	Coral tree	Muungu maghome (Shambaa)	*Erythrina sacleuxii*	Rare tree. Suitable for plating in public open spaces including schools, hospitals, botanical gardens, town reserves*.
	**Giant-leaved fig or Lagos rubber-tree**	Mkuyu (Shambaa)	*Ficus lutea*	Large tree, up to 25 m in height. The crown can span 30 – 45 m. Important food tree for birds and mammals. Due to its aggressive root system, avoid planting close to foundations, piping, paving or other structures. Suited for planting in open spaces and along rivers.
	Zanzibar copal, East African copal, or Amber tree	Msandarusi (Swahili)	*Hymenaea verrucosa*	Evergreen, flowering tree, up to 15 m in height. Used to be common in Dar es Salaam, now rare. Suitable for planting in town reserves*
	Sausage tree	Mwegea	*Kigelia africana*	Flowering tree with large, spreading crown. Unique fruits look like sausages. Suitable for planting in home yards, town reserves* and valleys.
	**African teak, Iroko**	Mvule	*Milicia excelsa*	Fast-growing, large, deciduous tree. Produces highly valuable hardwood. Suitable for open spaces, town reserves*, botanical gardens, home gardens.

	English name	Swahili name	Scientific name	Notes
	Camel's Foot	Msegese	*Piliostigma thonningii*	Deciduous flowering tree. Good shade tree, suitable for planting in town reserves*, large gardens and open spaces.
	**Duiker-berry, Kudu-berry**	Mlagambihi (Nyaturu), Mselekanga (Shambaa), Msolo (Lugulu), Msangati (Fipa)	*Pseudolachnostylis maprouneifolia*	Attractive, deciduous tree up to 12 m in height. Suitable for planting in town reserves*, home gardens, open spaces and office compounds.
	Toothbrush tree	Msiga/mswaki	*Salvadora persica*	Small, evergreen tree up to 7 m in height. Suitable for planting in town reserves*.
	Marula	Mgongo	*Sclerocarya birrea*	Medium to large deciduous tree. Flowers are insect-pollinated. Suitable for planting in open spaces, such as schools and hospital precincts.
	White milkwood	Mkoko bara	*Sideroxylon inerme*	Evergreen tree. Can grow to a height of 15 m. Suitable for planting in town reserves* and home gardens. Makes useful firebreak.
	**Tamarind**	Mkwaju	*Tamarindus indica*	Semi-deciduous tree, can grow up to 30 m in height, with dense, spreading crown. Suitable for planting in town reserves* and open spaces.
	**Natal mahogany**	Mdodoma Mti maji	*Trichilia emetica*	Fast-growing, evergreen tree up to 25 m in height with sweet-scented flowers. Suitable for planting in office compounds, home yards and open spaces.

	English name	Swahili name	Scientific name	Notes
	**Black Plum**	Mfulu, furu	*Vitex doniana*	Medium-sized deciduous tree with a rounded crown. Suitable for planting in town reserves* and compounds.
	Smelly-berry fingerleaf	Mfudamaji/mtalali Sungwi	*Vitex mombassae*	Stiffly-branched, deciduous shrub or small tree, can grow up to 8 m in height. Suitable for planting in town reserves* and compounds.
	Chaste tree	Mkula	*Vitex mossambicensis*	Shrub or tree with fragrant, mauve flowers. Suitable for planting in town reserves* and compounds.
	Chaste tree	Mkula	*Vitex zanzibarensis*	Shrub, about 5 m in height. Threatened by habitat loss. Suitable for planting in town reserves* and compounds.
	Knob wood	Mjafari, Mkunungu	*Zanthoxylum chalybeum*	Deciduous, thorny shrub or tree up to 12 m high, with a rounded crown. Trunk with woody knobs. Suitable for planting in home gardens and town reserves*
	Coral knobwood, lime Prickly ash, wild lime	Mjafari	*Zanthoxylum holtzianum*	Tree. Up to 15 m in height. Trunk with corky bosses. Suitable for planting in home gardens and town reserves*
	**Buffalo thorn**	Mkunazi	*Ziziphus mucronata*	Small to medium-sized tree, up to 20 m. Suitable for planting in home yards and town reserves*. Thorny, good for hedging and produces a pleasant shade tree that attracts birds and insects.

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Baobab trees (*Adansonia digitata*) can grow to massive proportions and need a lot of space. This species is culturally important in Dar es Salaam. The specimen in this photo is near the Msimbazi River mouth.

The role of local nurseries

Dar es Salaam roadside nursery survey

Dar es Salaam City boasts an impressive abundance of roadside/sidewalk nurseries across the city. This is a way for plant growers to generate an income. A nursery survey was conducted in 2020 in Dar es Salaam to gather information about the plant species available in local nurseries, the extent to which nurseries stock and sell native plant species and if so, where they source their indigenous stock from. The surveys were conducted by experienced botanists. A total of 32 roadside nurseries were surveyed across the different municipal districts of Dar es Salaam.

Surveyers observed a total of 776 plants which reflected 165 species (both exotic and native species) across the nurseries visited (Refer to **Table 2** in the Annexure for the full species list). Of the 165 species observed in the nurseries, 33 species were native to Tanzania. Therefore, 20%, or one fifth, of the plant species observed in the nurseries were native and 80% were exotic species.

Some plant species were observed to be more abundant in the nurseries than others. In the exotic species group, the most commonly observed species were: *Euphorbia milii*, *Codiaeum variegatum*, *Roystonea regia*, *Dypsis lutescens* and *Mangifera indica*. Among the native species, the most commonly seen species included *Muntingia calabura*, *Plectranthus barbatus*, *Trichilia emetica*, *Opuntia vulgaris* and *Matteuccia struthiopteris*. The reason for the relative species abundance in the roadside nurseries was not clarified in this study, for example whether exotic species seeds and/or seedlings are easier to access or perhaps easier to grow or whether customer demand for certain species might drive the choice and abundance of species cultivated and sold in these nurseries. Further insigts are needed to understand and explain these observations.

The table below is a summary of the results of the growth forms observed durig the survey. The most popular category is trees followed shrubs, herbs, shrub or small tree, climber/vine and lastly epiphytes (Epiphytes are plants that grow on other plants, such as ferns and orchids that grow on tree trunks).

Category	Number of species observed in growth form category
Trees	77
Shrubs	45
Herbs	39
Shrub or small tree	9
Climber/vine	6
Epiphytes	1

Fourteen nursery owners were surveyed regarding the ownership of the nurseries. All were individually owned and there did not appear to be any nursery ‘collectives’. The absence of collectives affects the city authority’s ability to connect with the roadside nursery sector to for example discuss the potential to upscale the market for indigenous plants. The Dar es Salaam City Council typically purchases plants from the roadside nurseries for greening projects. Nursery owners had varying years of experience with plant cultivation, ranging from 2 years to 30 years. Out of the 14 nursery owners interviewed, 5 could not differentiate between exotic and native species while the others were able to do this. Although this knowledge, i.e. the ability to tell the difference between native and non-native plants, was not verified in the study, this result suggests awareness of and knowledge about native species among nursery owners and managers, although exotic species remain the most abundant in cultivation.

Promoting the cultivation of native flora

Roadside nurseries are businesses and their owners wish to generate an income by selling plants. Thus, if there is a market for native plants, nursery owners are likely to shift their products to service the market. Stimulating a market for native plant species in Dar es Salaam will require education, publicity and projects to plant native plants. Training and materials are needed to inspire nursery owners, landscaping companies, municipal planners, land owners, gardeners and educators. Partnerships will be important to support local efforts. For example, NGO projects such as Okoa Mimea Ya Asili by Culture & Development East Africa can facilitate the promotion of native plants and help can be enlisted from the Dar es Salaam Gardening Club. The demand for native species does seems to be on the increase. In a recent project, the World Bank in Dar es Salaam requested thousands of native seedlings, but they were able to source only a few hundred from local nurseries.

Apart from the roadside nurseries, other, specialised indigenous nurseries and botanical gardens can be used to test and demonstrate feasibility to propagate and raise interest in native plant species and to test whether such species can be successfully cultivated and be an economically sustainable commodity.

Sourcing seeds or seedlings of indigenous plants without harming wild populations can be a challenge. In some cases, wild plant populations can have poor germination rates and experience high rates of seedling predation. It is therefore important to ensure the sustainable harvesting of seedlings from such populations. Knowledge of the ecology and reproductive biology of species of interest is necessary as well as their horticultural potential. This calls for in-country expertise such as that of the Tanzania Forest Service's Directorate of Tree Seed Production, the Sokoine University of Agriculture, and NGOs such as the Tanzania Forest Conservation Group and Reforest Africa.

▾**BELOW: Roadside nursery plants in Dar es Salaam**

Several nurseries in Dar es Salaam offer seedlings of native species: Pande Game Reserve in Dar es Salaam, Jane Goodall Institute Nature Center in Pugu Hills, and Shining Garden in Mikocheni-B. Relevant university departments can also contribute to the effort. For example, it is recommended that the MUHAS Institute of Traditional Medicine should initiate development of a nursery for important indigenous medicinal and food plants for demonstration.

The Tanzania Forest Service nursery in Vikindu Forest at Mwandege Magengeni in the Mkuranga district, established in 2019, is also an excellent resource. The nursery is under management of Tanzania Forest Agency (TFS) Temeke district. The nursery supports a number of jobs and has the capacity to produce more than 500,000 tree seedlings per year. They source seeds from Tanzania Tree Seed Agency (TTSA) in Morogoro. Seedling are distributed to the community free of charge. Some of the species available from the TFS nursery are listed here below:

Indigenous species

1. *Afzelia quanzensis* (Mkongo)
2. *Dalbergia melanoxylon* (Mpingo)
3. *Khaya anthotheca* (Mkangazi)
4. *Trichilia emetica* (Mdodoma or mtimaji)
5. *Cordia africana*
6. *Milicia excelsa* (Mvule)
7. *Pterocarpus angolensis* (Mninga)

Exotic species

1. *Albizia lebbeck* (Mkenge or Mkingu)
2. *Annona muricata* (Stafeli)
3. *Annona squamosa* (Topetope)
4. *Artocarpus heterophyllus* (Mfenesi)
5. *Tectona grandis* (teak plant)
6. *Muntingia calabura* (Mharadali)
7. *Jacaranda mimosifolia* (jacaranda)
8. *Psidium guajava* (Mpera)
9. *Carica papaya* (Mpapai)
10. *Senna siamea* (Mjohoro)
11. *Senna spectabilis* (Mhoba)

Detailed information for a selection of nurseries in Dar es Salaam is provided in Table 3 of the Annexure.

POCKET PARKS CAN CREATE AWARENESS, SUPPORT SPECIES, LIVELIHOODS AND QUALITY OF LIFE

Rejuvenation Nature Center

Rejuvenation Nature Center is a pocket nature reserve in the middle of Mlkocheni B, Dar es Salaam. Along a path of 150 steps, 38 plant species, beautiful, rare and indigenous to coastal East Africa, are labelled with their scientific, English and Swahili names. Seedlings and seeds of native plants are available. At the gate, Zaidi Ice Cream serves organic sherbet using indigenous fruits such as Saba comorensis (mbungo) and Uapaca spp (mikusu).

Contact:

Phone, SMS, and WhatsApp: 255 6895 28882
Email: RejuvenationNatureDSM@yahoo.com

Animals native to Dar es Salaam

Birds

Dar es Salaam contains one of 80 Important Bird Areas (IBA's) in Tanzania. IBAs are globally recognised areas, designated by BirdLife International, based on scientifically defensible criteria such as threatened species and/or species with a restricted range. The Dar es Salaam IBA covers primarily coastal habitat from Ras Kiramoni to Ras Ndege (40 km in length). This area provides important habitat for waders and seabirds. The inland limit of the IBA site is the high-tide mark but it includes mangroves. Even outside of the IBA, Dar es Salaam city offers a diverse range of habitats for birds such as fresh water ponds, mangrove forests, lowland coastal forests, salt flats, shorelines, urban gardens, plantations, acacia scrubland and riverine habitats. These habitats provide breeding, resting and foraging spaces for diverse bird species including migrants from Europe, Asia, and other parts of Africa. A 1987 annotated checklist for Dar es Salaam counted 457 bird species. Similarly, the Tanzania Bird Atlas lists 467 bird species for a smaller area centred on the city and habitat beyond IBA boundaries.

For this catalogue, showcased bird species were selected partly though guidance from a 2019 study of Dar es Salaam avifauna. The study found that in Dar es Salaam, remaining thickets and forest patches are crucial in supporting a large number of forest-dependent birds as well as Palaearctic

migrants. For the selection here, experts also considered birds which have established populations in Dar es Salaam and can be easily seen by a large proportion of Dar es Salaam residents. Experts also considered bird species which are most likely to make use of native plant species that are candidates for habitat restoration. In other words, bird species which would benefit from plant species that provide nesting habitat and cover from predators such as house crows as well as plants that offer food to diverse bird species feeding on nectar, insects and grains. Table 7 (below) below and photos show a selection of native bird species of interest in Dar es Salaam.

