

Celebrating nature's diversity

Issue 8, October 2021

BIODIVERSITY & ENVIRONMENT AFRICA



COVER FEATURE

A GARDEN FOR **WILDLIFE**

HEALTH & WELLBEING

Gardening for **MENTAL HEALTH**



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Cover image: *Aloes (Aloe sp.)*

Photo: Warren Schmidt

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MISSION

Biodiversity & Environment Africa (publication) strives to present accurate and informative news on biodiversity and environmental issues from across the African continent. We aim to disseminate academic research findings and communicate this in an informative and understandable format to our readers, as well as highlighting important conservation and environmental issues.

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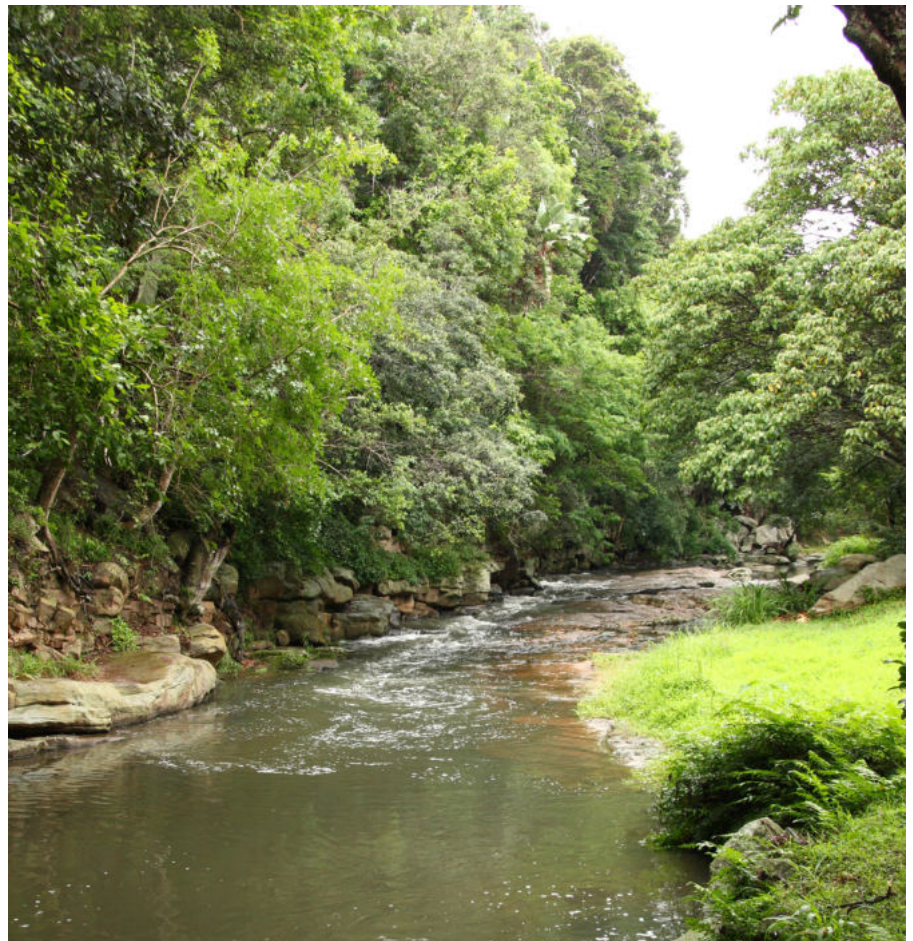
CONSERVATION

Text & Image: Warren Schmidt

It feels like there has been a feeding frenzy of late in the conservation world. So much is happening it is difficult to keep pace. In November, I intend to examine these proceedings in a digestible format through our website posts and PDF magazine. We live in the age of information overload. The daily bombardment of news, social media, advertising, press releases, and countless thousands of academic journal publications, makes one want to disappear into the wilderness and shun all technology and communications. The problem is that wilderness no longer exists. We have nowhere to run, and nowhere to hide. We must confront our challenges and reformat them to workable solutions with positive outcomes. However, we do need to take back control over our lives, manage the information and technology, and not let technology and information manage us.

