

African WILDLIFE & ENVIRONMENT

ISSUE 74 (2019)

**SOUTH AFRICA HAS TWENTY NEW
MARINE PROTECTED AREAS**

A challenging land
KWAZULU-NATAL



BIRDS / NATURE PHOTOGRAPHY

BASICS FOR THE BEGINNER

THE MAGAZINE OF THE WILDLIFE AND
ENVIRONMENT SOCIETY OF SOUTH AFRICA



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Olifants River, Kruger National Park
© John Wesson



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EDITORIAL

Dr John Ledger

Many an apocryphal story and lots of hoary jokes start with the words “I’ve got good news and bad news”. So it is with my editorial for this issue of your magazine. The Good News is that South Africa has twenty new Marine Protected Areas (MPAs). Read about this wonderful achievement on page eight. The Bad News is that South Africa has announced its new Integrated Resources Plan for electricity generation up to 2030. The misguided inclusion of a large amount of wind energy means that thousands of birds and bats are going to be maimed and killed by wind turbines in the coming decades.

The 20 marine areas include 17 new MPAs and expansions of the existing Aliwal Shoal MPA, Bird Island (into Addo) and the St Lucia and Maputaland MPAs into a much larger iSimangaliso Wetland Park MPA. This brings the total number of MPAs around South Africa to 41, with an additional large MPA in our Prince Edward Islands territory. The declaration of the MPAs in the *Government Gazette* follows over ten years of hard work by a team of dedicated marine scientists from a wide range of institutes. We join hands in celebrating this Good News, and thanking all those who worked so hard to achieve this dream. Readers are urged to view the short film at <https://youtu.be/LI7Xx21ESoY> to learn more about MPAs.

The publication of the Electricity Regulation Act (4/2006): Integrated Resource Plan (IRP2019) in *Government Gazette* No 42784, October 2019, is very Bad News for birds and bats. Readers who have the fortitude to delve into this *Government Gazette* can find it here: Government Printer, Bosman Street, Private Bag X85, Pretoria, 0001. Contact Centre Tel: 012-748 6200. eMail: info.egazette@gpw.gov.za

Publications: Tel: (012) 748 6053, 748 6061, 748 6065.

There is a massive amount of irrelevant verbiage in this 104 page document from the Department of Energy. An incorrect version was initially published under a different *Gazette* number. The corrected version as cited above came out later. How about that for professionalism in dealing with the country’s energy issues? I searched the 104 pages of this *Gazette* for the word ‘Environment’. As might be expected from the Department of Energy, their understanding of ‘environment’ is largely limited to pollution, air quality, climate change and social issues. A search for the word ‘biodiversity’ yielded a nil result.

So what does the IRP 2019 hold in store for the birds and the bats from now until 2030? I will only summarise the IRP plans for wind energy. Photovoltaic (PV) installations pose minimal threats for wildlife in South Africa. All the energy figures listed below are ‘installed capacity’ in Megawatts (one million Watts). A ‘Watt’ is an international measure of power, or energy per unit of time. Your one-bar electric heater uses 1,000 Watts (one Kilowatt) of power and using it for one hour will cause your electricity meter to tick over by one Kilowatt hour. One thousand similar bar

Description	Year	Capacity (MW)	Running Total (MW)
<i>Wind turbines already installed</i>	2018	1,980	1,980
<i>New build already committed</i>	2019	244	2,224
	2020	300	2,524
	2021	818	3,342
<i>New build as gazetted in IRP 2019</i>	2025	200	3,542
	2026	1,500	5,042
	2027	1,600	6,642
	2028	1,600	8,242
	2029	1,600	9,842
	2030	1,600	11,442



heaters will use one million Watts (one Megawatt) of power and in one hour will use one Megawatt hour.

If the IRP plans reach fruition by 2030, there will be 11,442 MW installed capacity of electricity from wind turbines. How many is that? It depends on the size of the individual turbines installed. Currently, turbines of 1.8 and 2.5 MW have been installed. If this continues, a total of around 4,000 turbines will be despoiling South Africa's rural areas. If much larger units become the norm, the total number might reduce to around 2,000 larger units, with proportionally greater dimensions. For example, a 7 MW turbine has a tower/hub height of 130 m, and blades 85 m long, slicing through the living realm of bird, bats and insects up to 215 m from ground level and with their tips moving at over 200 km/h.

In the (once) authoritative magazine *Engineering News* of 25 October 2019, we are told that "...after two decades of continuous cost reductions and technology improvements, carbon-free electricity from wind and solar photovoltaics (PV) is by far the lowest (cost) new-build option in almost any power system." This last statement is highly debatable, but we don't have space for that. Let's examine the claim of "carbon-free electricity" Really?

A 2 MW wind turbine weighs about 250 tons, mostly steel, including the tower, nacelle, rotor and blades, all supported on a massive base of steel-reinforced concrete. It takes about half a ton of coal to make a ton of steel. Add another 25 tons of coal for making the concrete and you're talking 150 tons of coal per turbine. Each ton of coal burnt produces around 1.86 tons of Carbon Dioxide. If we build the 4,000 IRP wind turbines, that will account for at least 600,000 tons of coal. That is around 1,116 million tons of Carbon Dioxide. Now add the fossil fuels to transport these huge machines by sea from Europe or China to South African ports, the diesel for the trucks and cranes to take them into remote areas of the country, the amount of fuel needed to maintain and service the wind farms, and the fossil fuel lubricants in the wind turbine gearboxes and other parts. "Carbon-free electricity" this is definitely not!

But it is the impact on biodiversity that is the biggest concern. The results of one year of monitoring bird mortality at around 300 wind turbines of the first round of the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP) revealed a concerning number and variety of birds killed. Diurnal raptors were in the majority, and several rare, threatened species and migratory species were among the casualties,

In that one year of monitoring, 115 diurnal raptors were killed on 300 turbines. Species included Cape Vulture, Booted, Martial and Verreaux's Eagle, Peregrine, Lanner and Amur Falcon, Jackal and Steppe Buzzard, Lesser and Rock Kestrel, Black-shouldered and Yellow-billed Kite, and others. Simple extrapolation gives us 1,533 killed on 4,000 turbines every year, and as the power purchase agreements with Eskom are for 20 years, some more simple arithmetic arrives at 80,000 diurnal raptors sacrificed to the wind component of the IRP 2019-2030. There is no good information on the extent of bat mortality so far, and yet the IRP plans to forge ahead regardless. And all this in the name of clean, green electricity to "fight climate change"?

The contribution of wind energy to South Africa's electricity supply is paltry, since the power is unpredictable, totally dependent on the weather, only available for 30% of the time, and requires fossil fuel backup from coal, diesel or gas for the remaining 70% of the time. The reduction in our greenhouse gas emissions on a global scale is miniscule, since South Africa is only responsible for 1.3% of these and in any case, China and India are forging ahead with massive fossil fuel expansion which renders any South African efforts completely pointless. China has almost 148,000 Megawatts of coal-fired capacity under active construction or likely to be resumed after being suspended, according to Global Energy Monitor, a non-profit group that tracks coal stations.