TABLE 7: A selection of bird species native to Dar es Salaam

	English name	Swahili name	Scientific name	Notes
	**Helmeted guinea-fowl**	Kanga	*Numida meleagris*	Charming and attractive, good for meat and eggs. Can be domesticated
	Red-eyed dove	Tereka/tetere Jichojekundu	*Streptopelia capicola*	Soothing call
	Yellow-bill (Malkoha)	Pundamakaa	*Ceuthmochares aereus*	Handsome bird. Needs native trees
	**Hamerkop**	Fundichuma (Msingwe)	*Scopus umbretta*	Iconic species. Builds a large nest
	Speckled mousebird	Pasa Mchirizi	*Colius striatus*	Well-known garden bird. Occurs in flocks
	**Red-fronted tinkerbird**	Tingitingi Doajekundu	*Pogoniulus pusillus*	Not commonly seen, but known by its call: 'Tink Tink Tink'
	Brown-breasted barbet	Zuwakulu Kifuamarungi	*Pogonornis melanopterus*	One of the 'big 'five' bird species endemic to Dar es Salaam

English name	Swahili name	Scientific name	Notes
Black-throated wattle-eye	Tatata kifuacheusi	*Platysteira peltata*	Garden species
Purple-banded sunbird	Chozi Mgongokijani	*Cinnyris bifasciatus*	Often seen on aloes
Golden weaver	Mdogo	*Ploceus subaureus*	Restricted range, Predated by crows, occurs in colonies.
Spectacled weaver	Kwera Koojeusi	*Ploceus ocularis suahelicus*	Found in gardens, hanging nests. Predated by crows
Grey-backed camaroptera	Kiwirosagi	*Camaroptera brachyura pileata*	Eats insects, nests made of leaves woven together, lined inside with grass. Rarely seen, but does well in bushy gardens
Zanzibar sombre greenbul	Nyambelele Jichojeupe	*Andropadus importunus*	Ranged restricted to coast. Prolific singer
White-browed robin chat	Kurumbiza Michirizimeupe	*Cossypha heuglini*	Attractive species, beautiful song. Found in gardens.
Black-headed heron	Korongo majoka	*Ardea melanocephela*	Handsome species. Often seen stalking for insects.
Zanzibar red bishop bird	Kweche pwani (tumbojeusi)	*Euplectes nigroventris*	Used to be common in Dar es Salaam, but seen less as swamp habitats are dried out
Tawny prinia	Shoro bawakahawa	*Prinia subflava*	More often heard than seen, restricted range. Recognizable by its long tail.
Sacred ibis	Kwarara mweupe	*Threskiornis aethiopicus*	Eats a lot of garbage and snails which are part of the bilharzia life cycle

Large hamerkop nest

Ploceus ocularis suahelicus

Ceuthmochares aereus

Cinnyris bifasciatus

Reptiles

According to Wildlife Conservation Society, 19 reptile species are known from Dar es Salaam. The iNaturalist database shows 28 reptile species that have been photographed and posted for Dar es Salaam. Five reptile species were chosen to showcase here (**Table 8** below).

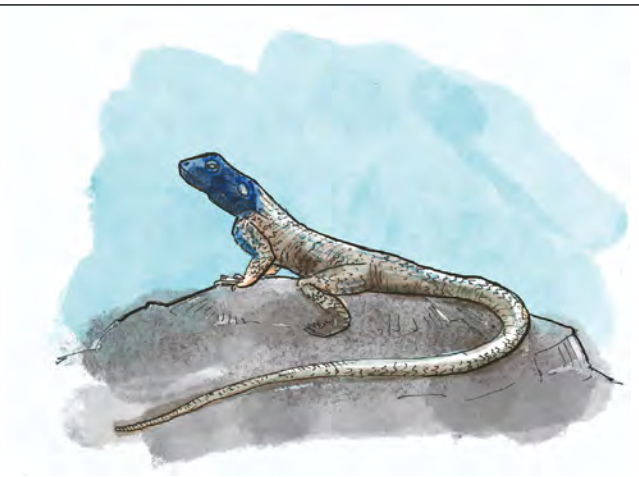


TABLE 8: Five notable reptile species in Dar es Salaam.

	English name	Swahili name	Scientific name	Notes
	**White-lipped Snake**	Nyoka	*Crotaphopeltis hotamboeia*	Fairly common, non-venomous, with an impressive threat display.
	Yellow-headed Dwarf Gecko	Mjusi ndogo ya Kichwa njano	*Lygodactylus luteopicturatus*	Mesmerizing, small gecko. Common, but endemic and range restricted.
	Tropical House Gecko	Mjusi	*Hemidactylus mabouia*	Often treated as a pest. Feeds on insects in and around the house.
	**Dull-green Day Gecko**	Mjusi ya mnazi	*Phelsuma dubia*	Endemic with restricted range. Strikingly beautiful and can change colours.
	Speckle-lipped Mabuya	Karu kaka, Gonda	*Trachylepis maculilabris*	Attractive skink. Can use urban elements e.g. walls &, fences as habitat. Endemic almost exclusively to coastal areas in Tanzania.

Amphibians

The Wildlife Conservation Society lists 17 species of amphibian for Dar es Salaam, while the iNaturalist database has documented 19 species. Four species were chosen to showcase here (See Table 9). In general frogs are considered by local people with suspicion, when actually they are very helpful (Refer to the notes in Table 9).

TABLE 9: Four notable amphibian species in Dar es Salaam.

	English name	Swahili name	Scientific name	Notes
	**Marbled Snout-Burrower**	Vyura	*Hemismus marmoratus*	Common but over-looked species, often heard in rainy season, eats ants and termites
	**Anchieta's Ridged Frog**	Vyura	*Ptychadena anchietae*	Common, attractive. Eats insects.
	**Bullfrog**	Vyura	*Pyxicephalus edulis*	Large species (males up to 110 mm), territorial. They spend most of their time underground in a dormant state and emerge when it rains.
	**Guttural Toad**	Vyura Matomvu	*Sclerophrys gutturalis*	Common species, will acclimate to humans. Eats insects

Mammals

The Wildlife Conservation Society lists a total of 9 land-based mammal species for Dar es Salaam. The iNaturalist database show observations for 14 mammal species. For this report, six were chosen. (See **Table 10** below)

TABLE 10: Six mammal species that can be found in Dar es Salaam.

	English name	Swahili name	Scientific name	Notes
	**Vervet Monkey**	Tumbili, Ngedere	*Chlorocebus pygerythrus*	Grey monkey with a black face. Resident in Dar es Salaam. Entertaining
	**Slender Mongoose**	Nguchiro	*Herpestes sanguinea*	Dark brown to grey with prominent black or red tip on the tail. Eats mice and rats.
	Hedgehog	Kalunguyeye	*Atelerix albiventris*	Shy, but can survive in surburbia, well-liked.
	Spotted Genet	Kanu	*Genetta tigrina*	Secretive: present but not often seen. Eats mice and rats.
	**Straw-coloured Fruit Bat**	Popo matunda	*Eidolon helvum*	Iconic to Dar es Salaam. Seen in huge flights from known trees every evening.
	Yellow-winged Bat	Popo manjano	*Lavia frons*	Wings are transparent yellow, eats insects.

Insects

Two insect species are showcased here

(See Table 11)

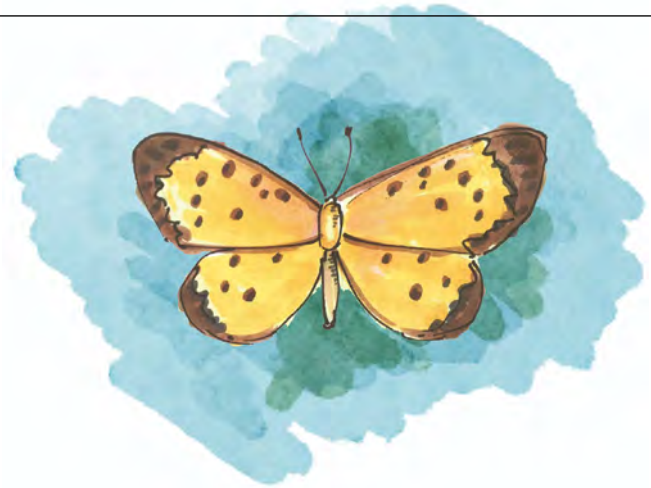


TABLE II: Two insect species, native to Dar es Salaam, one moth and one butterfly, were selected for this catalogue.

	English name	Swahili name	Scientific name	Notes
	**Verdant Hawkmoth**		*Euchloron megaera*	Quite common, recognizable. Gathers nectars in the evening. Attractive caterpillar
	**Lime (Citrus) Swallowtail**	Kipepeo	*Papilio demodocus*	Large butterfly, female wingspan up to 13 cm. Frequents urban gardens. Excellent pollinators.

Invasive, non-native species

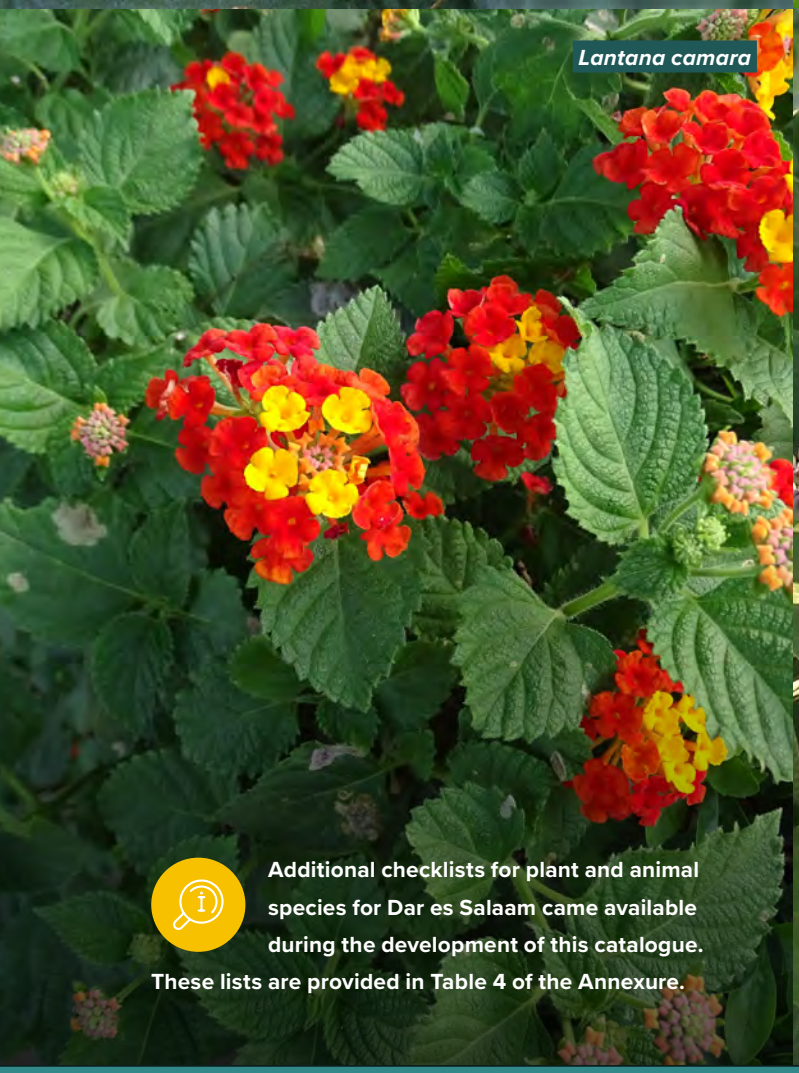
According to the Intergovernmental Science-Policy Platform's 2019 Global Assessment for Biodiversity and Ecosystem Services, invasive, non-native species are one of five biggest direct drivers of biodiversity loss, globally. (The other four factors are: Changing use of sea and land, direct exploitation of organisms, climate change and pollution). Invasive, non-native species become established where they historically didn't occur and outcompete and displace local biodiversity. They can sometimes lead to the local extinction of native species which causes a shift in the makeup of the ecosystem. It is therefore important to control non-native, invasive species where feasible. Table 12 below showcases a number of invasive, non-native species in Dar es Salaam.

TABLE 12: Six invasive species that can be found in Dar es Salaam.

English name	Swahili name	Scientific name	Notes
Crown Flower		*Calotropis gigantea*	Large shrub, up to 4m in height. Good native alternative (similar-looking) is Calotropis procera.
Prickly Pear		*Opuntia vulgaris*	Challenging to remove, fast spreading in dense colonies, destroys animal pasture.
Leucena		*Leucaena leucocephala*	Small, fast-growing tree, native to southern Mexico and northern Central America. Grows densly along the coast.
Neem	Mwarobaini	*Azadirachta indica*	Native to India. Medicinal but invasive.
Lantana		*Lantana camara*	Invasive shrub, up to 4 m tall, native to the American tropics.
Indian House Crow		*Corvus splendens*	Native to Asia. Extremely destructive, preying on native birds chicks and eggs.

Opuntia vulgaris

Azadirachta indica



Lantana camara

Calotropis gigantea

Additional checklists for plant and animal species for Dar es Salaam came available during the development of this catalogue. These lists are provided in Table 4 of the Annexure.

Rare native species in Dar es Salaam

In this section, we showcase a selection of Dar es Salaam's IUCN 'Red list' species, in particular those that are vulnerable and near threatened.