On that note, the IUCN World Conservation Congress took place in Marseille in southern France from 3-11 September. <https://www.iucncongress2020.org> This important Congress addressed the state of the world's biological diversity and ecosystem services. The harsh reality pointed out though, is that we have hardly met any of the targets set out in previous Congresses. It is easy to be critical of these congresses and question their validity, but inaction would have steered us much further down the road of chaos, destruction and species loss. There are many people fighting on the frontline to give nature a chance. I believe we are witnessing a phenomenal transformation, but we are still balancing precariously on the precipice between falling into a dark chasm or reconnecting with nature.

I attended an online workshop hosted by the Lowveld branch of



the Wildlife and Environment Society of South Africa (WESSA) on 4 September 2021. Despite pleas by the organisers to keep the workshop objective and refrain from becoming overly emotive, some emotions ran high regarding wildlife utilisation and in particular, hunting. I feel this workshop was important and necessary. We need to engage in healthy debate and address sensitivities in a rational and objective manner. I believe this workshop did just that. I will be discussing this workshop in more detail in November's communications.

Another prestigious conservation symposium is about to get underway. Historically an event hosted in KwaZulu-Natal by Ezemvelo-KZN Wildlife, this year's event is a virtual symposium and has attracted a large national and international

audience. I last attended the physical symposiums in 2013 and 2014 in Howick and look forward to a week of engaging presentations and insights into current conservation practice.

As important as the above symposia and workshops are, this information needs to filter through to everyone, from the grocery store cashier, police officer, school pupil through to corporate company directors. This is where the real challenge lies. How do we get the message across to the right people?

Please get in touch with us and let us know your thoughts. Drop us an email at hello@biodiversitynature.com and let us know what topics you would like us to cover, and your feedback and insights into our website and content. We appreciate your input.

A garden for Wildlife

Against the backdrop of several world conservation and climate events, many of us can create a wildlife wonderland in our own garden. Urban Ecology is a growing sub-discipline of academic ecology with a journal dedicated to this subject. In addition, restoration ecology, also with several dedicated journals, looks at ways and means of restoring transformed landscapes back to their original form. Conservationists and ecologists have come to accept that people are an integral part of any ecosystem and not separate from it. However, our presence and impact can be catastrophic and detrimental to the organisms that naturally occur here.

Creating an eco-friendly wildlife garden can bring back a range of creatures and create a wonderland of discovery for children and visitors alike. A garden is often the first experience of nature that many children get. A lifelong interest and appreciation of the natural world can be nurtured from a young age as children explore the garden and discover snails, toads and other creeping and crawling things. Unfortunately, we are experiencing high levels of biodiversity loss. This includes



Every gardener should be thrilled when they come across a flap-necked chameleon (*Chamaeleo dilepis*).

the decline of thousands of insects. I remember as a child being awestruck by the sheer abundance of beetles, butterflies, spiders and bees which called our garden 'home', including the regular patronage of chameleons which fed on them. In contrast, today's gardens seem barren and devoid of life. In this feature, we will look at ways you can enhance your garden to encourage a range of creatures to take up residency.

Indigenous gardens

Wherever possible, try and plant indigenous shrubs and trees. Even better, try and plant species which occur naturally in the biome you live in. These plants will be suitably adapted to the climate of your region. Low



A tropical bluetail (*Ischnura senegalensis*) is a common summer garden visitor.



Blue and white agapanthus.



Cape White-eye (*Zosterops virens*)

maintenance gardens which require minimal watering have become increasingly popular. As such, plants such as aloes and spekboom are favourite garden plants. Indigenous gardens might appear messy and unkept compared to the manicured English garden, but birds and other creatures will find the environment tempting and conducive to their needs. An important aspect in attracting local wildlife is to give them places to hide, nest and feed. Large natural rockeries

will provide a range of crevices for shelter. Large logs and branches provide shelter as well as perching places for birds.