The planned introduction of more wind energy in South Africa is an unfolding disaster from every logical point of view. The new Minister of Environmental Affairs, Forestry and Fisheries, is the pivotal figure in this conundrum. Her Ministry is responsible for the protection and conservation of biodiversity. But her Ministry also issues the environmental approvals for the construction of wind farms. This conflict of interest is fatally flawed and indefensible. The DEFF must promote biodiversity conservation and oppose the disastrous plans for wind farms in the IRP promoted by the Department of Energy.

With best wishes for the festive season from your editorial team.

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GOOD READS

Book reviews by Dr John Ledger

Beauty of the Bushveld

Hagelthorn, Paddy & Molly Buchanan (2018). Just a Blade of Grass. The African Bushveld – a dynamic system in need. The Paddy Hagelthorn Collection cc, Box 213 Hazyview 1242 South Africa. Web: www.Paddy-Hagelthorn.com. Hard cover, 26x29 cm, 178 pp, illustrated with colour photographs throughout. ISBN 978-1-7761-4234-7. R320.

At first sight, this is another ‘coffee table’ book, in large format, with hard covers and numerous wonderful, evocative colour photographs of wildlife and scenery from the ‘lowveld’ of South Africa. The photographs are mostly the work of Paddy Hagelthorn with additional images by Richard du Toit, and all are works of art in themselves, which will give the viewer endless pleasure. Molly Buchanan is a seasoned writer and the whole package is a book of outstanding quality and content. Most wildlife ‘coffee table’ books depict an idyllic Africa where everything seems to work like a modern ‘Garden of Eden’ that overseas visitors come to experience, usually at considerable financial expense.

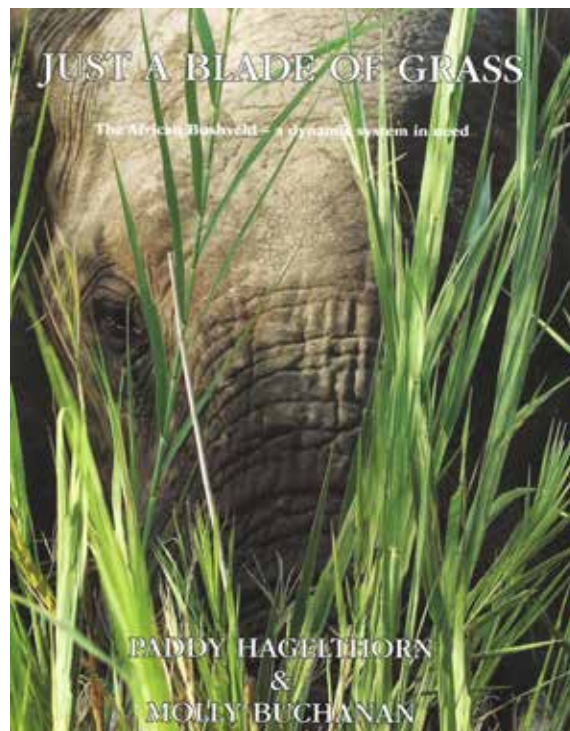
But this book goes much further into the realities of the wildlife of Africa, which is threatened by numerous natural and unnatural factors. The alarming human population growth on the continent is resulting in increasing pressure on land for crops and livestock, and encroaching on wildlife areas. This burgeoning mass of humanity requires sustenance and protein, and wild animals are in great demand as a source of ‘bushmeat’. Some animal parts like rhino horn and elephant ivory are extremely valuable, and despite the imposition of futile bans on trade in rhino horn by the international trade regulatory body, CITES, poaching for the black market has reached

epidemic proportions, with poachers and protected area anti-poaching forces increasingly engaged in armed conflicts that have seen hundreds of poachers losing their lives while trying to kill rhinos for the monetary value of their horns. The poachers are the foot-soldiers for the middle-men, and the corrupt government officials who take bribes to look the other way.

The ultimate beneficiaries are the international criminal syndicates who are making vast amounts of money from the sale of a valuable commodity to end-users in the East. The animal-rights movement has effectively infiltrated both CITES (Convention on International Trade in Endangered Species of Fauna and Flora) and the IUCN (International Union for the Conservation of Nature), and their decisions and pronouncements have effectively prevented the legitimate owners of rhinos and elephants in Africa from trading in the products of their successful conservation and protection activities. Instead, the market is controlled by the underworld, and millions

of dollars are being stolen from Africans every year through the mindless, ineffective and futile trade bans stubbornly imposed, year after year, by CITES.

Then we have those cruel periods when wild animals suffer and die during the droughts, natural cyclical dry weather patterns in Africa that can decimate the wildlife and break the hearts of the people who have carefully protected and nurtured their populations of special animals. So-called ‘animal-lovers’ will oppose any population control measures like ‘culling’ and others devote their lives trying to ban the practice of ‘trophy hunting’. These emotive and irrational activities have resulted in excessive populations of elephants in some protected

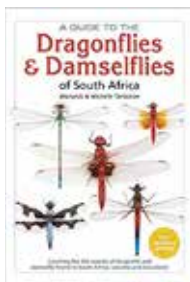




areas, which in turn have resulted in serious impacts on the vegetation, and on the biodiversity of the habitat. Protected areas are not for the benefit of a single species! Trophy hunting can be a major source of income for rural people who look after their wildlife, and who can benefit from controlled hunting with minimal negative impacts on the populations of sought-after species.

Paddy and Molly explore all these topics in a refreshingly open debate, raising questions that others so frequently skirt around because they are afraid of the negative reactions they will provoke in others. There are two main 'elephants in the African room' – the first is the issue of the human population explosion, which nobody wants to talk about, and the second is the real elephant population explosion in specific parts of Africa such as Botswana, Zimbabwe and the Kruger National Park in South Africa. For the world to be fooled by CITES and the animal rights movement that elephants should be regarded as 'endangered species' is to deny the success that these countries have had in wildlife conservation, and furthermore to deny Africans their opportunities to maximise the value of their wildlife resources.

Running through the book are many very enjoyable anecdotes based on Paddy's many years of experience as a game ranger and wildlife photographer. His knowledge and insights, and above all his love for all the creatures of the African Bushveld, shine through each page of the text and the brilliant photographs that make this a very special book. It is one that is highly recommended, and that will be deeply appreciated by those who also love Africa and its wildlife, and would like to see it conserved and cherished by future generations.



Winged Jewels

Tarboton, Warwick & Michèle (2019). *A Guide to the Dragonflies & Damselflies of South Africa*. Second Edition, Fully Revised & Updated. *Struik Nature, an imprint of Penguin Random House South Africa (Pty) Ltd, Cape Town*. Soft cover, 17x24 cm, 224 pp, illustrated

in colour throughout with photographs, maps and sketches. ISBN 978-1-77584-700-7. R250.

My first career was as an entomologist and I was privileged to revise and publish the second, completely revised edition of *Skaife's African Insect Life* in 1979. The book was illustrated by Anthony Bannister's remarkable photographs, as well as by numerous line drawings to aid readers in identification of the major groups of insects. When the Tarbotons' field guides on dragonflies (2002) and damselflies (2005) were published, I was totally amazed by the diagnostic illustrations they had put together by manipulation of digital images of the insects. I had never seen anything as innovative or valuable as these illustrations. In 2015 they published a book that combined information about our dragonflies and damselflies in a single volume, and the second edition is now out in 2019, fully revised and updated. It stands in a class of its own in the field of natural history publishing, and is outstanding in every respect.