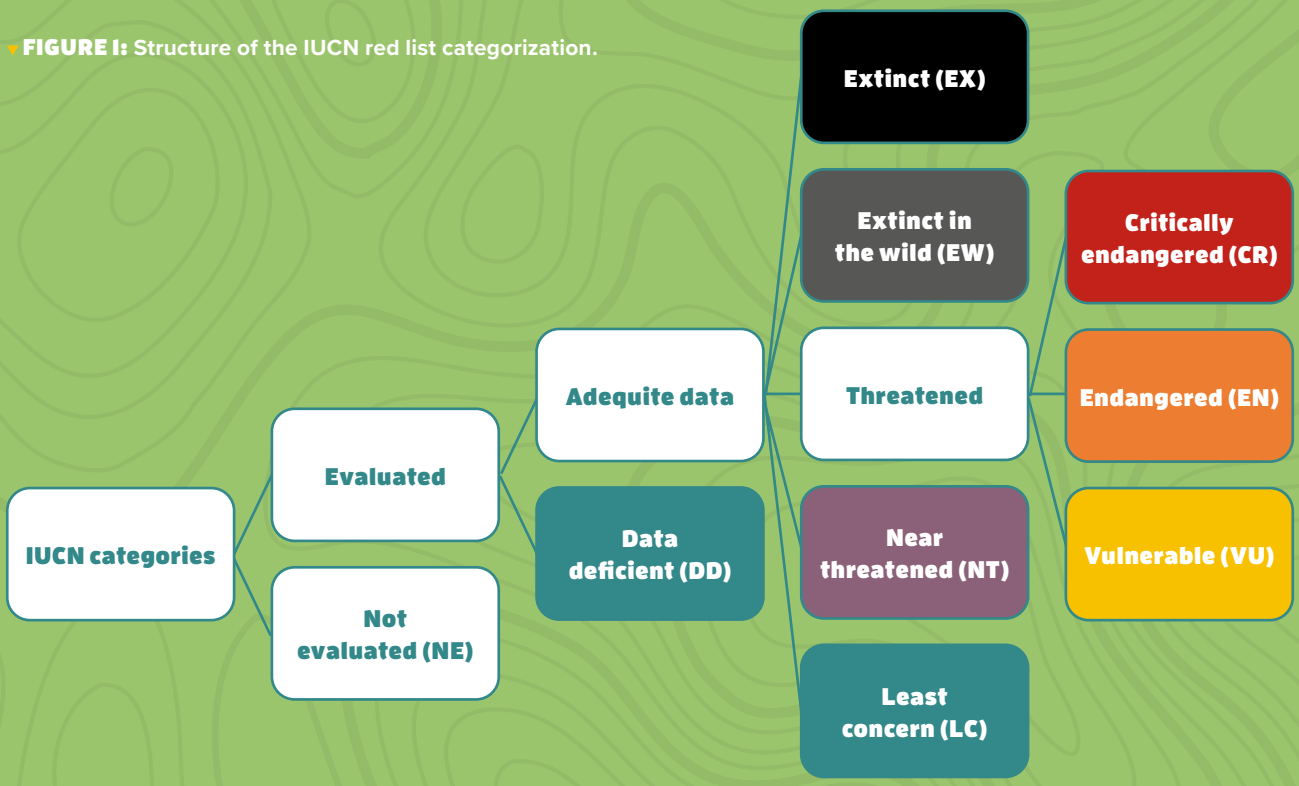
The IUCN red list

The IUCN Red List is an easily understood, objective framework for the classification of species according to their extinction risk. The Red List is a critical indicator of the health of the world's biodiversity. It is a tool that can be used to inform and catalyse action for biodiversity conservation and the associated policy changes that are needed to protect natural resources. The Red List provides information about species range, population size, habitat, and ecology, use and/or trade, threats, and conservation actions that will help inform necessary conservation decisions (IUCN 2021). The diagram (Fig. 1) and text box (Box 2) below show how the IUCN categories work

IUCN red list categories

The structure of the IUCN red list categories is shown in Figure 1 below.

FIGURE 1: Structure of the IUCN red list categorization.



Baphia kirkii

BOX 2: EXPLANATION OF THE IUCN CATEGORIES

Extinct (EX) – A taxon* is Extinct when there is no reasonable doubt that the last individual has died.

Extinct in the Wild (EW) – A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range.

Critically Endangered (CR) – A taxon is Critically Endangered when the best available evidence indicates that it is considered to be facing an extremely high risk of extinction in the wild.

Endangered (EN) – A taxon is Endangered when the best available evidence indicates that it is considered to be facing a very high risk of extinction in the wild.

Vulnerable (VU) – A taxon is Vulnerable when the best available evidence indicates that it is considered to be facing a high risk of extinction in the wild.

Near Threatened (NT) – A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category soon.

Least Concern (LC) – A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

Data Deficient (DD) – A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status.

Not Evaluated (NE) – A taxon is Not Evaluated when it is has not yet been evaluated against the criteria (IUCN 2001).

**A 'taxon' is a taxonomic group, such as a species, family, or class.*

Species at risk in Dar es Salaam

Table 13 below shows twelve 'Red Listed' Vulnerable and Near Threatened species: One mammal and eleven plant species, native to the coastal forests of Dar es Salaam, identified from the species selected for this catalogue.

TABLE 13: IUCN Red List species (vulnerable or near threatened) of Dar es Salaam (Also see Fig. 1)

	English name	Swahili name	Scientific name	IUCN status
	Mammal			
	Straw-coloured fruit bat	Popo matunda	*Eidolon helvum*	**Near Threatened**
	Plants			
	**Aloe**	Shubiri	*Aloe massawana*	**Vulnerable**
	Baphia or camwood	Mkuruti	*Baphia kirkii*	**Vulnerable**
	**Kola tree or kola nut**	Mkavi (Shambaa), Muungu (Lugulu),	*Cola pseudoclavata*	**Near Threatened**
	**African blackwood, grenadilla, or mpingo**	Mpingo	*Dalbergia melanoxylon*	**Near Threatened**

	English name	Swahili name	Scientific name	IUCN status
	**Pemba palm**	Mpapindi (Swahili)	*Dypsis pembana*	**Vulnerable**
	**East African sago-palm**		*Encephalartos hildebrandtii*	**Near Threatened**
	Coral tree	Muungu maghome (Shambaa)	*Erythrina sacleuxii*	**Near Threatened**
	**African teak, Iroko**	Mvule	*Milicia excelsa*	**Near Threatened**
	**Chaste tree**	Mkula	*Vitex mossambicensis*	**Vulnerable**
	Chaste tree		*Vitex zanzibarensis*	**Vulnerable**
	**Coral knobwood, Lime prickly ash, Wild lime.**	Mjafari	*Zanthoxylum holtzianum*	**Vulnerable**

Amber trees and bushbabies: Local extinction or hope in restoration?

Hymenaea verrucosa (Zanzibar copal, East African copal, or Amber tree; or Msandarusi in Swahili), is a remarkable tree species, known for its strong timber and superior quality gum (amber/resin) which produces high class wood varnish. Because the species produces gum, it is also known for attracting pygmy bushbabies (*Paragalago* species). These highly charismatic and quirky primates rely on the gum as an important food source. Some of the bushbaby species in the Dar es Salaam area are on the IUCN red list (i.e. Near Threatened). *Hymenaea verrucosa* trees have been overharvested in Dar es Salaam and have all but disappeared, apart from a few scattered individuals in the protected and unprotected areas near Pugu Nature Reserve, in Pande Game Reserve, and in Ngaramia Forest at the Ras Kutani Hotel. The near local extinction of this tree species has also meant that bushbabies are no longer found in Dar es Salaam. However it is possible that bushbabies may still exist on the fringes of Dar es Salaam City in Kigamboni, Pande and possibly Kisarawe.

In the absence of gum they sometimes feed on banana and pawpaw.

If *Hymenaea verrucosa* trees were protected and propagated now, we can imagine a future in which such trees sustainably support a thriving gum industry, support timber harvests as well as see the return of the bushbabies. This situation presents a unique opportunity for restoring a local gum industry and a chance for residents and tourists to see the bushbabies and enjoy Dar es Salaam's rich natural heritage.

▼ **The Amber tree: Bark (below left) and foliage (below right). Photos by William Kindeketa**

Municipal response to biodiversity information

When the information gathering phase for this catalogue was completed, a seminar was organised by the the Muhimbili University of Health and Allied Sciences on 7 Oct 2021. Summaries of Dar es Salaam's biodiversity information were presented to a range of stakeholders, in particular representatives from Dar es Salaam's municipal districts. **Issues and recommendations on best practice relevant to Dar es Salaam's indigenous natural heritage were raised:**

- **Kigamboni forest officer:** Need to consider the inclusion of indigenous plants into building permit conditions and forest officers should verify after construction has been completed.
- Need to consider native species as options for planting along new roads.
- **Temeke forest officer**: We need to advocate for forest conservation in the city but residents sometimes dislike these species because they harbour snakes and other unwelcome wildlife. However, these are misconceptions because these species are useful, emphasising the need to educate residents.
- **Biodiversity expert:** Native plants grow slower when they grow in their natural habitats because they are affected by fire, herbivores and drought. But when in cultivation, being watered, protected from fire, can grow as fast as exotics and growers should not be discouraged by the misconception that native plant species grow slower than exotic species.
- **NGO to the municipal representatives:** We need city guidelines and policies on tree planting; many Dar es Salaam residents harvested herbal remedies during COVID – indicating that people need them. Should plant more of these in cities
- The Indian house crow is a significant problem. How can they be managed? The city needs a strategy, a clear institutional framework, for the management of non-native, invasive species.
- **Ubungo:** We are already planting native trees in schools and as part of river rehabilitation projects to counteract erosion, but would like a more extensive list of species to plant.
- Politicians often select tree species. We need to find ways to portray the social and political advantages of native tree species.
- **Temeke:** City planner. Dar es Salaam has a master plan but much of the land does not belong to city, but is owned by private individuals. Thus, if the city requires that a parcel of land should be set aside for tree planting, then those land owners will expect to be compensated. Private land owners need to be sensitised to the benefits of planting trees in their own land. This even applies to people who have informally moved onto and claimed land along river banks. Thus this issue does not apply only to large municipal land parcels.
- The Road Act and other related acts have stipulations around trees and vegetation that might block road user visibility. Thus, sometimes big trees are not allowed in road areas. But the presentations today suggest useful plants for road corridors, for example shrubs and ornamental species which will not obscure visibility of drivers.

Policy recommendations

Cities are major drivers of biodiversity loss, but they also offer significant opportunities for action and they can demonstrate that taking action for biodiversity in urban settings can generate significant benefits for urban societies. By focusing on enhancing nature, cities can address key underlying drivers of biodiversity loss by responding to the links between nature and climate change risk, by reducing pollution and changing patterns of consumption, and by generating connections with nature that instil values for action to prevent the loss of biodiversity.

Local stewards for biodiversity are vitally important. Increasing people's awareness of the importance of biodiversity and ecosystems, on how their actions impact biodiversity and how they can get involved and become stewards of biodiversity can help alleviate some biodiversity and ecosystem loss. Cities therefore, need engaged stewards that can help redirect the impacts of urbanization into a positive change for people and the life-support natural systems that we depend upon.

Urban economies are essentially 'embedded' within nature. For example, two major issues for Dar es Salaam, namely urban heat and the need to stimulate tourism and local revenue generation are tied into the city's ability to upscale urban cooling and tourism amenities such as urban parks, even at very small scales (e.g. pocket parks). Dar es Salaam is already known for its unique quisine, markets, vibrant city life, birding tourism and beautiful beaches, but if the city were to become more biodiversity savvy, tourists who would normally be transitting to other tourist destinatins like Arusha or Zanzibar, would be encouraged to select Dar es Salaam as a major tourism destination. To achieve this, the conservation and wise use of the natural environment and sustaining ecosystems will require greater government support, partnerships with and greater private sector involvement, a rapid upscaling of sustainable businesses and green infrastructure, and new financial arrangements. Biodiversity and ecosystem services have economic value which, if internalized by economic agents, has the potential to attract private finance. Evidence suggests that private sector investment in biodiversity and ecosystems is not only affordable and beneficial but can be highly profitable.

"The conservation and wise use of the natural environment and sustaining ecosystems will require greater government support, partnerships with and greater private sector involvement, a rapid upscaling of sustainable businesses and green infrastructure, and new financial arrangements."

Useful Resources

1. The **Thematic Atlas** of nature's benefits to Dar es Salaam (2019). The Atlas shows how priority areas can be rationally and spatially identified for greening to achieve maximum social benefit. *https://interactbio.iclei.org/resource/a-thematic-atlas-of-natures-benefits-to-dar-es-salaam/*

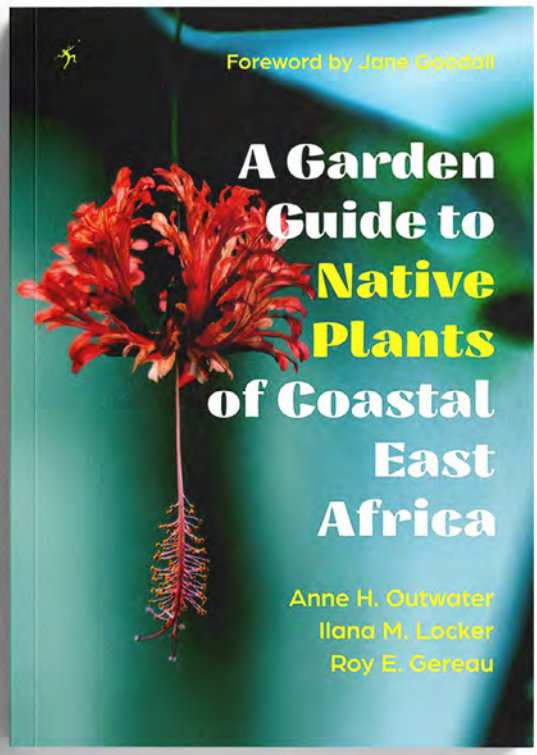
2. Illustrated **biodiversity map**: The Value of Nature in Dar es Salaam. The map is downloadable in English and Swahili. It showcases the natural assets of Dar es Salaam, their benefits to people and the threats to these benefits. *https://interactbio.iclei.org/resource/dar-es-salaam-tanzania/*

3. Dar es Salaam **Local Biodiversity Strategy and Action Plan** (LBSAP) – Ilala area (2021). This Council-endorsed strategy presents and unpacks five focus areas or nature-develop themes that require priority action in the city. *https://interactbio.iclei.org/resource/dar-es-salaam-local-biodiversity-strategy-action-plan/*

4. An **Investment Case** for Nature's Benefits in Dar es Salaam. This work presents a case for the financial inventment into a nature-based solutions project in Dar es Salaam, namely the upgrading of the Botanical Garden. The case includes the preliminary financial feasibility and options for the governance arrangement required to govern and manage the investment and the benefits. *https://interactbio.iclei.org/resource/an-investment-case-for-natures-benefits-in-dar-es-salaam/*

5. **Kijani Pamoja** is a youth led pan-African regreening grassroots movement. Its mission is to activate financial and human resources to engage communities in growing dense, indigenous "mini" forests in urban areas across the continent. Kijani Pamoja was launched in Dar es Salaam in May of 2022.