Set out different zones throughout the garden, such as sunny and shady spots. Plant a few sections with indigenous grasses and work with your local garden centre or nursery to acquire indigenous plants which flower at different times of the year. Most aloes flower over winter and will provide bright splashes of orange, red and yellow. Flowering

plants will also attract important pollinators such as bees. In addition to attracting insects, a well-balanced garden will also attract the birds and lizards which feed on insects.

Water features

Garden ponds and natural water features add a dimension of life and movement to a garden. Careful planning from the outset is important to ensure that it does not become a



Guttural toads (*Sclerophrys gutturalis*) commonly occupy coastal gardens and those with garden ponds.



Arum lilies (*Zantedeschia aethiopica*)

COVER FEATURE

stagnant eyesore. Keep in mind that a natural water feature may attract resident frogs. Painted reed frogs (*Hyperolius marmoratus*) have a high-pitched call which may distress people trying to sleep, so if you live within the range of reed frogs, place the water feature at the far end of the garden. Provide a range of refuges around the water feature to provide shelter for lizards, frogs and insects. Lush vegetation will also provide hiding places for various creatures. If you decide to place fish in a garden pond, it is important that they have access to overhanging shelter and a deeper section, as herons and other fish-eating birds will quickly eliminate the fish population.

Extra comforts

In addition to natural vegetation, you can erect a range of nesting boxes and hides for various birds. Many species nest inside cavities, so if you provide different hollow log nests, and nest boxes, birds will move in and use these. Owl boxes are becoming increasingly popular in many gardens. Bat hides are another type of shelter often attached to the side of a house to provide roosting spots for bats. Another trend is to create bee hotels. You can also provide several shallow rocky basins to provide drinking spots for bees and

butterflies. These must be very shallow so that the visitors don't drown.

The idea behind a natural wildlife garden is not to be clinical. Plants should grow naturally and provide falling leaf litter to the substrate below. This will provide nutrients to the soil and simultaneously provide shelter to many small invertebrates, as well as a hunting ground for lizards and birds.

A list of popular indigenous garden plants

- Agapanthus (*Agapanthus sp.*) – shade-loving and hardy evergreen shrubs with purple and white flowers.
- Black-eyed Susan (*Thunbergia alata*) – a climber producing bright orange flowers with central black spots and suited to subtropical gardens.
- Clivias (*Clivia sp.*) – green strap-like leaves with attractive orange to red flowers. Prefer shaded and well-watered areas.
- Impala lilies (*Adenium multiflorum*) – a flagship succulent of the lowveld, they produce beautiful pink and white star-shaped flowers.

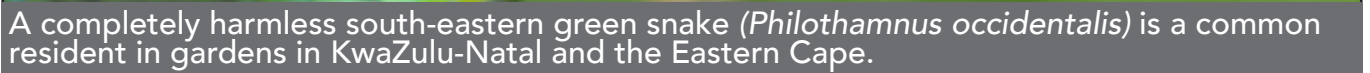


The speckled rock skink (*Trachylepis punctatissima*) is a popular inhabitant of Gauteng gardens.

- Arum lilies (*Zantedeschia aethiopica*) – semi-aquatic and ideal for surrounding a garden pond or planted alongside a stream. Produces large white trumpet-like flowers which provide daytime retreats for arum-lily frogs in the southern and western Cape.
- Aloes (*Aloe sp.*) – Krantz Aloe is a popular garden plant with a spreading growth form. In warmer regions, tree



Crested barbets (*Trachyphonus vaillantii*) are commonly found in gardens and produce a lovely ringing call.