Once again we are humbled by the achievement of two people who have become experts in fields outside their original expertise, since Warwick made his career as an outstanding ornithologist and Michèle was a schoolteacher – they have spent the past 18 years studying their favourite insects. The dragonflies and damselflies make up an insect group called the Odonata. All 164 species known to occur in South Africa are described and illustrated in this book, grouped according to family, of which there are 12 in all, six dragonfly and six damselfly families. Each species is illustrated by the aforementioned electronic images made from living insects, with the opposite page providing a detailed description, distribution map, and photographs of specimens in their natural environments. This book will enable nature enthusiasts to identify these fascinating winged jewels with a pair of binoculars and a bit of patience, as most of them are swift flyers and need to be observed when perched on a twig or a rock. This is an outstanding book that will be appreciated by anyone who spends time outdoors, exploring the wonderful world we live in.

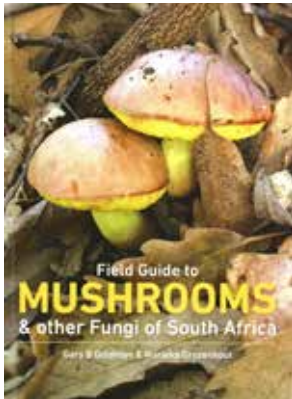
WIN A COPY OF THE MAGNIFICENT JUST A BLADE OF GRASS. THE AFRICAN BUSHVELD – A DYNAMIC SYSTEM IN NEED. Answer these questions and e-mail your answers to editorial@wessaregion.co.za

1. What part of Africa is Just a Blade of Grass about?
2. Who took the photos for Just a Blade of Grass?
3. What does IUCN stand for?



GOOD READS

Book reviews by Dr John Ledger



Mycology

Goldman, Gary B & Mariëka Gryzenhout (2019). Field Guide to Mushrooms & Other Fungi of South Africa. Struik Nature, an imprint of Penguin Random House South Africa (Pty) Ltd, Cape Town. Soft cover, 15x21 cm, 360 pp, illustrated in colour throughout with photographs and sketches. ISBN 978-1-77584 -654-3. R290.

When I was growing up on a 'Transvaal' farm, my mother would collect wild mushrooms after the summer rains, and we enjoyed many a tasty breakfast, feasting on the free veld delicacies fried in farm butter. She only picked *Agaricus campestris*, the Field Mushroom and never experimented with any other kinds. Just as well, because we heard of a family of nearby farm workers that died after eating the wrong kind. This magnificent new publication will delight everyone interested in the environment because mushrooms and their relatives are omnipresent in our world. How so? Because a mushroom is the 'fruiting body', the striking manifestation of a particular stage in the life cycle of an organism that generally lives hidden and invisible to the unschooled eye. The main body of the fungus is the **mycelium**, an extensive network of hair-like filaments called **hyphae**, which are the basic building blocks of the fungus. The mycelium occurs below the soil, inside wood, dung or leaves, and sometimes on the surface. The mycelium is responsible for the nutrition and development of the fruiting bodies. The latter come in an amazing variety of forms, from mushroom-like 'gills' and 'boletes', woody 'brackets' on trees, 'puffballs', 'earthstars', 'stinkhorns', 'corals', 'morels', 'truffles' and more. It is believed that between 2.2 and 3.8 million species of fungus may exist in the world, with more than 170 thousand in South Africa, but only a small percentage of these have been formally described. This book is the epitome of the visual field guide, in my view one of the very best ever produced, with a lucid text and the most amazing photographs, many of them taken by the talented Liz Popich. You will be astonished by the colours and shapes of the fungi in South Africa, and you could well be tempted to become a mushroom hunter, searching for delicacies for your pot. This requires a measure of caution, but the book is very clear about how to identify mushrooms, and flags the dangerous species and their look-alikes. Remarkably,

the main author is an amateur mycologist who has become a 'citizen scientist *extraordinaire*'. Those of you who live in Cape Town or visit the Mother City may have the good fortune to attend one of Gary Goldman's courses or go on a mushroom hunt with him. Go to www.mushroomfundi.co.za for more information. This is a book that every reader will want. Make it known that Christmas is coming soon! Congratulations to everyone involved in the production of this outstanding book. It was printed in Cape Town- hooray! Many of the other books I review are printed in China.



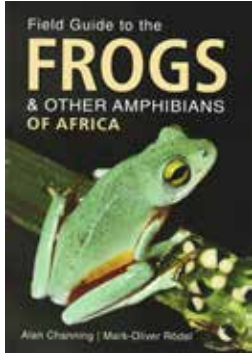
Goggas

Picker, Mike, Charles Griffiths & Alan Weaving (2019). Field Guide to Insects of South Africa, Third Edition. Struik Nature, an imprint of Penguin Random House South Africa (Pty) Ltd, Cape Town. Soft cover, 15x21 cm, 527 pp, illustrated in colour throughout with photographs, maps and sketches. ISBN 978-1-77584 -584-3. R280.

The formally described insect fauna in South Africa comprises some 50,000 species, out of an estimated total of 250,000. The vast majority of insects have not yet been formally named. The world total is guessed to be anything between five and thirty million, and at current rates of habitat destruction, millions of species will probably go extinct without ever having been described or named. Insects are by far the most diverse group of organisms on earth. They come in such an abundant variety of shapes, colours and sizes that it is a daunting task for anyone to start classifying them into orders and families, let alone species. Regrettably, most humans see insects only as a nuisance, to be eliminated by a burst of insecticide from a spray can, millions of which are sold in supermarkets every year. Fortunately, many people these days take an interest in the living world around them, and will take the trouble to recognise insects for the amazing creatures they are. WESSA members and readers of *African Wildlife & Environment* magazine will therefore be pleased by the publication of this excellent field guide, now in its third revised edition, which describes some 1,500 species and groups of the more common, conspicuous and interesting insects in the region. Excellent photographs, used in conjunction with distribution maps, help the amateur naturalist to



come pretty close to identifying many of the species they may encounter in the field, especially the larger and colourful groups. The introductory pages include the significance and life cycles of insects, as well as guidance on collecting and photographing insects. It is an extremely useful book that will be appreciated by entomologists, students, farmers, gardeners and wildlife enthusiasts. Highly recommended!



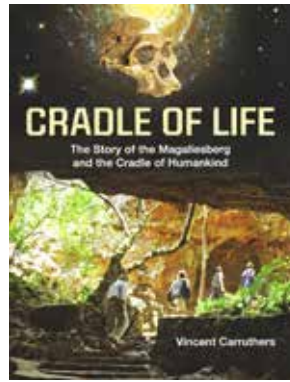
Frogs for Africa

Channing, Alan & Mark-Oliver Rödel (2019). Field Guide to the Frogs and other Amphibians of Africa. Struik Nature, an imprint of Penguin Random House South Africa (Pty) Ltd, Cape Town. Soft cover, 15x21 cm, 407 pp, illustrated in colour throughout with photographs, maps and sketches. ISBN 978-1-77584 -512-6. R320.