6. Book: ***A Garden Guide to Native Plants of Coastal East Africa*** outlines how and what to plant in order to rejuvenate the coastal East African ecosystem through gardens, school yards, roadways, and public places. The authors have selected some 60 indigenous species based on hardiness, the ability to thrive under domestication, and protective value in restoration. The book also includes a chapter with information and photos of non-native plants. The book serves as a robust reference for city officials, students and professionals to use in assessing sustainable horticultural practices along the coastal ecosystem from Somalia and Kenya, through Tanzania to Mozambique.



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Annexures

TABLE I: Complete list of species selected for this catalogue

AMPHIBIANS	
Family	**Scientific Name**
Hemisotidae	*Hemisus marmoratus (Peters, 1854)*
Ptychadenidae	*Ptychadena anchietae (Bocage, 1868)*
Pyxicephalidae	*Pyxicephalus edulis (Peters, 1854)*
Bufonidae	*Amietophrynus gutturalis (Power, 1927)*
BIRDS	
Family	**Scientific Name**
Numididae	*Numida meleagris (Linnaeus, 1758)*
Columbidae	*Streptopelia capicola (Rupell, 1837)*
Cuculidae	*Ceuthmochares aereus (Vieillot, 1817)*
Scopidae	*Scopus umbretta (Gmelin, 1789)*
Threskiornithidae	*Threskiornis aethiopicus (Latham, 1790)*
Coliidae	*Colius striatus (Gmelin, 1789)*
Lybiidae	*Pogoniulus pusillus (Heuglin, 1862)*
Lybiidae	*Lybius melanopterus (Peters, 1854)*
Platysteiridae	*Platysteira peltata (Sundevall, 1850)*
Nectariniidae	*Cinnyris bifasciatus (Shaw, 1812)*
Ploceidae	*Euplectes nigroventris (Cassin, 1848)*
Ploceidae	*Ploceus subaureus (Smith, 1839)*
Ploceidae	*Ploceus ocularis (Smith, 1839)*
Cisticolidae	*Camaroptera brevicaudata (Cretzschmar, 1830)*
Cisticolidae	*Prinia subflava (Gmelin, 1789)*
Pycnonotidae	*Andropadus importunus (Vieillot, 1889)*
Muscicapidae	*Cossypha heuglini (Hartlaub, 1866)*
INSECTS	
Family	**Scientific Name**
Geometridae	*Hemithea aestivaria (Hübner, 1799)*
Papilionidae	*Papilio demodocus (Esper, 1798)*
NON-NATIVE INVASIVE ALIENS	
Family	**Scientific Name**
Apocynaceae	*Calotropis gigantea (L.) W.T. Aiton)*
Cactaceae	*Opuntia vulgaris (Mill.)*
Fabaceae	*Leucaena leucocephala (Lam.) de Wit)*
Meliaceae	*Azadirachta indica (A. Juss.)*
Verbanaceae	*Lantana camara L.*
Corvidae	*Corvus splendens (Vieillot, 1817)*
MAMMALS	
Family	**Scientific Name**
Cercopithecidae	*Chlorocebus pygerythrus (F. Cuvier, 1821)*
Herpestidae	*Galerella sanguinea (Rüppell, 1836)*
Erinaceidae	*Atelerix albiventris (Wagner, 1841)*
Pteropodidae	*Eidolon helvum (Kerr, 1792)*

PLANTS	
Family	**Scientific Name**
Fabaceae	*Abrus precatorius L.*
Malvaceae	*Adansonia digitata L.*
Apocynaceae	*Adenium obesum (Forssk.) Roem. & Schult.*
Fabaceae	*Afzelia quanzensis (Welw.)*
Fabaceae	*Albizia petersiana (Bolle) Oliv. subsp. petersiana*
Fabaceae	*Albizia versicolor Welw. ex Oliv.*
Asphodelaceae	*Aloe massawana Reynolds*
Annonaceae	*Annona senegalensis Pers. subsp. senegalensis*
Euphorbiaceae	*Antidesma venosum E. Mey. ex Tul.*
Acanthaceae	*Avicennia marina (Forssk.) Vierh.*
Fabaceae	*Baphia kirkii Baker*
Lecythidaceae	*Barringtonia racemosa (L.) Spreng.*
Arecaceae	*Borassus aethiopum Mart.*
Euphorbiaceae	*Bridelia micrantha (Hochst.) Baill.*
Apocynaceae	*Carissa spinarum L.*
Fabaceae	*Cassia abbreviata Oliv.*
Rhizophoraceae	*Ceriops tagal (Pers.) C.B.Rob.*
Rubiaceae	*Chassalia umbraticola Vatke*
Vitaceae	*Cissus rotundifolia (Forssk.) Vahl*
Lamiaceae	*Clerodendrum cephalanthum Oliv. subsp. cephalanthum*
Sterculiaceae	*Cola pseudoclavata Cheek*
Combretaceae	*Combretum constrictum (Benth.) M.A.Lawson*
Burseraceae	*Commiphora africana (A. Rich.) Engl. var. africana*
Poaceae	*Cynodon dactylon (L.) Pers.*
Vitaceae	*Cyphostemma adenocaule (Steud. ex A. Rich.) Desc. ex Wild & R.B. Drumm.*
Fabaceae	*Dalbergia melanoxylon* Guill. & Perr.
Sapindaceae	*Deinbollia borbonica Scheff.*
Fabaceae	*Dichrostachys cinerea subsp. africana Brenan & Brummitt*
Arecaceae	*Dypsis pembana (Moore) Beentje & J.Dransf.*
Zamiaceae	*Encephalartos hildebrandtii* A.Braun & C.D.Bouché
Fabaceae	*Erythrina abyssinica Lam. ex DC.*
Fabaceae	*Erythrina sacleuxii Hua*
Ebenaceae	*Euclea divinorum Hiern*
Euphorbiaceae	*Euphorbia tirucalli L.*
Moraceae	*Ficus lutea Vahl*
Flacourtiaceae	*Flacourtia indica (Burm. f.) Merr.*
Euphorbiaceae	*Flueggea virosa (Roxb. ex Willd.) Royle*
Rubiaceae	*Gardenia transvenulosa (Verdc.)*
Colchicaceae	*Gloriosa superba L.*
Tiliaceae	*Grewia bicolor Juss.*
Fabaceae	*Guilandina bonduc L.*
Malvaceae	*Hibiscus schizopetalus (Boulger) Hook. f.*

Fabaceae	*Hymenaea verrucosa (Gaertn.)*
Arecaceae	*Hyphaene compress (H.Wendl.)*
Arecaceae	*Hyphaene coriacea (Gaertn.)*
Bignoniaceae	*Kigelia africana (Lam.) Benth*
Anacardiaceae	*Lannea schweinfurthii var. stuhlmannii (Engl.) Kokwaro*
Euphorbiaceae	*Margaritaria discoidea (Baill.) G.L. Webster*
Bignoniaceae	*Markhamia obtusifolia (Baker) Sprague*
Moraceae	*Milicia excelsa (Welw.) C.C. Berg*
Sapotaceae	*Mimusops obtusifolia Lam.*
Poaceae	*Panicum maximum Jacq.*
Fabaceae	*Piliostigma thonningii (Schumach.) Milne-Redh.*
Euphorbiaceae	*Pseudolachnostylis maprouneifolia Pax*
Apocynaceae	*Rauvolfia mombasiana Stapf*
Apocynaceae	*Saba comorensis (Bojer ex A.DC.) Pichon*
Salvadoraceae	*Salvadora persica L.*
Anacardiaceae	*Sclerocarya birrea subsp. caffra (Sond.) Kokwaro*
Polygalaceae	*Securidaca longepedunculata (Fresen)*
Sapotaceae	*Sideroxylon inerme subsp. diospyroides (Baker) J.H. Hemsl.*
Bignoniaceae	*Stereospermum kunthianum (Cham.)*
Fabaceae	*Tamarindus indica*
Malvaceae	*Thespesia populnea (L.) Sol. ex Corrêa)*
Meliaceae	*Trichilia emetica*
Poaceae	*Urochloa mosambicensis (Hack.) Dandy)*
Lamiaceae	*Vitex doniana*
Lamiaceae	*Vitex mombassae (Vatke)*
Lamiaceae	*Vitex mossambicensis (Gürke)*
Lamiaceae	*Vitex zanzibarensis (Vatke)*
Rutaceae	*Zanthoxylum chalybeum Engl. var. chalybeum*
Rutaceae	*Zanthoxylum holtzianum (Engl.) P.G. Waterman*
Rhamnaceae	*Ziziphus mucronata (Willd.)*
REPTILES	
Family	**Scientific Name**
Colubridae	*Crotaphopeltis hotamboeia (Laurenti, 1768)*
Gekkonidae	*Lygodactylus luteopicturatus (Pasteur, 1964)*
Gekkonidae	*Hemidactylus mabouia (Moreau de Jonnès, 1818)*
Gekkonidae	*Phelsuma dubia (Boettger, 1881)*
Scincidae	*Trachylepis maculilabris (Gray, 1845)*

Annona senegalensis

Ceuthmochares aereus

Saba comorensis

Piliostigma thonningii

TABLE 2: Results of the Dar es Salaam roadside nursery survey. Indigenous species are marked in green.

Common Name	Scientific Name	Family	Plant Habit	No. of Occurrences in Nurseries
Red jesus flower or crown of thorns or christ thorn, yellow jesus, pink jesus flower	*Euphorbia milii*	Euphorbiaceae	Sub-shrub or shrub	23
ginger flower or red ginger	*Alpinia purpurata*	Zingiberaceae	herbs	12
Begonia	*Begonia obliqua*	Begoniaceae	herbs	7
maua kitenge or coleus or painted nettle	*Solenostemon scutellarioides*	Lamiaceae	shrubs	6
cabbage rose	*Rosa centifolia*	Rosaceae	herbs	2
fern or Deer fern	*Blechnum spicant*	Blechnaceae	herbs	2
epiphytic fern			climber, epiphytes	2
hawaii flower	*Hibiscus brackenridgei*	Malvaceae	Shrubs	2
white surf	*Plectranthus coleoides*	Lamiaceae	small shrub	2
garden croton, Cotton rasta, Mguu wa bata, Calciti	*Codiaeum variegatum*	Euphorbiaceae	shrubs	28
copper flower, red copper flower	*Philodendron verrucosum*	Araceae	climber	18
copper flower, copa flower	*Philodendron bernardopazii*	Araceae	herbs	5
Dumb canes or Camille	*Dieffenbachia maculata*	Araceae	herbs	3
Royal palm	*Roystonea regia*	Arecaceae	tree	23
cycads or sago cycad	*Cycas revoluta*	Cycadaceae	shrubs	7
cycads, sago palm	*cycas sp*	Cycadaceae	shrubs	4
golden palm	*Dypsis lutescens*	Arecaceae	tree	23
Mpera or Guava	*Psidium guajava*	Myrtaceae	tree	16
mwembe or Mango tree	*Mangifera indica*	Anacardiaceae	tree	24
cowboy cactus or candelabra tree	*Euphorbia ingens*	Euphorbiaceae	shrubs	2
Minyaa or pencil tree, pencil cactus, milk bush	*Euphorbia tirucalli*	Euphorbiaceae	shrubs	4
allamanda or golden trumpet	*Allamanda cathartica*	Apocynaceae	shrubs	7
mti kivuli or shade plant, Mikole	*Muntingia calabura*	Muntingiaceae	shrubs	21
boatlily or Moses-in-the-cradle	*Rhoeo discolor*	Commelinaceae	herbs	3
mpapai or pawpaw	*Carica papaya*	Caricaceae	tree	17
passion plant	*Passiflora edulis*	Passifloraceae	tree	7
Muashoki or false ashoka	*Polyalthia longifolia*	Annonaceae	tree	6
Border or golden dewdrop, pigeon berry, and skyflower.	*Duranta erecta*	Verbenaceae	shrubs	20
mlonge or drumstick tree, moringa	*Moringa oleifera*	Moringaceae	tree	3

goomar teak or white teak, mtiki mweupe	*Gmelina arborea*	Lamiaceae	tree	5
Mtiki or teak plant, Burmese teak	*Tectona grandis*	Lamiaceae	tree	6
royal poinciana, flame tree	*Delonix regia*	Fabaceae	tree	9
mparachichi or avocado	*Persea americana*	Lauraceae	tree	5
mkungu or country almond	*Terminalia catappa*	Combretaceae	tree	9
Mustaferi or Soursop	*Annona muricata*	Annonaceae	tree	10
mzambarau or Java plum or black plum	*Syzygium cumini*	Myrtaceae	tree	4
Mmbilimbi or bilimbi	*Averrhoa bilimbi*	Oxalidaceae	tree	9
mkaratusi or flooded gum or rose gum	*Eucalyptus grandis*	Myrtaceae	tree	3
Roselle	*Hibiscus sabdariffa*	Malvaceae	shrubs	1
	Selaginella abyssinica			1
	Cissus rotundifolia	Vitaceae	climber	1
mwembe ng'ong'o or marula	*Sclerocarya birrea*	Anacardiaceae	tree	4
mti mwanvuli or Umbrella Tree, Madagascar Almond, panga uzazi	*Terminalia mantaly*	Combretaceae	tree	4
mchungwa or oranges	*Citrus sinensis*	Rutaceae	tree	9
Dogfennel	*Eupatorium capillifolium*	Asteraceae	herbs	3
yellow trumpetbush	*Tecoma stans*	Bignoniaceae	shrubs	1
mchaichai or lemon grass	*Cymbopogon citratus*	Poaceae	herbs	5
mtopetope, mustaferi	*Annona squamosa*	Annonaceae	tree	8
mgomba or bananas	*Musa sp*	Musaceae	tree	1
Indian snakeroot, devil pepper	*Rauwolfia serpentina*	Apocynaceae	shrubs	5
hina or henna tree	*Lawsonia inermis*	Lythraceae	Shrub or small tree	1
Copperleaf	*Acalypha wilkesiana*	Euphorbiaceae	shrubs	9
muarika or wingleaf soapberry	*Sapindus saponaria*	Sapindaceae	tree	1
Mmoymoyo	*Deinbollia borbonica*	Sapindaceae	tree	1
Indian coleus, mau kitenge or coleus	*Plectranthus barbatus*	Lamiaceae	herbs, shrubs	7
mfulu or Black Plum	*Vitex doniana*	Verbenaceae	tree	1
mkomamanga	*Punica granatum*	Lythraceae	tree	6
cathedral bells	*Bryophyllum pinnatum*	Crassulaceae	herbs	11
	Cyphostemma adenocaule	Vitaceae	climber	1
mfenensi or jackfruit	*Artocarpus heterophyllus*	Moraceae	tree	11
mkorosho or cashew tree	*Anacardium occidentale*	Anacardiaceae	tree	4
mchikichi or oil palm	*Elaeis guineensis*	Arecaceae	tree	3
zabibu or grapes	*Vitis vinifera*	Vitaceae	climber	2
mwarobain dume or chinaberry tree	*Melia azedarach*	Meliaceae	tree	1