>>>>>>>>Continued on page 8

The Spekboom Craze

Spekboom (*Portulacaria afra*) is also known as pork bush or elephant bush. It is a shrub or small tree belonging to the purslane family Portulacaceae. In recent years this plant has received a lot of media coverage and often referred to as the miracle plant. Indeed, it is a hardy shrub that can withstand a range of environmental conditions. It is drought-resistant and therefore an excellent choice for water-wise gardens. This shrub is largely found naturally across arid regions of the Western and Eastern Cape, as well as parts of KwaZulu-Natal and Mpumalanga.

It has been referred to as an excellent plant for carbon sequestration. In other words, a plant that is highly effective at absorbing and storing carbon from the atmosphere during the process of photosynthesis. This came about during one of South Africa's restoration programmes where degraded land in the Eastern Cape was planted with thousands of spekboom. This was also hailed as a great initiative for carbon sequestration in South Africa. However, most vegetation types and forests are equally as efficient in absorbing carbon, but spekboom is simply a hardier plant and a good choice for restoration projects.

Spekboom is available from most nurseries and will grow in most regions of South Africa.

As an added bonus, spekboom produces a fantastic pink to red floral display when they flower, adding colour to your garden. ■



Spekboom (*Portulacaria afra*)

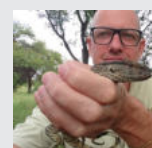


Rain spiders are also known as huntsman spiders. Large and intimidating but not dangerous to people. They build nests in dense vegetation...with the female lurking nearby to protect the nest from transgressors.



Another garden ally, the southern slug-eater (*Duberria lutrix*) feeds exclusively on snails and slugs.

Warren Schmidt holds a Master of Science degree in Ecological Sciences awarded by the University of KwaZulu-Natal, South Africa. He has three decades of experience in ecology, conservation science, invasion biology and herpetology. He has worked as a journalist, magazine editor, and lecturer, and has presented talks, seminars, and lectures.





About Horticultural Therapy

in the sole of the feet and when it comes to gardening, the palm of the hand is just as rich a gateway for “earthing” or “grounding” ourselves. Interestingly, the heart meridian pathway in acupuncture penetrates the palms of the hands as well as the arms. There is a vital point where the tip of the middle finger touches the palm, known as ‘*Laogong*’ which helps to ease anxiety and soothe inflammation. <https://stramcenter.com/blog/blog-detail/laogong-key-point-for-healing/>

and throw off your shoes -or get gardening! Apparently, even pot-plant gardening can help soothe the heart (in all senses of the word) -and the cardiovascular system on any given day! In addition, creating and nurturing green spaces, on your own or in community with others, is increasingly encouraged by environmental advocacy institutions as helping to counteract air pollution and mitigate climate change.

COMING DOWN TO EARTH

Gardening became an international trend during the Covid-19 pandemic. It has become popular even among younger households. Insights from the gardening industry here in South Africa predict that “veggie and indigenous gardens will stay trendy this year. Throughout 2021 permaculture has been trending globally with tiny gardens, windowsill gardening, and balcony gardening trending in the UK. In 2020 we all were forced to stay at home and enjoy our houses. This led to a global trend towards outdoor living areas.” (SANA Trade, The Green Business Magazine, 2021 Edition Issue 22).

Ecotherapy - A Forgotten Ecosystem

gov/pmc/articles/PMC6334070

At the same time, I can hear the argument in the background that one person's 'ecotherapy' is another person's subsistence labour, and that running to the local supermarket instead of running a veggie garden is

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just easier and way more convenient... However, this article is about gardening for overall wellbeing, especially in respect to how it fits in with the concept of 'ecotherapy'. Ecotherapy helps people connect with nature to aid in dealing with physical and mental illness or maintain wellbeing.

WHY IS GARDENING SO GOOD FOR YOU?