Frogs and other amphibians are under threat from human expansion and development in many parts of the world. Some species are vulnerable to the exploitation of rivers for hydropower schemes; and the spread of a fungal disease that apparently originated in Africa has affected frogs in the New World. This is the first comprehensive guide to the amphibian species of the African continent, a challenging task that brought together authors Alan Channing from South Africa, who has worked in many different parts of Africa, and Mark-Oliver Rödel from the Natural History Museum in Berlin, Germany, who has a long-standing interest in African amphibians. This new field guide lists 815 species, 788 frogs, 29 caecilians, and four salamanders. Species accounts describe the physical features, distribution (with maps), habitat, biology, calls and conservation of each amphibian. The introductory pages give a background to the lifestyles, habits and habitats of African amphibians, with a very useful photographic guide to the different groups. The photographs are excellent and I was struck by the very small distribution areas of many species in Africa, which makes them quite localised and therefore also vulnerable to extinction. Frogs come in an amazing variety of shapes and colours, and some of the reed frogs are truly works of art! Also noteworthy is the fact that there are only four species of newts and salamanders recorded from the continent, all of them north of the Sahara, and thus hardly represented in Africa. This will be a very useful reference work for tourists and tour guides, naturalists, students and scientists.

World Heritage Site

Carruthers, Vincent (2019). Cradle of Life. The Story of the Magaliesberg and the Cradle of Humankind. Struik Nature, an imprint of Penguin Random House South Africa (Pty) Ltd, Cape Town. Soft cover, 17x23



cm, 256 pp, illustrated in colour throughout with photographs, maps and sketches. ISBN 978-1-77584 -597-3. R300.

South Africa has been blessed by a remarkable number of 'Citizen Scientists', people who are not specifically trained in a particular branch of science, but study the subject as interested 'amateurs' and who

ultimately become experts in their particular fields. Many such South Africans have published books and field guides that we have reviewed over the years in the pages of this magazine. Vincent Carruthers is a past CEO of WESSA, and one of the outstanding citizen scientists of this country, an expert on frogs and co-author of *A Complete Guide to the Frogs of Southern Africa*. He has also published *Wildlife of Southern Africa*, and *The Magaliesberg*. This new book by Vincent reaches new heights of excellence, and is to my mind one of the most important publications to come out of South Africa. It is a masterful account of the greater Magaliesberg area with its unique geology, history and biology that has been extensively studied by specialists in search of clues about our origins. Vincent brings these studies to life as he reviews the evidence and guides the reader along a timeline from the birth of our planet through to the most recent findings in this century. The book covers the formation of the landscapes and the emergence of life, the rise of the hominins (our ancestors), the stone and iron ages, early settlement, migration and wars, and recent development in the Magaliesberg region. Beautifully illustrated with photographs, maps and diagrams, this book takes the reader on a fascinating journey of discovery. It should be on the bookshelves of every South African with an interest in history and natural history, and in my view it should be used as a critical teaching aid in schools. Vincent's remarkable energy saw him lead the campaign to have the region proclaimed as a UNESCO Biosphere Reserve in 2015, and he worked with the teams that succeeded in listing the area as a World Heritage Site. On 7 July 2016 the University of the Witwatersrand awarded its prestigious Gold Medal award to Vincent. The long citation ends with these words: "Through meticulous research, scholarship, and outreach, as a citizen scientist Vincent Carruthers has made a valuable and outstanding contribution to our knowledge and understanding of many aspects of the South African natural environment. He is surely deserving of the University Gold Medal for his remarkable work, achievements and his influence." His new book on the *Cradle of Life* exceeds by far what the Gold Medal recognised three years ago. Get this outstanding book as a Christmas gift for family, friends or for yourself!



South Africa now has TWENTY NEW MARINE PROTECTED AREAS

Dr Judy Mann

On 1 August 2019, the protection of South Africa's marine biodiversity received a massive boost with the implementation of 20 new or extended Marine Protected Areas (MPAs). Just as on land, protected areas in the ocean are critical for the conservation of an amazing variety of marine plants, animals and ecosystems.

Through careful planning, 5% of South Africa's ocean is now protected, including about 87% of South Africa's different marine ecosystems and habitats. At 50,000 km², these new and enlarged MPAs will protect an area of ocean more than twice the size of the Kruger National Park!

While most South Africans are familiar with terrestrial protected areas, the same cannot be said for their marine counterparts. A Marine Protected Area is an area of coastline or ocean that is specially

protected for the benefit of people and nature. They are places where marine life can thrive, reproduce and grow. MPAs are like underwater parks – the National Parks of the oceans – safe havens for marine creatures and their homes. Importantly, MPAs protect marine ecosystems that provide direct economic, environmental and social benefits to people.

Scientists in SAAMBR's Oceanographic Research Institute (ORI), whose research has contributed to both the placement and requirements for the KZN



Amathole Offshore Lace coral ((ROV)- credit ACEP Imida Project)



iSimangaliso Coelacanth (Credit: Peter Timm)

MPAs, were delighted with the declaration. “This is an important step forward for the conservation of our linefish species” said Dr Bruce Mann, whose research in the iSimangaliso Wetland Park has contributed to the improved zonation of the area, while Fiona Mackay, Senior Scientist at ORI said ““The uThukela Banks MPA will protect unique coastal-linked marine ecosystems in a critically important part of the South African continental shelf.”

Dr Kerry Sink, Principal Scientist at the South African National Biodiversity Institute (SANBI), who has dedicated many years of her life towards this achievement said, “This is a giant leap for healthy oceans. And healthy oceans ultimately contribute to healthy people and economies”. Dr Sink started her career in marine science at ORI, making this great achievement an especially memorable one for SAAMBR.

This declaration in the *Government Gazette* follows over ten years of hard work by a team of dedicated marine scientists from a wide range of institutes. In 2016, the proposed network of MPAs was gazetted for public comment as part of an inclusive public participation process. In October 2018, the cabinet approved a revised network of MPAs that was adjusted to address stakeholder concerns. While many people thought that this was final step, in fact, the cabinet permission was the just the start of the proclamation