Chinese ixora	*Ixora chinensis*	Rubiaceae	shrubs	20
American aloe	*Agave americana*	Asparagaceae	herbs	2
African milk tree or cathedral cactus	*Euphorbia trigona*	Euphorbiaceae	shrubs	7
African milk bush	*Euphorbia grantii*	Euphorbiaceae	shrubs	1
African arrowroot	*Canna indica*	Cannaceae	herbs	3
mkonge or Sisal	*Agave sisalana*	Asparagaceae	herbs	2
Alovera	*Aloe secundiflora*	Asphodelaceae	herbs	2
Rangoon creeper	*Quisqualis indica*	Combretaceae	vines	2
mother-in-law's tongue or snake plant	*Sansevieria trifasciata*	Asparagaceae	herbs	14
China rose, Hawaiian hibiscus	*Hibiscus rosa-sinensis*	Malvaceae	shrubs	15
masikio ya popo or Mother of Thousands or Mother of Millions	*Kalanchoe laetivirens*	Crassulaceae	herbs	1
peacock flower	*Caesalpinia pulcherrima*	Fabaceae	shrub or small tree	4
nerium or oleander	*Nerium oleander*	Apocynaceae	shrubs	13
swamp lily, river lily or mangrove lily	*Crinum pedunculatum*	Amaryllidaceae	herbs	1
forskohlii or Indian coleus	*Plectranthus barbatus*	Lamiaceae	herbs	1
maua saa nne or rose moss, ten o'clock, Mexican rose, moss rose	*Portulaca grandiflora*	Portulacaceae	herbs	7
purple queen	*Tradescantia pallida*	Commelinaceae	herbs	1
African milk bush	*Synadenium grantii*	Euphorbiaceae	herbs	3
poison bulb	*Crinum asiaticum*	Amaryllidaceae	herbs	4
	Palicourea crocea	Rubiaceae	shrubs	1
Mjohoro, Mkenge	*Senna siamea*	Fabaceae	tree	10
dog rose	*Rosa canina*	Rosaceae	shrubs	6
paddle plant	*Kalanchoe thyrsiflora*	Crassulaceae	herbs	1
mother of thousands, alligator plant	*Kalanchoe daigremontian*	Crassulaceae	herbs	3
fountainbush, firecracker plant	*Russelia equisetiformis*	Plantaginaceae	shrubs	1
	Selaginella sp	Selaginellaceae	herbs	1
	Cynotis sp	Commelinaceae	herbs	1
prickly pear	*Opuntia ficus-indica*	Cactaceae	shrubs	2
oyster-plant	*Rhoeo discolor*	Commelinaceae	herbs	1
Ombulu (Luo)jequirity bean or rosary pea	*Abrus precatorius*	Fabaceae	climber	1
	Acacia brevispica/ Senegalia brevispica	Fabaceae	shrubs or slender tree	1
	Flueggea virosa	Phyllanthaceae	shrub or small tree	1
Mtondoro	*Dichrostachys cinerea*	Fabaceae	tree	1
Mpilipili	*Sorindeia madagascariensis*	Anacardiaceae	tree	2
mdodoma or Natal mahogany	*Trichilia emetica*	Meliaceae	tree	10

Jerusalem thorn	*Parkinsonia aculeata*	Fabaceae	shrub or small tree	1
Mulga	*Acacia aneura*	Fabaceae	shrub or small tree	1
coral plant, Mjatrofa	*Jatropha multifida*	Euphorbiaceae	shrubs	4
siala tree	*Markhamia lutea*	Bignoniaceae	tree	1
wandering jew	*Tradescantia zebrina*	Commelinaceae	herbs	5
big-sage, wild-sage, red-sage	*Lantana camara*	Verbenaceae	shrubs	7
white mulberry	*Morus alba*	Moraceae	tree	1
	Piliostigma sp	Fabaceae	shrub or tree	1
Natal guarri	*Euclea natalensis*	Ebenaceae	shrub or small bushy tree	1
common red, crimson or lemon bottlebrush	*Callistemon lanceolatus*	Myrtaceae	shrubs	1
Plains Prickly Pear, Hair-spine Prickly Pear, cactus	*Opuntia vulgaris*	Cactaceae	shrubs	6
grey nicker, nicker bean, or knicker nut	*Caesalpinia bonduc*	Fabaceae	tree	1
Mwegea	*Kigelia africana*	Bignoniaceae	tree	2
Iyombo	*Tetradenia urticifolia*	Lamiaceae	herbs	1
Mkunazi	*Ziziphus mucronata*	Rhamnaceae	tree	3
Mbono kaburi	*Jatropha curcas*	Euphorbiaceae	shrubs or small tree	1
Huras	*Hura crepitans*	Euphorbiaceae	tree	2
Maua Karanga			herbs	1
Mihashoki	*Polyathia longifolia*	Annonaceae	tree	4
Limao/lemon, Malimao	*Citrus limon*	Rutaceae	tree	3
Elephant Ear	*Alocasia macrorrhiza*	Araceae	rhizomatous	2
Manila palm or christmas palm	*Adonidia merrillii*	Arecaceae	tree	11
Machungwa/Orange	*Citrus cinensis*	Rutaceae	tree	1
Tanga palm	*Palmae*	Arecaceae	tree	1
Foxtail palm, Foxtail palm	*Wodyetia bifurcata*	Arecaceae	tree	2
Alamanda	*Alamanda cathartica*	Euphorbiaceae	shrubs	1
Nazi, mnazi or coconut tree	*Cocos nucifera*	Arecaceae	tree	7
Crinum	*Crinum sp*	Amaryllidaceae	herbs	1
purple flower	*Thunbergia sp*	Acanthaceae	shrubs	3
cactus	*Euphorbia sp*	Euphorbiaceae	shrubs	1
spider plant	*Chlorophytum comosum*	Asparagaceae	herbs	1
	Acacia sp	Fabaceae	tree	1
	Rauwolfia serpentina	Apocynaceae	shrubs	3
chamasi, Mexican white cedar	*Cupressus lusitanica*	Cupressaceae	shrubs	3
	Araucaria sp	Araucariaceae		1
ficus or weeping fig	*Ficus benjamina*	Moraceae	tree	5
	Dracaena reflexa	Asparagaceae	herbs	1
Cactus	*Opuntia robusta*	Cactaceae	shrubs	2
Alovera	*Aloe sp*	Asphodelaceae	herbs	2
Coleus	*Plectranthus scutellarioides*	Lamiaceae	shrubs	4

Mrangirangi	*Cananga odorata*	Annonaceae	tree	4
bamboo grass	*Pogonatherum crinitum*	Poaceae	herbs	2
mvinje	*Casuarina equisetifolia*	Casuarinaceae	tree	2
Mkongo	*Afzelia quanzensis*	Fabaceae	tree	1
ukwaju or tamarind	*Tamarindus indica*	Fabaceae	tree	4
Acacia	*Vachellia tortilis*	Fabaceae	tree	2
karafuu flower or	*Hamelia patens*	Rubiaceae	shrubs	5
panga pambo	*Dieffenbachia seguine*	Araceae	herbs	2
Coleus	*Plectranthus scutellarioides*	Lamiaceae	shrubs	5
palm, finger palm	*Pritchardia pacifica*	Arecaceae	tree	3
Ostrich Fern	*Matteuccia struthiopteris*	Onocleaceae	shrubs	14
Mkulungu	*Terminalia sp*	Combretaceae	tree	4
	Adenium obesum	Apocynaceae	shrubs	3
	Acalypha hispida	Euphorbiaceae	shrubs	2
mgomba mwekundu	*Alpinia caerulea*	Zingiberaceae	herbs	2
Fishtail palm	*Caryota rumphiana*	Arecaceae	tree	1
	Euphorbia characias	Euphorbiaceae	shrubs	1
Monstera	*Monstera deliciosa*	Araceae	herbs	1
Boston fern	*Nephrolepis exaltata*	Lomariopsidaceae	shrubs	1
Carambola, or star fruit, or Birambi	*Averrhoa carambola*	Oxalidaceae	tree	1
Mvuje or curry tree	*Murraya koenigii*	Rutaceae	tree	1
mshelisheli or Breadfruit	*Artocarpus altilis*	Moraceae	tree	1
zaituni or sapodilla	*Manilkara zapota*	Sapotaceae	tree	1
Mndimu	*Citrus maxima*	Rutaceae	tree	2
Grevillea	*Grevillea robusta*	Proteaceae	tree	1
Bottlebrush	*Callistemon sp*	Myrtaceae	shrubs	2
mkangazi or East African mahogany	*Khaya anthotheca*	Meliaceae	tree	1
Total				**776**

TABLE 3: Contact details for Dar es Salaam nurseries stocking native plants.

Nursery	Contact	Scientific Name	Swahili name	English name
Boys in the bush	Frank Mbago	*Acacia nilotica*		
255655650672		*Afzelia quanzensis*	Mkongo	Luck bean Tree
		Bracystegia app	Mtundu	Bean-pod Tree
		Faidhebia albida		Apple ring Acacia
		Ficus sp	Mkuyu	Figs
		Khaya anthoteca	Mkangazi	African Mahogany
		Philenoptera violacea aka Lonchocarpus capassa		
		Tamarindus indica	Mkwaju	Tamarind
		Trichilia emetica	Mdodoma	
Shining Nursery, Mikocheni-B	Ireen Mtui	*Adenium obesum*	Mdafu	Desert Rose
713410857		*Clerodendron cephathalum*		
		Dypsis pembana		Pemba palm
		Mkilua fragrans	Chilua	
Mimea ya asili inapatikana	English Anne Outwater	*Aloe massawana*	Mshubiri	
782636989	0713 856962 (SMS)	*Baphia kirkii*	Mkuruti	Baphia
754636989	Swahili Jackson Ulanga	*Combretum constrictum*	Mlama	Bush willow
		Euphorbia pereskifolia	Kiyuyu	
		Fluggea virosa	Mkwamba	White Berry Bush
		Hibiscus schizopetalus	Mgongonyoka	East African Fringed Hibiscus
		Lawsonia inermis	Mhina	Henna
		Milicia excelsa	Mvule	Iroko
		Saba comorensis	Mbungo	Bungo
		Talinum portulacifolium	Mchicha maua	Fame flower
Pugu Hills Nature Centre	Japhet Mwanang'ombe	*Acacia polyacantha*		
	<jjonas@janegoodall.or.tz>	*Afzelia quanzensis*	Mkongo	Lucky bean tree
		Albizia gummifera		
		Baphia kirkii	Mkuruti	Baphia
		Dalbergia melanoxylon	Mpingo	African blackwood
		Khaya anthoteca	Mkangazi	African Mahogany
		Tamarindus indica	Mkwaju	Tamarind