Gardening provides the right combination between physical activity and social interaction as well as exposure to nature and sunlight. Sunlight lowers blood pressure and improves vitamin D levels throughout the year, and there is also a positive impact on the diet through food gardening. Dexterity and strength are built into the equation and beyond merely burning up calories in the gym through all the digging, raking and mowing, the vital life force field that one is immersed in through working in soil surrounded by trees and plants surely adds immense value. As some would say, "there is a gym outside many a window". <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6334070> Let's take a closer look at some more positive aspects of gardening for health and well-being.

ANTI-DEPRESSANT PROPERTIES OF SOIL

Friendly bacteria commonly found in soil work similarly to anti-depressants. Researchers found that bacteria found in the soil actually helped activate brain cells that could produce serotonin. This could explain why immune system imbalance could make some people vulnerable to mood disorders like depression. The relationship between the microbiome found on our skin and in our gut could explain this. (You can read further about this skin-gut connection in our February 2021 issue of B & E Africa Magazine: <https://www.biodiversitynature.com/wp-content/uploads/BE-Africa-Issue-2-Feb2021.pdf>) "Serotonin, also known as 5-HT (short for 5-hydroxytryptamine), is found in the gut, brain, nerves and blood of humans and other animals. Different parts of the brain and the body need different levels of serotonin. In the brain for example, the hypothalamus (involved in mood regulation) needs a lot of serotonin while the cortex (involved in many complex processes like thinking, memory, attention, awareness and consciousness) only needs a little. Low levels of serotonin are linked with a number of disorders including aggression, anxiety, depression, obsessive compulsive

disorder (OCD), bipolar disorder, irritable bowel syndrome, and fibromyalgia." [Soil Bacteria Work In Similar Way To Antidepressants](#)

NEGATIVE IONS FROM INDOOR PLANTS

Indoor plants do more than clean the air! Placing plants in a computer room had a positive impact on productivity and even brought down blood pressure in one study. Indoor gardening has been used to treat patients with mental health problems. It is not only the appearance of plants that is beneficial: their leaves remove toxins, dust and microorganisms from the air and they also produce negative ions from their leaves. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6334070/> Despite future research being needed to evaluate the biological plausibility of this association, negative air ionization has been associated with lower depression scores particularly in instances where participants were exposed to higher levels of negative ions. <https://pubmed.ncbi.nlm.nih.gov/23320516/>

BRAIN HEALTH

Gardening helps improve memory, cognitive abilities, task initiation, language skills, and socialization. People also learn to work independently, problem solve, and follow directions easier. [About Horticultural Therapy](#)

PHYSICAL STRENGTH AND ENDURANCE

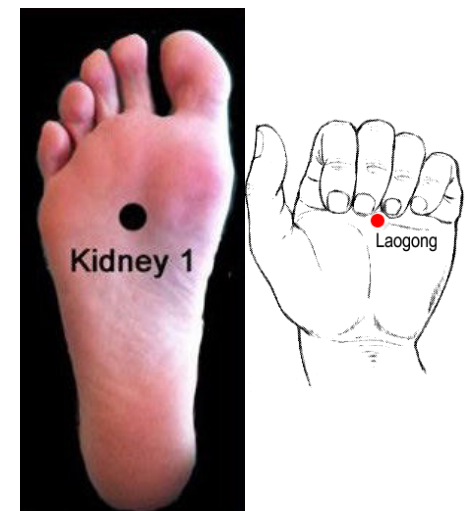
In physical rehabilitation, horticultural therapy can help strengthen muscles and improve coordination, balance, and endurance. [About Horticultural Therapy](#) In a Japanese study, viewing plants altered EEG recordings and reduced stress, fear, anger and sadness, as well as reducing blood pressure, pulse rate, and muscle tension. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6334070/>



4TH INDUSTRIAL REVOLUTION GENERATION

In addition to building essential future life skills for food security, teaching our children how to garden, and how to take responsibility for maintaining a garden, and even getting involved in complementary activities such as home recycling from an early age, can certainly offer positive benefits. Especially in the context of how the youth face growing up in a technologically dominant era, overwrought with consumerism and pressures. Gardening can be introduced to create a sense of balance and counteract the adverse effects of over-exposure to screens.