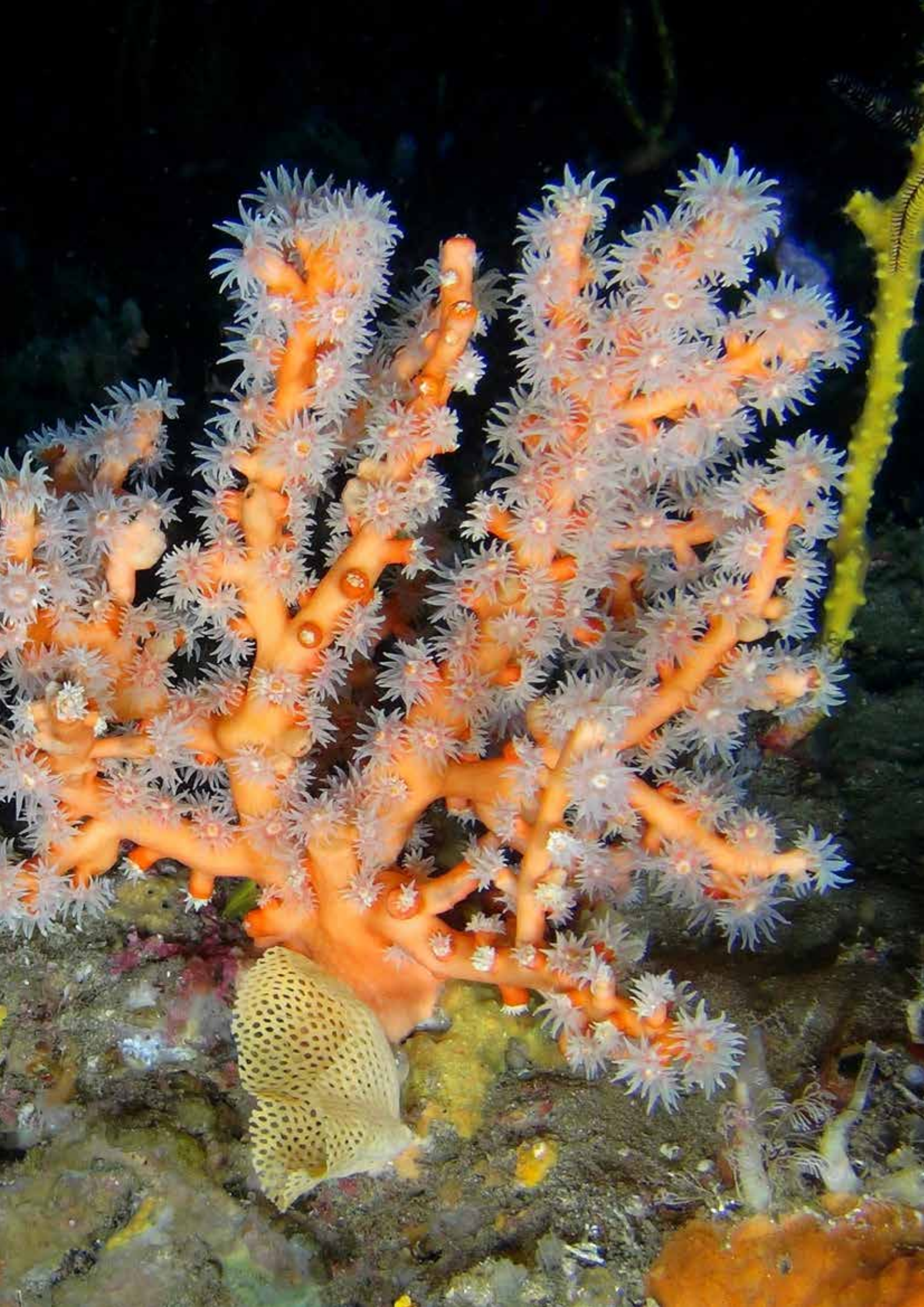
process with declaration notices and detailed regulations being developed for each protected area.

Each MPA is unique and this meant that the boundaries, zonation and permitted activities in them needed to be carefully compiled for the Gazette and, at the same time, all the contrasting public comments needed to be taken into balanced consideration. Most countries declare one protected area at a time – in South Africa we did 20 all at once! The mammoth task of compiling these regulations fell to a small team of marine scientists and lawyers, who spent hundreds of hours reviewing the comments from the public participation process, to ensure that the regulations are as equitable as possible, while still achieving the ultimate goals of ocean protection and sustainable use.

The 20 areas include 17 new MPAs and expansions of the existing Aliwal Shoal MPA, Bird Island (into Addo) and the St Lucia and Maputaland MPAs into a much larger iSimangaliso Wetland Park MPA. This brings the total number of MPAs around South Africa to 41 with an additional large MPA in our Prince Edward Islands territory.



Aliwal Shoal

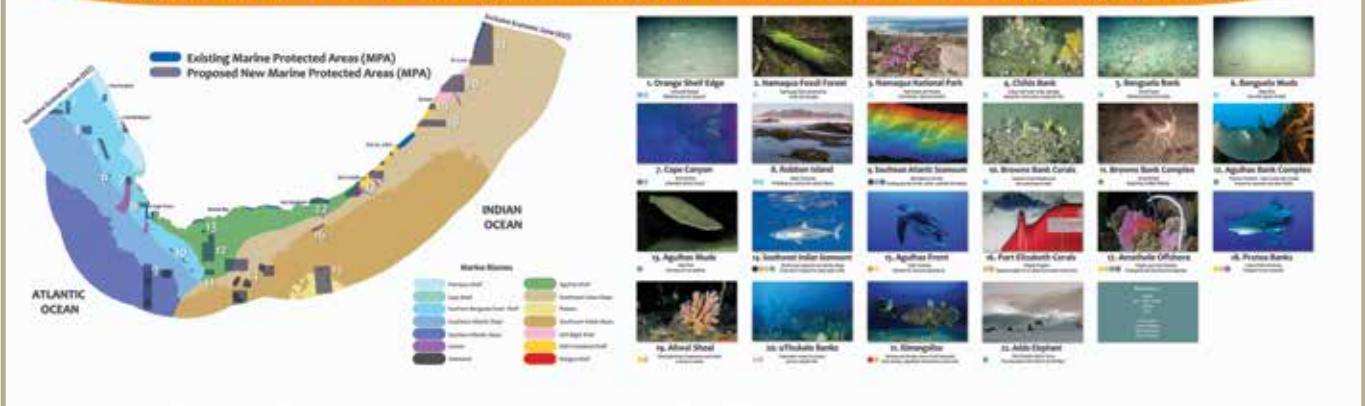


Marine Protected Areas (MPAs)

Protecting our ocean heritage



22 Additional new MPAs will ensure that 5% of South Africa's ocean (EEZ) is protected



What happens now?

If you would like to know the exact details of each MPA, consult the *South African Government Gazette* No. 42478 and 424479.
<https://www.saambr.org.za/marine-protected-areas-mpas/>

What does this mean for oil and gas extraction and mining?

Mining is not permitted in any of the protected areas, neither is the exploration or exploitation of oil and gas. This is a massive achievement, as companies have been allocated prospecting rights to over 90% of South Africa's seabed. These new MPAs will help to protect vulnerable and unique ecosystems from incompatible activities.

What does this mean for fishing?

Different zonation has been applied to different MPAs. While some areas are zoned for no-take, where no fishing is allowed, other areas are open to selected fishing methods. Fish lists determine what species may be caught in some zones. These details are contained in the regulations.

Take a virtual tour of both the new and existing MPAs on the beautiful website www.marineprotectedareas.org.za

Celebrate this incredible achievement by sharing the short film <https://youtu.be/LI7Xx21ESoY>

Dr Judy Mann
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This article is based on two blogs written by Judy for the SAAMBR website.



South Africa - UK partnership for the early detection of aquatic invaders using **ENVIRONMENTAL DNA**

By Dr Bezeng Simeon Bezeng & Professor Vincent Savolainen

There is a long history of scientific collaborations between South Africa and the UK, especially through co-funding from the South African National Research Foundation and the British Royal Society. One important scheme is the Newton Fund, launched in 2014, which is an initiative that aims ‘to develop the long-term sustainable growth and welfare of partner countries through building research and innovation’.

In particular, the Newton Fund helps strengthen the research and innovation capacity of early-career researchers from partner countries (in our case South Africa) by linking them with the best researchers in the UK and by providing support for initial exploratory research. Furthermore, it aims to establish long-term research links between both partners to ensure sustainable research capacity.

Through this opportunity, Dr Bezeng (South Africa) and Professor Savolainen (UK), having collaborated before on invasion biology, found the need to strengthen further research ties by exploring new advances in molecular sequencing techniques to detect invasive species at ports of entry in South Africa.

Our idea was to use DNA technology to identify potential invasive species carried by vessels moving around the world and finally entering South Africa’s ports. This is especially important because South Africa is a gateway for many species entering the African continent.