TABLE 4: Checklists (2019) of species for Dar es Salaam

ANSERIFORMES: Anatidae	
White-faced Whistling Duck	*Dendrocygna viduata*
Fulvous Whistling Duck	*Dendrocygna bicolor*
Egyptian Goose	*Alopochen aegyptiaca*
Southern Pochard	*Netta erythrophthalma*
Hottentot Teal	*Spatula hottentota*
African Black Duck	*Anas sparsa*
Red-billed Teal	*Anas erythrorhyncha*
White-backed Duck	*Thalassornis leuconotus*
Spur-winged Goose	*Plectropterus gambensis*
Comb Duck	*Sarkidiornis melanotos*
African Pygmy Goose	*Nettapus auritus*
GALLIFORMES: Numididae	
Helmeted Guineafowl	*Numida meleagris*
Crested Guineafowl	*Guttera pucherani*
GALLIFORMES: Phasianidae	
Harlequin Quail	*Coturnix delegorguei*
Red-necked Spurfowl	*Pternistis afer*
Crested Francolin	*Dendroperdix sephaena*
Coqui Francolin	*Peliperdix coqui*
PHOENICOPTERIFORMES: Phoenicopteridae	
Greater Flamingo	*Phoenicopterus roseus*
Lesser Flamingo	*Phoeniconaias minor*
PHOENICOPTERIFORMES: Podicipedidae	
Little Grebe	*Tachybaptus ruficollis*
COLUMBIFORMES: Columbidae	
Rock Dove (Introduced species)	*Columba livia*
Red-eyed Dove	*Streptopelia semitorquata*
Ring-necked Dove	*Streptopelia capicola*
Laughing Dove	*Streptopelia senegalensis*
African Green Pigeon	*Treron calvus*
Emerald-spotted Wood Dove	*Turtur chalcospilos*
Blue-spotted Wood Dove	*Turtur afer*
Tambourine Dove	*Turtur tympanistria*
Namaqua Dove	*Oena capensis*
PTEROCLIFORMES: Pteroclidae	
Black-faced Sandgrouse	*Pterocles decoratus*
PHAETHONTIFORMES: Phaethontidae	
White-tailed Tropicbird	*Phaethon lepturus*

CAPRIMULGIFORMES: Caprimulgidae	
European Nightjar	*Caprimulgus europaeus*
Fiery-necked Nightjar	*Caprimulgus pectoralis*
Slender-tailed Nightjar (Introduced species)	*Caprimulgus clarus*
Mozambique Nightjar	*Caprimulgus fossii*
CAPRIMULGIFORMES: Apodidae	
Mottled Spinetailed Swift	*Telacanthura ussheri*
Böhm's Spinetailed Swift	*Neafrapus boehmi*
African Palm Swift	*Cypsiurus parvus*
Alpine Swift	*Tachymarptis melba*
White-rumped Swift	*Apus caffer*
Horus Swift	*Apus horus*
Little Swift	*Apus affinis*
African Swift	*Apus barbatus*
Common Swift	*Apus apus*
CUCULIFORMES: Cuculidae	
White-browed Coucal	*Centropus superciliosus*
Yellowbill	*Ceuthmochares aereus*
Jacobin Cuckoo	*Clamator jacobinus*
Levaillant's Cuckoo	*Clamator levaillantii*
Great Spotted Cuckoo	*Clamator glandarius*
Thick-billed Cuckoo	*Pachycoccyx audeberti*
Klaas's Cuckoo	*Chrysococcyx klaas*
African Emerald Cuckoo	*Chrysococcyx cupreus*
Diederick Cuckoo	*Chrysococcyx caprius*
Barred Long-tailed Cuckoo	*Cercococcyx montanus*
Red-chested Cuckoo	*Cuculus solitarius*
Black Cuckoo	*Cuculus clamosus*
Common Cuckoo	*Cuculus canorus*
African Cuckoo	*Cuculus gularis*
Lesser Cuckoo	*Cuculus poliocephalus*
Madagascar Cuckoo	*Cuculus rochii*
GRUIFORMES: Rallidae	
African Rail	*Rallus caerulescens*
African Crake	*Crex egregia*
Corncrake	*Crex crex*
Spotted Crake	*Porzana porzana*
Black Crake	*Zapornia flavirostra*
Baillon's Crake	*Zapornia pusilla*
Striped Crake	*Amaurornis marginalis*
Purple Swamphen	*Porphyrio porphyrio*

Allen's Gallinule	*Porphyrio alleni*
Common Moorhen	*Gallinula chloropus*
Lesser Moorhen	*Gallinula angulata*
Red-knobbed Coot	*Fulica cristata*
GRUIFORMES: Sarothruridae	
Buff-spotted Flufftail	*Sarothrura elegans*
Red-chested Flufftail	*Sarothrura rufa*
OTIDIFORMES: Otididae	
Black-bellied Bustard	*Lissotis melanogaster*
MUSOPHAGIFORMES: Musophagidae	
Grey Go-away-bird	*Corythaixoides concolor*
Purple-crested Turaco	*Gallirex porphyreolophus*
Livingstone's Turaco	*Tauraco livingstonii*
PROCELLARIIFORMES: Procellariidae	
Wedge-tailed Shearwater (Rare/Accidental)	*Ardenna pacifica*
Tropical Shearwater	*Puffinus bailloni*
PELECANIFORMES: Ciconiidae	
Marabou	*Leptoptilos crumenifer*
Yellow-billed Stork	*Mycteria ibis*
African Openbill	*Anastomus lamelligerus*
Abdim's Stork	*Ciconia abdimii*
Woolly-necked Stork	*Ciconia episcopus*
European White Stork	*Ciconia ciconia*
Saddle-bill Stork	*Ephippiorhynchus senegalensis*
PELECANIFORMES: Pelecanidae	
Great White Pelican	*Pelecanus onocrotalus*
Pink-backed Pelican	*Pelecanus rufescens*
PELECANIFORMES: Scopidae	
Hamerkop	*Scopus umbretta*
PELECANIFORMES: Ardeidae	
Little Bittern	*Ixobrychus minutus*
White-backed Night Heron	*Gorsachius leuconotus*
Black-crowned Night Heron	*Nycticorax nycticorax*
Striated Heron	*Butorides striata*
Squacco Heron	*Ardeola ralloides*
Madagascar Pond Heron	*Ardeola idae*
Rufous-bellied Heron	*Ardeola rufiventris*
Cattle Egret	*Bubulcus ibis*
Grey Heron	*Ardea cinerea*
Black-headed Heron	*Ardea melanocephala*
Goliath Heron	*Ardea goliath*
Purple Heron	*Ardea purpurea*
Great Egret	*Ardea alba*
Intermediate Egret	*Ardea intermedia*
Black Heron	*Egretta ardesiaca*
Little Egret	*Egretta garzetta*
Western Reef Egret	*Egretta gularis*
PELECANIFORMES: Threskiornithidae	
African Sacred Ibis	*Threskiornis aethiopicus*
African Spoonbill	*Platalea alba*
Hadada Ibis	*Bostrychia hagedash*
Glossy Ibis	*Plegadis falcinellus*
PELECANIFORMES: Fregatidae	
Lesser Frigatebird	*Fregata ariel*
Great Frigatebird	*Fregata minor*
PELECANIFORMES: Sulidae	
Cape Gannet	*Morus capensis*
Red-footed Booby (Rare/Accidental)	*Sula sula*
Masked Booby	*Sula dactylatra*
PELECANIFORMES: Phalacrocoracidae	
Long-tailed Cormorant	*Microcarbo africanus*
Great Cormorant	*Phalacrocorax carbo*
PELECANIFORMES: Anhingidae	
African Darter	*Anhinga rufa*
CHARADRIIFORMES: Burhinidae	
Water Thick-knee	*Burhinus vermiculatus*
Spotted Thick-knee	*Burhinus capensis*
CHARADRIIFORMES: Haematopodidae	
Eurasian Oystercatcher	*Haematopus ostralegus*
CHARADRIIFORMES: Recurvirostridae	
Pied Avocet	*Recurvirostra avosetta*
Black-winged Stilt	*Himantopus himantopus*
CHARADRIIFORMES: Charadriidae	
Grey Plover	*Pluvialis squatarola*
Pacific Golden Plover	*Pluvialis fulva*
Common Ringed Plover	*Charadrius hiaticula*
Kittlitz's Plover	*Charadrius pecuarius*
Three-banded Plover	*Charadrius tricollaris*
White-fronted Plover	*Charadrius marginatus*
Lesser Sand Plover	*Charadrius mongolus*
Greater Sand Plover	*Charadrius leschenaultii*
Caspian Plover	*Charadrius asiaticus*
Spur-winged Lapwing	*Vanellus spinosus*
Senegal Lapwing	*Vanellus lugubris*
Crowned Lapwing	*Vanellus coronatus*

CHARADRIIFORMES: Rostratulidae	
Greater Painted-snipe	*Rostratula benghalensis*
CHARADRIIFORMES: Jacanidae	
African Jacana	*Actophilornis africanus*
CHARADRIIFORMES: Scolopacidae	
Whimbrel	*Numenius phaeopus*
Eurasian Curlew	*Numenius arquata*
Bar-tailed Godwit	*Limosa lapponica*
Ruddy Turnstone	*Arenaria interpres*
Ruff	*Calidris pugnax*
Broad-billed Sandpiper	*Calidris falcinellus*
Curlew Sandpiper	*Calidris ferruginea*
Sanderling	*Calidris alba*
Little Stint	*Calidris minuta*
Great Snipe	*Gallinago media*
Common Snipe	*Gallinago gallinago*
Terek Sandpiper	*Xenus cinereus*
Common Sandpiper	*Actitis hypoleucos*
Green Sandpiper	*Tringa ochropus*
Spotted Redshank	*Tringa erythropus*
Common Greenshank	*Tringa nebularia*
Wood Sandpiper	*Tringa glareola*
Marsh Sandpiper	*Tringa stagnatilis*
CHARADRIIFORMES: Turnicidae	
Common Buttonquail	*Turnix sylvaticus*
CHARADRIIFORMES: Dromadidae	
Crab-plover	*Dromas ardeola*
CHARADRIIFORMES: Glareolidae	
Bronze-winged Courser	*Rhinoptilus chalcopterus*
Temminck's Courser	*Cursorius temminckii*
Collared Pratincole	*Glareola pratincola*
Madagascar Pratincole	*Glareola ocularis*
CHARADRIIFORMES: Stercorariidae	
Pomarine Skua (Rare/Accidental)	*Stercorarius pomarinus*
CHARADRIIFORMES: Laridae	
Brown Noddy	*Anous stolidus*
African Skimmer	*Rynchops flavirostris*
Black-headed Gull	*Chroicocephalus ridibundus*
Gray-hooded Gull	*Chroicocephalus cirrocephalus*
Sooty Gull	*Ichthyaetus hemprichii*
Lesser Black-backed Gull	*Larus fuscus*
Sooty Tern	*Onychoprion fuscatus*
Saunders's Tern	*Sternula saundersi*
Gull-billed Tern	*Gelochelidon nilotica*
Caspian Tern	*Hydroprogne caspia*
Whiskered Tern	*Chlidonias hybrida*
White-winged Tern	*Chlidonias leucopterus*
Roseate Tern	*Sterna dougallii*
Black-naped Tern (Rare/Accidental)	*Sterna sumatrana*
Common Tern	*Sterna hirundo*
White-cheeked Tern	*Sterna repressa*
Lesser Crested Tern	*Thalasseus bengalensis*
Sandwich Tern	*Thalasseus sandvicensis*
Greater Crested Tern	*Thalasseus bergii*
ACCIPITRIFORMES: Sagittariidae	
Secretary-bird	*Sagittarius serpentarius*
ACCIPITRIFORMES: Pandionidae	
Osprey	*Pandion haliaetus*
ACCIPITRIFORMES: Accipitridae	
Black-winged Kite	*Elanus caeruleus*
European Honey Buzzard	*Pernis apivorus*
African Cuckoo Hawk	*Aviceda cuculoides*
African Harrier Hawk	*Polyboroides typus*
Palm-nut Vulture	*Gypohierax angolensis*
Bateleur	*Terathopius ecaudatus*
Black-chested Snake Eagle	*Circaetus pectoralis*
Brown Snake Eagle	*Circaetus cinereus*
Southern Banded Snake Eagle	*Circaetus fasciolatus*
Western Banded Snake Eagle	*Circaetus cinerascens*
White-headed Vulture	*Trigonoceps occipitalis*
Hooded Vulture	*Necrosyrtes monachus*
White-backed Vulture	*Gyps africanus*
Rüppell's Vulture	*Gyps rueppelli*
Lappet-faced Vulture	*Torgos tracheliotos*
Bat Hawk	*Macheiramphus alcinus*
Crowned Eagle	*Stephanoaetus coronatus*
Martial Eagle	*Polemaetus bellicosus*
Long-crested Eagle	*Lophaetus occipitalis*
Lesser Spotted Eagle	*Clanga pomarina*
Tawny Eagle	*Aquila rapax*
Steppe Eagle	*Aquila nipalensis*
African Hawk Eagle	*Aquila spilogaster*
Wahlberg's Eagle	*Hieraaetus wahlbergi*
Booted Eagle	*Hieraaetus pennatus*