“The first kidney meridian acupoint is found on the sole of the feet and when it comes to gardening, the palm of the hand is just as rich a gateway for “earthing” ourselves. Our hands hold the pathway of the heart meridian...”



“Friendly bacteria commonly found in soil work similarly to anti-depressants.”

- lucky bamboo
- air plants
- snake plants
- rubber plants
- succulents

Herbs considered easier to grow include:

- chives
- mint
- parsley
- thyme

When getting started, do a quick search on the watering frequency and any special needs of the plants. Succulents, for instance, need infrequent watering and can do poorly if watered daily.

[How Gardening Helps My Anxiety and 4 Steps to Get Started](#)

In our future magazine issues, we will be taking a closer look at various practices and activities around ecotherapy, from 'beach-yoga' to 'forest-breathing', as well as gathering more insights regarding 'green care'. In the meantime, summer is around the corner for those of us on the African continent, so why not go and throw off those sandals or get gardening -for self and planet?

Further Reading

<https://www.smilinggardener.com/organic-vegetable-gardening/vegetable-gardening-for-beginners/>

<https://www.smilinggardener.com/organic-vegetable-gardening/organic-container-gardening/>

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About Horticultural Therapy (ahta.org)

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Soil Bacteria Work In Similar Way To Antidepressants (medicalnewstoday.com)

<https://stramcenter.com/blog/blog-detail/lao-gong-key-point-for-healing/>

Gardening for Health, A Regular Dose of Gardening : <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6334070/>

Air Ions and Mood Outcomes: A Review and Meta-Analysis: <https://pubmed.ncbi.nlm.nih.gov/23320516/>

SANA Trade. The Green Business magazine.2021 Edition Issue 22



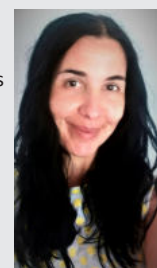
CELEBRATE

Garden Month!

—OCTOBER—

WRITTEN BY: Nicolette Da Costa

Nicolette's background in sociology lead her to the complementary health field where she is a registered Therapeutic Reflexologist & Meridian Therapist. 17 years of being in practice has shown her how natural therapies and sound nutrition can play a vital role in supporting the healing process by bringing about balance and harmony in the system and clearing the body of toxins. Outside of the therapy room, Nicolette has come to appreciate that wellbeing in all senses of the word, individually and societally, today and for the future, is inextricably tied in with Nature. We can not fully care for ourselves and one another without living in synergy with the natural world.





The garden Sergeant

Flying in like a sergeant onto the parade ground, with its three black wing stripes, the African hoopoe patrols lawns and open ground with the precision of a military official. The long, recurved bill looks like a scimitar sword. This bill is perfectly adapted to probing through grass and into small holes with surgical precision where it grabs hold of grubs, insects and other invertebrates. The head and neck plumage is a rich rufous brown and the wing coverts are



black and white. The tail feathers are black. It has a large feather crest on its head made up of black and brown feathers. The recurved bill is pale to dark.

African hoopoes are tree cavity nesters. Their bill is not designed for chiselling out wood and they therefore use natural holes or crevices, or those constructed by other birds such as woodpeckers. It appears that the male selects the nest site. They will also use suitable man-made nest boxes and even holes on the side of buildings.



The floor is covered sparsely with fine debris. From 2-7 eggs are laid and incubated by the female. During this time the male brings food to the nest. Eggs hatch after 15-16 days and the fledgling birds emerge after around 26 days.

As a defence strategy, nests are often dirty and foul-smelling to deter predators. Hatching birds are also known to hiss at outside disturbances approaching their nest cavity.



Class: Aves
Order: Upupiformes
Family: Upupidae
Species: *Upupa africana*
Etymology: *Upupa* = onomatopoeic in reference to its call. *africana* = of/from the African region.
IUCN Conservation Status: Least Concern



ABOUT US.