As vessels travel to South Africa, their tanks are often filled with water (called ‘ballast water’) to improve their stability. However, this ballast water sometimes contains hundreds of living organisms, which can be transported unintentionally to other parts of the world as ships travel. This is partly because the living organisms present in this ballast water cannot be seen with the naked eye, or if visible, they cannot be easily identified when they are at a larval stage (such as fish and invertebrates). If they arrive unnoticed, some of the living organisms can then cause significant damage to local biodiversity

and ecosystems, and they are very costly to remove.

Worldwide, biological invasions are indeed a major problem, both ecologically and economically. For example, in the US alone, invasive species are detrimental to global economies, calculated to exceed US\$130 billion annually (nearly two trillion Rand). Therefore, understanding the mechanisms that predispose non-native species to become invasive has been challenging to biologists, primarily because of problems inherent to species identification and early detection.

South Africa faces one of the biggest challenges of species introduction, and potential invasions, of many hundreds of non-native invertebrates and >8,000 plant species have been documented, but the economic impacts of such events are not fully understood. Although South Africa is now developing ‘early warning’ programmes to identify non-native species upon arrival in order to prevent their subsequent spread, this is difficult given that most non-native species usually reach their new destinations in juvenile stages, as cryptic species or present in low numbers. This is especially true for marine animals where large areas of the South African coastline remain unmonitored. In addition, taxonomists are in short numbers; the latter a problem not specific to South Africa. Therefore, across the globe, scientists have turned to DNA techniques to provide rapid and accurate identification of living organisms.

An initial method, called ‘DNA barcoding’ used short and standardised gene fragments as species identifier. However, this barcoding technique has had its limitations, especially in cases where samples



Photo 1. Dr Bezeng sampling environmental DNA at the port of Durban



Photo 3. The final environmental DNA analyses are being completed at the Royal Society Wolfson Laboratory for ecological genomics, headed by Prof. Savolainen (photo A. Thomas)



Photo 2. Pre-processing of environmental DNA samples at the African Centre for DNA Barcoding (ACDB), University of Johannesburg, South Africa, with Dr Bezeng and Prof. Savolainen. The ACDB laboratory was partly funded by a capacity building grant from the South African National Research Foundation and UK Royal Society to Prof. Van der Bank and Prof. Savolainen.



are mixed and contain multiple taxa (e.g. as in water and soil samples). With the advances of genomics, a new technique called 'metabarcoding' makes this possible. DNA metabarcoding infers the composition of species in an environmental sample by amplifying, sequencing, and analysing target genomic regions. The metabarcoding technique has been successful in detecting taxa even at low abundance from freshwater samples, whereas they were unnoticed by conventional taxonomic methods.

So, we proposed to develop a metabarcoding approach to help detect unintentional introductions of non-native species in ballast water from ships at South African ports. Species introduction through ballast water has been well documented in North America. The same probably affects South Africa.

Our aim was to do a pilot study on the feasibility of metabarcoding testing from waters in the South African port of Durban. Durban was chosen because research by Dr Mark Robertson and colleagues at the University of Pretoria showed that this port contributed the most to the establishment debt of invasive species in South Africa.

Using metabarcoding technologies, we needed to show how to detect animals that are present in ballast water, by sequencing their DNA shed into the water (this is called 'environmental DNA'). This would allow us to provide lists of organisms brought by ships into a port, so that government bodies can develop efficient invasive management prioritisation plans for the marine environment.

Ballast water was collected from the Durban port (Photo 1) and pre-processed at the African Centre for DNA Barcoding at the University of Johannesburg (Photo 2). Following this, Bezeng visited Savolainen's Lab at Imperial College London with the pre-processed samples to further investigate if the DNA in water, can be used for detecting invasive species (Photo 3). After several methods of DNA extraction from water or sea mud in the port estuary, we showed that DNA extraction from mud provided the best quality DNA. The final step will be to sequence this DNA to obtain a list of animal species present in the water samples.

Further reading and information sources for this article

- Bezeng BS, Savolainen V, Yessoufou K, Papadopoulos AST, Maurin O, Van der Bank M. 2013. A phylogenetic approach towards understanding the drivers of plant invasiveness on Robben Island, South Africa. *Botanical Journal of the Linnean Society* 172:142-152.
- Hebert PND, Ratnasingham S, de Waard JR. 2003. Barcoding animal life: cytochrome c oxidase subunit 1 divergences among closely related species. *Proceedings of the Royal Society B: Biological Sciences* 270:S96-S99.

This research fits the aims of The Convention on Biological Biodiversity, which recognised the need for the 'compilation and dissemination of information on alien species that threaten ecosystems, habitats, or species to be used in the context of any prevention, introduction and mitigation activities', and calls for 'further research on the impact of alien invasive species on biological diversity'. In particular, the objective set by Aichi Biodiversity Target 9 (a strategic goal from the international Convention on Biological Diversity) is that 'by 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment'.

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Acacia erioloba (the camel thorn - now Vachellia erioloba) is easily recognised in the Kalahari

Tree books, what is a tree and **OTHER THINGS WOODY**

Eugene Moll

Here in South Africa we are blessed by having a large number of tree books that range from those that endeavour to include a comprehensive list of all our now 2,100 tree species, to those that specialise in one genus or taxonomic group, to those that focus regionally or simply include a small number of some trees. All these books have their own specific pros and cons. No matter who you are, you will find most, if not all, of these books meet some, but not necessarily all the criteria, you may wish; or you thought they would include. I think that is the very nature of the publishing world that readers have their views on what they think a book would/should include, while the author(s) may have had a different set of criteria!



Whatever the case, one thing is certain, that many trees, like all other plants, are not always easily identified, not least being that every individual can superficially look different from every other individual of the same species. In fact, this is a wild plant thing, because every individual has a slightly different genetic make-up from all the other individuals in the species. Thus, plants of the same species, unlike animals, have greater individual variability, thus making them more challenging to identify.

Some trees are easily and readily identifiable from a distance because they have, for example, a specific morphology i.e. baobabs, palms and willows. Others can be much more difficult like acacias, bushwillows, spikethorns and raisins, not just because they are smaller but because many grow in bushveld thickets, so any identifiable features they may have are lost in the surrounding tangle of branches.

Just hold that thought for a moment while I remind readers that prior to 1966 our tree information in South Africa had no real focus that I could observe. I believe that it was with the publication of *66 Transvaal Trees*, in which the first National Tree List each with

a unique number, was published that the situation changed. This spurred a massive response amongst the then small “tree-fraternity” and resulted in trees swiftly being numbered in many parts of our country; and all new tree books thereafter have included the National Tree Number of each species.

I am not exactly sure how the original National Tree List which numbered some 750 tree species grew to over 2,100 species but it did! And in 2014 the Dendrological Society of South Africa published the fifth edition of a rather bulky 'pocket-book' listing all the trees indigenous in Southern Africa. (how these additions came about is perhaps the content for another article?).

Back to the present, I see Struik Nature have just published a delightful book called *100 Bushveld Trees* by Megan Emmett Parker that includes notes on: *100 of the most memorable trees in the bushveld...* The same publisher has also just released an updated edition of van Wyk & van Wyk's *How to Identify Trees in Southern Africa*, and in the last few years Struik Nature also published comprehensive books on our trees as well as all introduced trees in the region.