Ayres's Eagle	*Hieraaetus ayresii*
Lizard Buzzard	*Kaupifalco monogrammicus*
Dark Chanting Goshawk	*Melierax metabates*
Eastern Chanting Goshawk	*Melierax poliopterus*
Gabar Goshawk	*Micronisus gabar*
Western Marsh Harrier	*Circus aeruginosus*
African Marsh Harrier	*Circus ranivorus*
Pallid Harrier	*Circus macrourus*
Montagu's Harrier	*Circus pygargus*
African Goshawk	*Accipiter tachiro*
Shikra	*Accipiter badius*
Little Sparrowhawk	*Accipiter minullus*
Black Sparrowhawk	*Accipiter melanoleucus*
African Fish Eagle	*Haliaeetus vocifer*
Black Kite	*Milvus migrans*
Augur Buzzard	*Buteo augur*
Eurasian Buzzard	*Buteo buteo*
STRIGIFORMES: Tytonidae	
Common Barn Owl	*Tyto alba*
STRIGIFORMES: Strigidae	
African Barred Owlet	*Glaucidium capense*
African Scops Owl	*Otus senegalensis*
Southern White-faced Owl	*Ptilopsis granti*
Marsh Owl	*Asio capensis*
African Wood Owl	*Strix woodfordii*
Spotted Eagle Owl	*Bubo africanus*
Verreaux's Eagle Owl	*Bubo lacteus*
COLIIFORMES: Coliidae	
Speckled Mousebird	*Colius striatus*
Blue-naped Mousebird	*Urocolius macrourus*
TROGONIFORMES: Trogonidae	
Narina's Trogon	*Apaloderma narina*
BUCEROTIFORMES: Bucerotidae	
Southern Ground Hornbill	*Bucorvus leadbeateri*
Crowned Hornbill	*Tockus alboterminatus*
Pale-billed Hornbill	*Tockus pallidirostris*
African Grey Hornbill	*Tockus nasutus*
Red-billed Hornbill	*Tockus erythrorhynchus*
Trumpeter Hornbill	*Bycanistes bucinator*
Silvery-cheeked Hornbill	*Bycanistes brevis*
BUCEROTIFORMES: Upupidae	
Common Hoopoe	*Upupa epops*
BUCEROTIFORMES: Phoeniculidae	
Green Wood-hoopoe	*Phoeniculus purpureus*
Common Scimitarbill	*Rhinopomastus cyanomelas*
PICIFORMES: Indicatoridae	
Green-backed Honeybird	*Prodotiscus zambesiae*
Pallid Honeyguide	*Indicator meliphilus*
Lesser Honeyguide	*Indicator minor*
Greater Honeyguide	*Indicator indicator*
PICIFORMES: Picidae	
Bennett's Woodpecker	*Campethera bennettii*
Golden-tailed Woodpecker	*Campethera abingoni*
Green-backed Woodpecker	*Campethera cailliautii*
Cardinal Woodpecker	*Dendropicos fuscescens*
PICIFORMES: Ramphastidae	
Crested Barbet	*Trachyphonus vaillantii*
Red-and-yellow Barbet	*Trachyphonus erythrocephalus*
D'Arnaud's Barbet	*Trachyphonus darnaudii*
Green Barbet	*Cryptolybia olivacea*
White-eared Barbet	*Stactolaema leucotis*
Eastern Green Tinkerbird	*Pogoniulus simplex*
Yellow-rumped Tinkerbird	*Pogoniulus bilineatus*
Red-fronted Tinkerbird	*Pogoniulus pusillus*
Spot-flanked Barbet	*Tricholaema lacrymosa*
Black-collared Barbet	*Lybius torquatus*
Brown-breasted Barbet	*Pogonornis melanopterus*
CORACIIFORMES: Meropidae	
White-fronted Bee-eater	*Merops bullockoides*
White-throated Bee-eater	*Merops albicollis*
Northern Carmine Bee-eater	*Merops nubicus*
Olive Bee-eater	*Merops superciliosus*
Blue-cheeked Bee-eater	*Merops persicus*
European Bee-eater	*Merops apiaster*
Böhm's Bee-eater	*Merops boehmi*
Swallow-tailed Bee-eater	*Merops hirundineus*
Cinnamon-chested Bee-eater	*Merops lafresnayii*
Blue-breasted Bee-eater	*Merops variegatus*
Little Bee-eater	*Merops pusillus*
CORACIIFORMES: Coraciidae	
Rufous-crowned Roller	*Coracias naevius*
Racquet-tailed Roller	*Coracias spatulatus*
Lilac-breasted Roller	*Coracias caudatus*

European Roller	*Coracias garrulus*
Broad-billed Roller	*Eurystomus glaucurus*
CORACIIFORMES: Alcedinidae	
African Pygmy Kingfisher	*Ispidina picta*
African Malachite Kingfisher	*Corythornis cristatus*
Half-collared Kingfisher	*Alcedo semitorquata*
Giant Kingfisher	*Megaceryle maxima*
Pied Kingfisher	*Ceryle rudis*
Grey-headed Kingfisher	*Halcyon leucocephala*
Brown-hooded Kingfisher	*Halcyon albiventris*
Striped Kingfisher	*Halcyon chelicuti*
Woodland Kingfisher	*Halcyon senegalensis*
Mangrove Kingfisher	*Halcyon senegaloides*
FALCONIFORMES: Falconidae	
Lesser Kestrel	*Falco naumanni*
Common Kestrel	*Falco tinnunculus*
Grey Kestrel	*Falco ardosiaceus*
Dickinson's Kestrel	*Falco dickinsoni*
Red-necked Falcon	*Falco chicquera*
Amur Falcon	*Falco amurensis*
Sooty Falcon	*Falco concolor*
Eurasian Hobby	*Falco subbuteo*
African Hobby	*Falco cuvierii*
Lanner Falcon	*Falco biarmicus*
Peregrine Falcon	*Falco peregrinus*
PSITTACIFORMES: Psittacidae	
Brown-headed Parrot	*Poicephalus cryptoxanthus*
PSITTACIFORMES: Psittaculidae	
Fischer's Lovebird	*Agapornis fischeri*
PASSERIFORMES: Pittidae	
African Pitta	*Pitta angolensis*
PASSERIFORMES: Calyptomenidae	
African Broadbill	*Smithornis capensis*
PASSERIFORMES: Campephagidae	
Black Cuckooshrike	*Campephaga flava*
PASSERIFORMES: Oriolidae	
Eastern Black-headed Oriole	*Oriolus larvatus*
Eurasian Golden Oriole	*Oriolus oriolus*
African Golden Oriole	*Oriolus auratus*
PASSERIFORMES: Platysteiridae	
East Coast Batis	*Batis soror*
Black-headed Batis	*Batis minor*
Black-throated Wattle-eye	*Platysteira peltata*

PASSERIFORMES: Vangidae	
White-crested Helmet-shrike	*Prionops plumatus*
Retz's Helmet-shrike	*Prionops retzii*
Chestnut-fronted Helmet-shrike	*Prionops scopifrons*
PASSERIFORMES: Malaconotidae	
Grey-headed Bush-shrike	*Malaconotus blanchoti*
Black-backed Puffback	*Dryoscopus cubla*
Brown-crowned Tchagra	*Tchagra australis*
Black-crowned Tchagra	*Tchagra senegalus*
Orange-breasted Bush-shrike	*Chlorophoneus sulfureopectus*
Tropical Boubou	*Laniarius aethiopicus*
East Coast Boubou	*Laniarius sublacteus*
Gorgeous Bush-shrike	*Telophorus viridis*
PASSERIFORMES: Dicruridae	
Square-tailed Drongo	*Dicrurus ludwigii*
Fork-tailed Drongo	*Dicrurus adsimilis*
PASSERIFORMES: Laniidae	
White-rumped Shrike	*Eurocephalus ruppelli*
Red-backed Shrike	*Lanius collurio*
Turkestan Shrike	*Lanius phoenicuroides*
Isabelline Shrike	*Lanius isabellinus*
Lesser Grey Shrike	*Lanius minor*
Long-tailed Fiscal	*Lanius cabanisi*
PASSERIFORMES: Corvidae	
Pied Crow	*Corvus albus*
House Crow	*Corvus splendens*
PASSERIFORMES: Monarchidae	
Blue-mantled Paradise-flycatcher	*Trochocercus cyanomelas*
African Paradise-flycatcher	*Terpsiphone viridis*
PASSERIFORMES: Nectariniidae	
Plain-backed Sunbird	*Anthreptes reichenowi*
Uluguru Violet-backed Sunbird	*Anthreptes neglectus*
Little Green Sunbird (Rare/Accidental)	*Anthreptes seimundi*
Collared Sunbird	*Hedydipna collaris*
Olive Sunbird	*Cyanomitra olivacea*
Mouse-coloured Sunbird	*Cyanomitra verreauxii*
Amethyst Sunbird	*Chalcomitra amethystina*
Scarlet-chested Sunbird	*Chalcomitra senegalensis*
Mariqua Sunbird	*Cinnyris mariquensis*
Purple-banded Sunbird	*Cinnyris bifasciatus*
Variable Sunbird	*Cinnyris venustus*

PASSERIFORMES: Ploceidae	
Grosbeak Weaver	*Amblyospiza albifrons*
Red-headed Quelea	*Quelea erythrops*
Red-billed Quelea	*Quelea quelea*
Red-collared Widowbird	*Euplectes ardens*
Black-winged Bishop	*Euplectes hordeaceus*
Southern Red Bishop	*Euplectes orix*
Yellow Bishop	*Euplectes capensis*
Fan-tailed Widowbird	*Euplectes axillaris*
White-winged Widowbird	*Euplectes albonotatus*
Spectacled Weaver	*Ploceus ocularis*
Black-necked Weaver	*Ploceus nigricollis*
African Golden Weaver	*Ploceus subaureus*
Lesser Masked Weaver	*Ploceus intermedius*
Vitelline Masked Weaver	*Ploceus vitellinus*
Village Weaver	*Ploceus cucullatus*
Golden-backed Weaver	*Ploceus jacksoni*
Dark-backed Weaver	*Ploceus bicolor*
Red-headed Weaver	*Anaplectes rubriceps*
PASSERIFORMES: Estrildidae	
Red-billed Firefinch	*Lagonosticta senegala*
Jameson's Firefinch	*Lagonosticta rhodopareia*
African Firefinch	*Lagonosticta rubricata*
Orange-winged Pytilia	*Pytilia afra*
Green-winged Pytilia	*Pytilia melba*
Peters's Twinspot	*Hypargos niveoguttatus*
Purple Grenadier	*Granatina ianthinogaster*
Blue-breasted Cordon-bleu	*Uraeginthus angolensis*
Red-cheeked Cordon-bleu	*Uraeginthus bengalus*
Blue-capped Cordon-bleu	*Uraeginthus cyanocephalus*
Lesser Seedcracker	*Pyrenestes minor*
Crimson-rumped Waxbill	*Estrilda rhodopyga*
Common Waxbill	*Estrilda astrild*
Green-backed Twinspot	*Mandingoa nitidula*
Cut-throat Finch	*Amadina fasciata*
Black-chinned Quailfinch	*Ortygospiza gabonensis*
African Quailfinch	*Ortygospiza fuscocrissa*
Zebra Waxbill	*Amandava subflava*
Bronze Mannikin	*Spermestes cucullata*
Black-and-white Mannikin	*Spermestes bicolor*
Grey-headed Silverbill	*Odontospiza griseicapilla*
African Silverbill	*Euodice cantans*

PASSERIFORMES: Viduidae	
Pin-tailed Whydah	*Vidua macroura*
Eastern Paradise Whydah	*Vidua paradisaea*
Broad-tailed Paradise Whydah	*Vidua obtusa*
Dusky Indigobird	*Vidua funerea*
Village Indigobird	*Vidua chalybeata*
Purple Indigobird	*Vidua purpurascens*
PASSERIFORMES: Passeridae	
House Sparrow (Introduced species)	*Passer domesticus*
Northern Grey-headed Sparrow	*Passer griseus*
Southern Grey-headed Sparrow	*Passer diffusus*
Chestnut Sparrow	*Passer eminibey*
Yellow-throated Bush Sparrow	*Gymnoris superciliaris*
PASSERIFORMES: Motacillidae	
Sokoke Pipit	*Anthus sokokensis*
African Pipit	*Anthus cinnamomeus*
Yellow-throated Longclaw	*Macronyx croceus*
Golden Pipit	*Tmetothylacus tenellus*
Yellow Wagtail	*Motacilla flava*
African Wagtail	*Motacilla aguimp*
PASSERIFORMES: Fringillidae	
Black-throated Canary	*Crithagra atrogularis*
Reichenow's Canary	*Crithagra reichenowi*
Yellow-fronted Canary	*Crithagra mozambica*
White-bellied Canary	*Crithagra dorsostriata*
Brimstone Canary	*Crithagra sulphurata*
PASSERIFORMES: Emberizidae	
Golden-breasted Bunting	*Fringillaria flaviventris*
Cinnamon-breasted Bunting	*Fringillaria tahapisi*
PASSERIFORMES: Paridae	
Northern Black Tit	*Melaniparus leucomelas*
PASSERIFORMES: Remizidae	
Grey Penduline Tit	*Anthoscopus caroli*
PASSERIFORMES: Nicatoridae	
Eastern Nicator	*Nicator gularis*
PASSERIFORMES: Alaudidae	
Chestnut-backed Sparrow Lark	*Eremopterix leucotis*
Fischer's Sparrow Lark	*Eremopterix leucopareia*
Flappet Lark	*Mirafra rufocinnamomea*