Biodiversity & Environment Africa is a fully digital, website-based platform - freely available to readers globally. Publications and resources are available as downloadable PDFs, as well as regular online blog posts. It is our hope to make information available as far and wide as possible. In keeping with its environmental ethos, printing and distribution is effectively reduced, therefore striving towards a low carbon footprint and minimal use of natural resources.

The primary objective of B & E Africa is to interpret and disseminate often complex academic research and environmental policies in a digestible and easy to understand format. The website, www.biodiversitynature.com and blog articles therein, can easily be viewed in alternative languages by right clicking and using Google translate.

Never has environmental communications been as important and pertinent as it is in today's rapidly

changing, dynamic world. It is critical that people receive reliable information about biodiversity, conservation, and environmental issues. Just as important, communities need to understand why biodiversity is important in their daily lives and why environmental issues are personally relevant to their health and wellbeing. Given the levels of poverty across Africa, the challenges may seem insurmountable, but can be overcome strategically with foresight, dedication and consistency.

Traditional knowledge and consumption of natural resources must be integrated into sustainable biodiversity management strategies and communities need to see, and experience first-hand, the benefits of biodiversity. The benefits of ecosystem services need to be demonstrated clearly and practically. Africa must also be cautious of international and corporate investments which lead to environmental destruction and biodiversity loss for short-term profit. Such short-term financial gain and profits cannot be allowed to overrun long-term sustainable goals and biodiversity conservation objectives. As humans, we yield immense power over the natural world, but we have a moral and ethical responsibility to leave a legacy of natural wonder to the generations that follow, so that they too can experience the majestic roar of lions, the trumpeting of elephants, and the humble dung beetle in the African savanna.

It may seem idealistic to aim for environmental sustainability and conservation of biodiversity when many regions of Africa are suffering from prolonged civil conflict, disease and poverty, but these challenges can be overcome. It will however take dedication and resolve from politicians, and more importantly, Africa's citizens. Thousands of game guards, wardens and environmental activists have lost their lives protecting biodiversity and natural assets across Africa. This alone goes to show that the will to protect is there. We owe it to these fallen heroes to ensure that their sacrifice will not be in vain.

Africa is custodian to some of the world's most unique landscapes, plants, and animals. Elephant, rhino, gorillas and a plethora of less

enigmatic but no less interesting creatures call this continent home. Nurturing an appreciation and spiritual connection to these plants, animals and landscapes is critical to ensuring their long-term survival. It is the continent's youth that needs to be uplifted and guided to do this.

Environmental education and resource management are essential skills that should be taught at every stage of a child's education, from pre-school to tertiary level. B & E Africa strives to be a communications channel bridging the gap between academic research findings and translating scientific literature into a format that anyone can appreciate and understand.

B & E Africa will cover a range of topics and carry out interviews with scientists, researchers, businesses, and politicians across the African continent and further afield. Some of the topics covered include:

- Biodiversity (focus on diversity and conservation of plants and animals)
- Biosecurity (the prevention of pathogens and invasive species)
- Climate change (global climate change)
- Community upliftment (environmental benefits to communities, tourism, bioprospecting)
- Conservation (endangered species, trade, poaching and conservation issues)
- Economy (financial economics and the environment)
- Ecotourism (safari and game lodges, ecotherapy, tourism, birding and hunting)
- Environmental management (landscaping, environmental scoping and impact assessments)
- Invasive species (spotlight on invasive animals and plants)
- Legislation (environmental law and legislation)
- Marine resources (fisheries and recreation)
- Recycling (waste management)
- Resource management (agriculture, forestry and mining)
- Sustainability (development and resource management)
- Technology (GIS, satellites and other technology used in environmental management)
- Water (water resource management & wetlands)

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For further information and contact details, visit biodiversitynature.com