Acacia nigrescens (the knob thorn – now Senegalia nigrescens) is not always easy to ID from afar as the growth form changes with age and situation



Because Acacia sieberiana (the paper-bark thorn – now Vachellia sieberiana) grow at higher altitudes, usually in grassland, it is not usually confused with the umbrella thorn (Vachellia tortilis). But they can co-occur in some places in the Lowveld and then their identities from afar can be confused by some

In this series I have written about a number of individual tree species and groups of trees in either a genus or a family, but I don't think I've yet defined a tree?

A question I am often asked is: 'What is a tree?'

On scrutinising the literature few authors have an in-depth definition of 'a tree'. Why? My take on this is that defining a tree is not too easy. The concept of 'a tree' has no clear boundaries. Clearly when it comes to a baobab, this is easy because here we have a woody plant of significant stature with a strong, single trunk. But even here there could be some doubt, as when a baobab dies it simply collapses into a pile of fibrous debris. There is no useable timber in a baobab, yet one definition of a tree is that it has a woody stem, so then that begs the question, is a baobab a tree?

The doyen of Africa vegetation is undoubtedly Frank White who defined a tree as a *woody plant with a single, unbranched trunk to 3-5metres*. By that definition our South African tree list would be in the region of 500 species! Elsie Esterhuysen, of mountain fame, defined a tree as any woody plant that would provide sufficient shade for a sit-down-on-the-ground lunch spot! So clearly one's definition is determined by where one lives and works. Frank worked a good deal in Zambia and Elsie in the fynbos heathland where there are few if any trees!

Our literature does sort of define trees as woody plants at least two metres high and ideally with a single stem, (with a diameter of 100mm or more). But many 'trees' have multiple stems (e.g. *Dichrostachys* and *Grewia* spp.) and others are substantial woody, or not so woody, climbers or lianas (e.g. *Dalbergia armata* and *Adenia gummifera* – the former is substantially

woody while the latter is basically fibrous). Thus, in the final analysis my take on all of this is that in the pursuit of trying to make our tree list impressive we have bent the rules somewhat to achieve an impressive total of more than 2,100 'trees'! But in so doing we have blurred the difference between 'trees' and perennial sub-woody shrubs like *Lippia javanica* (Tree number 657.5), that is essentially a single-stemmed, sub-woody perennial, that I have never seen more than two metres high and never with a diameter approaching 100mm. But, hey, that is just my experience!

Before signing off on this messy, but interesting topic I would like to throw one more spanner-in-the-works and this is about common plant names. Here in South African we are starting to think-up common names for plants because there is a general demand amongst the public for them. Many amateurs are put off botany, by complex scientific nomenclature and that is a negative for biodiversity conservation



When Acacia robusta (the river thorn - now Vachellia robusta) is out in the open it is not always easy to identify. When it is in a riverine situation it is much more easily spotted



Acacia welwitschia (the Delagoa thorn – now Senegalia welwitschia) can easily be confused with other large thorn trees

and people. Don't get me wrong, in the past I was a binomial purist, but with age and experience I see a very important role for common names, especially with the growth of citizen science. Probably a recent founder and protagonist for common names is Tony Rebello of SANBI, because when he was managing the epic protea atlassing project he discovered that people wanted common names, so he started inventing names. This has started something of a tradition. Although I am in favour of plants having common names, what is a big negative is when the same plant has more than one common name. Ideally, we need a list of 'official' common names, so we are all singing off the same hymn sheet. That is another can of worms for another day!!!

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Salute the RANGERS IN AFRICA

Currently the African continent is home to approximately 1.25 billion people. Over the next 30 years the population in Africa is expected to double, helping propel the world's human population to close on ten billion people. More people need more land and even currently there is huge pressure on Africa's limited resources. The trend is towards a more urban lifestyle with the vast majority drawn to burgeoning cities. This means that more people need more agriculture, more minerals and everything else that epitomise a modern urban lifestyle.

Article and photos: Bryan Havemann



Actor Rob Louw with field rangers



The quest for more land for humans will always be there, but the importance of keeping a balance between urban development and maintaining natural areas has never been as important as it is today. Protected areas across the continent need to stay sacrosanct and even expanded where possible. The trend, however, is that some governments in Africa are contemplating selling off their National Parks to the Chinese, the Russians or whoever will pay them for short term gain. What these governments do not realise is that these National Parks and Protected Areas are priceless and need to be protected at all costs.

What kind of moron would willingly protect these natural areas, when they often get paid a pittance, get shot at, are hated by their own community members, and work very long hours without respite? This, my friend is a very special breed of men and woman who have been referred to as the 'Thin Green Line' and are the rangers of Africa. July 31 has been recognised world-wide as 'World Ranger Day' and is dedicated to these incredible people. The important role that these rangers play cannot be overemphasised. World Ranger Day is here to remind us normal mere mortals that there are these committed men and woman who are willing to endure incredible hardships to protect the last of the wild places, where their only payment could be in sunsets. Speak to a dedicated ranger however, and you will most likely hear: "I have the best job in the world" and they will humbly state how lucky they are to be able to work and live in wild places.

The way that a game ranger is described by the Game Rangers Association of Africa (GRAA) is as follows:

In Africa, the Game Ranger goes by many different titles - Game Ranger, Game Warden, Conservation Officer, and many more, yet all are essentially the wildlife managers and the field force in Africa, working at the 'coal face' of conservation. In Africa the prime responsibility of the Game Ranger is to ensure the territorial and biological integrity of the conservation area under his/her management. Their tasks are multi-faceted and include ensuring the day to day health and well-being of the wildlife, research and monitoring, game capture and introductions, population management, burning programmes, infrastructure and equipment maintenance, public relations, environmental education, and, crucially, local community relations, liaison and involvement. Added to these are the normal day to day financial controls, human resource planning and administration, which must also be carried out. Theirs is often a difficult, dangerous and thankless task for which they receive very little remuneration and recognition and seemingly minuscule support both morally and financially. For their dedication, many have in

the past, and no doubt will in future, pay with their lives.

Game ranging is a field that encompasses many aspects of conservation work and includes, but is not restricted to the following:

Territorial integrity and law enforcement: Actively combat potential or actual threats to the area under management.

Natural studies and scientific support: Study, monitor, record and report on natural occurrences and phenomenon, and field collection of data and samples.

Management planning and implementation: Planning and carrying out of actions - inclusive of at least the following; erosion and alien plant control, fire management and game population control.

Sustainable resource utilisation: Promote the value of, and prevent the degradation/destruction of natural resources.

Environmental education: Contribute towards a public general awareness of conservation.

Community relations: Contribute towards acceptance by, and cooperation of, neighbouring communities in conservation management.

This is what it truly means to be a game ranger according the GRAA.

Being a ranger is definitely not just a job, it has to be a calling where the lifestyle will govern how you will live the rest of your life. The common notion of a ranger's life, where they will be bottle-feeding orphaned animals like soft cuddly otters, Bambi-like baby antelope or cute lion cubs, is not a true reflection of a ranger's life.