PASSERIFORMES: Macrosphenidae	
Red-faced Crombec	*Sylvietta whytii*
Moustached Grass Warbler	*Melocichla mentalis*
Kretschmer's Longbill	*Macrosphenus kretschmeri*
PASSERIFORMES: Cisticolidae	
Yellow-bellied Eremomela	*Eremomela icteropygialis*
Green-capped Eremomela	*Eremomela scotops*
Yellow-breasted Apalis	*Apalis flavida*
Black-headed Apalis	*Apalis melanocephala*
Grey-backed Camaroptera	*Camaroptera brachyura*
Red-faced Cisticola	*Cisticola erythrops*
Singing Cisticola	*Cisticola cantans*
Rattling Cisticola	*Cisticola chiniana*
Winding Cisticola	*Cisticola galactotes*
Croaking Cisticola	*Cisticola natalensis*
Tiny Cisticola	*Cisticola nana*
Short-winged Cisticola	*Cisticola brachypterus*
Piping Cisticola	*Cisticola fulvicapilla*
Long-tailed Cisticola	*Cisticola angusticauda*
Zitting Cisticola	*Cisticola juncidis*
Desert Cisticola	*Cisticola aridulus*
Tawny-flanked Prinia	*Prinia subflava*
Red-winged Prinia	*Prinia erythroptera*
PASSERIFORMES: Locustellidae	
River Warbler	*Locustella fluviatilis*
Little Rush Warbler	*Bradypterus baboecala*
PASSERIFORMES: Acrocephalidae	
Olivaceous Warbler	*Iduna pallida*
Upcher's Warbler	*Hippolais languida*
Olive-tree Warbler	*Hippolais olivetorum*
Icterine Warbler	*Hippolais icterina*
Sedge Warbler	*Acrocephalus schoenobaenus*
Marsh Warbler	*Acrocephalus palustris*
Common Reed Warbler	*Acrocephalus scirpaceus*
Basra Reed Warbler	*Acrocephalus griseldis*
Lesser Swamp Warbler	*Acrocephalus gracilirostris*
Great Reed Warbler	*Acrocephalus arundinaceus*
PASSERIFORMES: Hirundinidae	
Black Saw-wing	*Psalidoprocne pristoptera*
Northern House Martin	*Delichon urbicum*
Lesser Striped Swallow	*Cecropis abyssinica*
Mosque Swallow	*Cecropis senegalensis*
Red-rumped Swallow	*Cecropis daurica*
Wire-tailed Swallow	*Hirundo smithii*
Barn Swallow-+	*Hirundo rustica*
Rock Martin	*Ptyonoprogne fuligula*
Plain Martin	*Riparia paludicola*
Sand Martin	*Riparia riparia*
PASSERIFORMES: Pycnonotidae	
Sombre Greenbul	*Andropadus importunus*
Yellow-bellied Greenbul	*Chlorocichla flaviventris*
Little Greenbul	*Eurillas virens*
Tiny Greenbul	*Phyllastrephus debilis*
Terrestrial Brownbul	*Phyllastrephus terrestris*
Fischer's Greenbul	*Phyllastrephus fischeri*
Northern Brownbul	*Phyllastrephus strepitans*
Yellow-streaked Greenbul	*Phyllastrephus flavostriatus*
Common Bulbul	*Pycnonotus barbatus*
PASSERIFORMES: Phylloscopidae	
Willow Warbler	*Phylloscopus trochilus*
PASSERIFORMES: Scotocercidae	
Little Yellow Flycatcher Warbler	*Erythrocercus holochlorus*
PASSERIFORMES: Sylviidae	
Garden Warbler	*Sylvia borin*
Common Whitethroat	*Curruca communis*
PASSERIFORMES: Zosteropidae	
African Yellow White-eye	*Zosterops senegalensis*
PASSERIFORMES: Pellorneidae	
Pale-breasted Thrush Babbler	*Illadopsis rufipennis*
PASSERIFORMES: Leiothrichidae	
Rufous Chatterer	*Argya rubiginosa*
Arrow-marked Babbler	*Turdoides jardineii*
PASSERIFORMES: Sturnidae	
Wattled Starling	*Creatophora cinerea*
Red-winged Starling	*Onychognathus morio*
Golden-breasted Starling	*Lamprotornis regius*
Superb Starling	*Lamprotornis superbus*
Lesser Blue-eared Starling	*Lamprotornis chloropterus*
Amethyst Starling	*Cinnyricinclus leucogaster*
Black-bellied Starling	*Notopholia corusca*
PASSERIFORMES: Muscicapidae	
Eastern Bearded Scrub Robin	*Cercotrichas quadrivirgata*
+Rufous Scrub Robin	*Cercotrichas galactotes*
White-browed Scrub Robin	*Cercotrichas leucophrys*
Spotted Flycatcher	*Muscicapa striata*

Ashy Flycatcher	*Muscicapa caerulescens*
Grey Tit Flycatcher	*Myioparus plumbeus*
Pale Flycatcher	*Bradornis pallidus*
White-browed Robin Chat	*Cossypha heuglini*
Red-capped Robin Chat	*Cossypha natalensis*
White-starred Robin	*Pogonocichla stellata*
Collared Palm Thrush	*Cichladusa arquata*
Spotted Palm Thrush	*Cichladusa guttata*
Common Nightingale	*Luscinia megarhynchos*
Common Rock Thrush	*Monticola saxatilis*
Sooty Chat	*Myrmecocichla nigra*
Northern Wheatear	*Oenanthe oenanthe*
Capped Wheatear	*Oenanthe pileata*
Mocking Cliff Chat	*Thamnolaea cinnamomeiventris*
PASSERIFORMES: Turdidae	
Red-tailed Ant Thrush	*Neocossyphus rufus*
Spotted Thrush (Rare/Accidental)	*Geokichla guttata*
Bare-eyed Thrush	*Turdus tephronotus*
Kurrichane Thrush	*Turdus libonyana*

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▼ **The flame-bordered emperor butterfly (*Charaxes protoclea*), native to sub-Saharan Africa**

▼ **The African peach moth (*Egybolis vaillantina*), a native resident of Dar es Salaam**

REPTILES IN DAR ES SALAAM REGION		
Scientific	**English**	**Swahili**
Agama mossambica	Agama, Mozambique	Balabala
Chamaeleo dilepis	Chameleon, Flap-necked	Kinyonga
Chamaeleo melleri	Chameleon, Giant One-horned	Kinyonga
Rampholeon brachyurus	Chameleon, Pygmy Beardless	Kinyonga
Rampholeon brevicaudatus	Chameleon, Bearded Pgymy	Kinyonga
Hemidactylus mabouia	*Gecko, Tropical House*	*Mjusi*
Hemidactylus platycephalus	Gecko, Tree	Mjusi
Phelsuma dubia	Gecko, Dull-green Day	Mjusi ya mnazi
Lygodactylus capensis	Dwarf Gecko, Cape	Mjusi
Lygodactylus inexpectatus	Dwarf Gecko, Dar es Salaam	Mjusi
Lygodactylus luteopicturatus	Dwarf Gecko, Yellow-headed	Mjusi ndogo ya Kichwa njano
Broadleysaurus major	Lizard, Rough-scaled Plated	Mjusi
Gerrhosaurus nigrolineatus	Lizard, Black-line Plated	Mjusi
Nucrus boulengeri	Lizard, Boulengeri Scrub	Mjusi
Lycosoma afrum	Peter's Writhing Skink	Karu kaka, Gonda
Lycosoma sundevalli	Skink, Sunevall's Writhing	Mjusi
Mabuya maculilabris	Speckle-lipped Skink	Mjusi
Cryptoblepharus boutoni	Coral Rag Skink	Mjusi
Mabuya striata	Skink, Striped	Mjusi
Trachyleptis striata		
Mabuya varia	Skink, Variable	Mjusi
Panaspis wahlbergi	*Skink, Snake-eyed*	*Mjusi*
Aparallactus capensis	Centipede-eater, Cape	Nyoka
Bitus arietans	Puff Adder	Bafu, Moma
Bitus gabonica	Gaboon viper	Moma
Crotaphopeltis hotamboeia	Snake, White-lipped	Nyoka
Dasypeltis scabra	Egg-eater, Common or Rhombic	Nyoka
Dendroaspis Polulepis	Mamba, Black	Koboko, poisonous
Dendroaspis angusticeps	Mamba, Green	Nyoka
Dispholidus typus	Boomslang	Ngole
Dipsadoboa flavida	Tree Snake, Cross-barred	Nyoka
Hemirhagerrhis nototaenia	Snake, Bark	Nyoka
Lamprophis fuliginiosus	Snake. Brown House	Nyoka
Leptotyphlops Macrops	Snake, Large-eyed Worm	Nyoka
Leptotyphlops scutifrons	Snake, Peter's Worm	Nyoka
Lycophidion depressirostre	Snake, Flat-snouted Wolf	Nyoka
Meizodon semiornatus	Snake, Semi-ornate	Nyoka
Mehelya nyassae	Snake, Dwarf File	Nyoka
Natriciteres olivacea	Snake, Olive Marsh	Nyoka
Philothamnus hoplogaster	Snake, South-eastern Green	Nyoka
Ramphotyphops braminus	Snake, Flower-pot Blind	Nyoka
Philothamnus punctatus	Snake, Speckled Green	Nyoka

Philothamnus semivariegatus	Snake, Spotted Bush	Nyoka
Psammophis mossambicus	Sand Snake, Olive or Hissing	Nyoka
Psammophis orientalis	Sand Snake, Eastern striped-bellied	Nyoka
Rhinotyphlops mucroso	Snake, Zambezi Blind	Nyoka
Telescopus semiannulatus	Snake, Tiger	Nyoka
Thelotornis capensis	Vine Snake, Savanna	Nyoka
Ramphotyphops braminus	Blind Snake, Flower-pot	Nyoka
Varanus niloticus	*Monitor, Nile*	Kenge
Pelusios castanoides	Terrapin, Yellow-bellied Hinged	Kobe/Kope
Stigmochelys pardalis	*Tortoise, Leopard*	*Kobe*
Chelonia mydas	Turtle, Green Sea	Kasa
Eretmochelys imbricata	Turtle, Hawksbill	Kasa

As per Spawls, S, Howell, K, Drewes, R., Ashe, J. A Field Guid to the Reptiles of East Africa. Academic Press. 2002

▼ **Rough-scaled Plated Lizard. Photo credit: Samson Hilonga**

MAMMALS IN DAR ES SALAAM REGION		
Scientific Name	**English**	**Swahili**
Colobus angolensis	Colobus, Angolan Pied	Mbega
Cercopithecus mitis	Monkey, Blue	Kima
Papio cynocepalus	Baboon, Yellow	Nyani
Cercopithecus spp	Guenon	
Chlorocebus pygerythrus	Monkey, Vervet	Tumbili, Ngedere
Eidolon helvum	Fruit Bat, Straw colored	Popo matunda
Lissonycteris angolensis	Fruit Bat, Angola	Popo matunda
Phinopomatidae spp	Bats, Mouse-tailed	Popo
Nycteridae spp	Bats, Slit-faced	Popo
Lavia frons	Bat, Yellow-winged	Popo manjano
Rhinolophinae spp	Bats, Horseshoe	Popo
Hipposideranae spp	Bats, Leaf-nosed	Popo
Vespertilionidae spp	Bats, Vesper	Popo
Pipistrellus permixtus	Pipistrelle, Dar es Salaam	Popo
Molossidae spp	Bats, Free-tailed	Popo
Atelerix albiventris	Hedgehog, Common	Kalunguyeye
Crocidura spp	Shrew, White-toothed	
Elephantulus spp	Shrews, Lesser Elephant	Sengi
Rhynchochyon petersi	Shrew, Zanj Elephant	Njule kinguja
Lepus saxatilis	Hare, Scrub	Sungura
Paraxerus palliatus	Squirrel, Red-bellied Coast	
Myoxidae spp	Dormice	
Thryonomys swinderianus	Cane Rat, Savannah	Panya
Dendromurinae spp	Mice, Climbing	Panya
Muridae spp	Rats and Mice	Panya
Herpestes sanguinea	Mongoose, Slender	Nkuchiro
Mungos mungo	Mongoose, Banded	Nkuchiro
Bdeogale crassicauda	Mongoose, Bushy-tailed	Nkuchiro
Atilax paludinosus	Mongoose, Marsh	Nkuchiro
Genetta tigrina	Genet, Spotted	Kanu
Felis sylvestris	Cat, Wild	
Sylvicapra grimmia spp	Duiker, Bush	Nsya
Cephalophus harveyi	Duiker, Harvey's	Funoc
Neotragus moschatus	Suni	Suni, paa mwekundu
Sousa plumbea	Dolphin, Indian Ocean Humpback	
Tursiops truncatus	Dolphin, Common Bottlenose	

As per Kingdon, Jonathan, The Kingdon Field Guide to African Mammals, Academic Press. 1997.

▲ Yellow-winged Bat.
Photo: Jukka Jantunen, shutterstock.com

AMPHIBIANS IN DAR ES SALAAM REGION		
Scientific Name	**English**	**Swahili**
Afrixalus fornasini	Fornasini's Spiny Reed Frogs	Vyura
Afrilaxus sylvaticus	Forest Spiny Reed Frogs	Vyura
Amnirana galamensis	Frog, Galam White-lipped	
Arthroleptis stenodactylus	Long-fingered or Common Squeaker	Vyura Filimbi
Schoutedenella xenodactyloides	Squeaker, Dwarf	Vyura filimbi
Breviceps mossambicus	Rain frog, Mozambique	Vyura waitamvua
Bufo gutturalis	Toads, Guttural	Vyura Matomvu
Bufo taitanus	Toad, Taita	Vyura Matomvu
Bufo lindneri	Toad, Lindner's, Dar es Salaam Toad	Vyura Matomvu
Chiromantis xerampelina	Southern Foam-nest Frogs	Vyura Mapovu
Hyperolius argus	Argus Reed Frogs	Vyura
Hyperolius pusillus	Water Lily Reed Frogs	Vyura
Hyperolius tuberilinguis	Tinker Reed Frogs	Vyura
Hyperolius viridiflavus	Common Reed Frogs	Vyura
Hemismus mormoratus	Marbled Snout-Burrowers	Vyura
Kassina maculata	Kassina, Red-legged	Kassina
Kassina senegalensis	Kassina, Senegal	Kassina
Leptopelis argenteus	Tree Frog, Silvery	Vyura miti
Leptopelis flavomaculatus	Tree Frog, Yellow-spotted	Vyura miti
Phrynobatrachus acridoides	Puddle Frogs, East African	Vyura madimbwi
Phrynomantis bifasciatus	Rubber Frogs, Red-Banded	Vyura mpira
Ptychadena anchietae	Ridged Frogs, Anchieta's	Vyura
Ptychadena mascareniensis	Ridged Frog, Mascarene	
Ptychadena mossambica	Ridged Frogs, Mozambique	Vyura
Pyxicephalus edulis	Bullfrogs	Vyura
Xenopus muelleri	Clawed Frogs, Muller's	Vyura wenye kucha

As per Channing A, Howell, KM, Amphibians of East Africa. Cornell University Press, 2006

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A catalogue of

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