Granted, there might be times where they might just have be involved in the softer side of the bush, but in reality life can be very hard at times. Ask any ranger what they hate doing and the most probable answer is having to do the daily, weekly, monthly and annual administration tasks. Keeping records is essential in any protected area environment, and often it is these historical records that enable one to see trends and effectively apply adaptive management principles, relative to that area. In nature there are cycles that take place over both the short and the long term and this is particularly evident with rainfall and other climatic factors that influence the environment, both negatively or positively.

As a young boy I was asked by my friends and family, "what do you want to become when you grow up"? For me it was very easy to answer because from a young age I always wanted to be a 'game ranger'. I remember seeing short film clips on 'Operation Noah' which was a wildlife rescue operation that took place on the Zambezi River on the northern border of Rhodesia (now Zimbabwe) when the waters of Kariba Dam were rising. It was headed by Rupert Fothergill



between 1958 and 1964 and over 6,000 animals were captured on the shrinking islands and relocated to the Matusadona National Park. Everything from elephants and rhinos down to tortoises and snakes were captured successfully and the adventure, danger and excitement exuded by the ranger capture teams, struck a chord in my heart as a very young boy.

This is what I wanted! I was born in 1961, slap bang in the middle of Operation Noah, so maybe that was why I had this infatuation. Growing up in a family that took holidays on the family farm in Greytown, where I was taught how to shoot, spending magical holidays at Shu Shu hot springs, on an island in the Tugela River where I was taught how to fish and master bird watching. Not to mention of course visiting the incredible Kruger National Park, where I was just blown away by its sheer size and the prolific biodiversity. This to me was my version of Heaven, and I think seeing my parents and their friends in a holiday mood, relaxed and enjoying life, sowed the seed; imagine being able to do this for your living and being in this type of environment daily.

My parents were very supportive of my passion and even when the 'snake phase' started while still in primary school, they were willing to take me out on my many snake-catching expeditions over weekends, where my friend Chris Moore and I would carefully dig open the termite mounds on smallholdings around Johannesburg, and catch a plethora of different snake species. This practice is not encouraged, as you are moving snakes away from their natural habitat and there will be a knock-on ecological effect. My justification today is that almost all these areas are now just concrete jungles, with thousands of housing complexes being built and covering the once productive vast Highveld grasslands. What this did do however, was just strengthen my resolve to become a game ranger and spend as much time out in the veld. After matriculating, I had to do my National Service in the South African Defence Force (SADF) infantry, and was posted to Oudtshoorn where the Infantry School was based. Here they trained and honed the young men into commissioned and non-commissioned officers, who would be the leader group for the various platoons that would do their stint up on the Angola border with South West Africa (now Namibia). My time there at Oudtshoorn with its characteristic Little Karoo landscape made me realise the importance of different veld types and ecosystems, and how wildlife adapted to these varying conditions.

While out in the field in the Outeniqua Mountains doing our endurance hike with full kit, I came across fresh leopard tracks. I very excitedly let my corporal know what I had seen, and this was his explosive response:

"Jou dom langgat Engelsman, wie het gesê jy kan praat? Dit is nie 'n luiperd se spoor nie, maar 'n hond

met rabies wat jou vannand gaan kom kuier en jou lang bene afkou. Jy dink jy is nou 'n Havemann, maar na vanaand sal jy 'n kwartman wees. Ons sal jou nie meer lang slap derm (LSD) noem nie, maar dom stompie kortgat, want jy sal moet orals rol soos 'n ten pin bowling bal, want jou bene sal af wees. Jy dink jy kan my vertel van 'n luiperdspoor wanneer dit 'n hond is, met jou lang bene jy dink jy is soos al die volstruise in Oudshoorn maar, laat ek vir jou 'n ding vertel, jy is 'n bliksemse Volstront, want jy is so vol k@k alles wat jy sê is die selfde. Hou jou bek en ***voort."

Man, did I regret trying to share my find with my delightful corporal. I could not resist a direct translation later that night when I told the rest of the platoon who had not heard the gist of the corporals conversation with me and it went as follows;

"You stupid, long-assed Englishman, who said you could talk? This is not a leopard track but a dog with rabies that will visit you tonight and chew off your long legs. You think you are now a Havemann but after tonight you will be a quarter man. We will no longer call you long weak guts, but stupid stumpy short asshole, because you will have to roll everywhere like a ten pin bowling ball, because your legs will be gone. You think you can tell me it is a leopard's track when it is a dog's, with your long legs you think you are like the ostriches in Oudshoorn but let me tell you something, you are bloody full of S*!t because you are so full of ***t and everything you say is the same. Keep your mouth shut and carry on!"

Our corporals really loved us and treated us with such respect! Anyway all this hardship helped mould one into a tough nut and many of the combat principles we learned would be invaluable as a game ranger in later years.

The iconic Kruger National Park (KNP) is considered to be the pinnacle for a game ranger to work in South Africa. The problem is that the whole of the KNP is divided into only 22 sections so one literally has to wait for someone to retire or leave, for a space to open. I had done the theory part for my nature conservation diploma and needed to do a year practical in a protected area or game farm. The KNP was considered the ultimate for getting broad experience in conservation, but the problem was at that stage, they only accommodated two work-integrated learning students per year. Not divulging all my secrets, but begging extensively on bended knees with a massive dose of good luck, I was one of the two students chosen for that year!

Working with and getting to know all the KNP top management, legendary rangers, researchers, camp managers, technical staff etc. was an absolute privilege, and I was mentored by some of the best minds in biodiversity conservation worldwide. This foundation was the best way to lay the building blocks and helping me to become the best possible



Akagera rangers in Rwanda with elephant killed by poachers



game ranger I could be. The KNP had a proven system of sourcing their future game rangers from the wilderness trails rangers fraternity. I knew that to fulfil my dream of becoming a game ranger I had to work my way through the ranks and after a stint at Londolozi, I became a wilderness trails ranger in the KNP. After seven years of taking trails, where you would work one week on a trail and the alternative week help out the local section ranger, it was a good way to ensure that when you eventually were considered to become one of the elite game rangers, you knew exactly what to do after all that practical

a full-out war. As the crime syndicates become more specialised, the game ranger contingent has adapted, and the KNP has air capability with both fixed-wing and rotor-wing aircraft.

There are specialist game rangers that operate like a Special Forces military unit and, along with things like tracking dogs that can run on a scent, there are also a host of high-tech military spec equipment options that help to combat this scourge. This all comes at a high cost both in monetary and psychological terms for the game rangers on the frontline. The days of becoming a game ranger



in service training. This was a very good, practical recruitment system at the time.

The KNP game rangers were well resourced (unlike many countries further north of our borders) and my time as a game ranger in the KNP was one I will treasure my whole life. I did not have to deal with the intense rhino poaching crisis that the current-day game rangers have to face. We were still able to be involved in ecologically important tasks, whereas the current priority is counter-poaching, which can dominate the game ranger's time. Each game ranger has a field ranger team consisting of a sergeant, corporals, lance-corporals and the field rangers themselves. They operate in para-military style because the current rhino poaching epidemic is

just to work in the field with wildlife and get away from people is unfortunately a thing of the past. As technology advances, the modern day game ranger is expected to be up to speed, and in many instances an expert, in a wide array of disciplines. The social media platforms nowadays can be just as destructive as a physical firefight. The modern-day game ranger needs to be aware and be able to fight the common enemy on all these fronts.

A phrase was coined by Sean Willmore, the founder of the Thin Green Line Foundation and the President of the International Ranger Federation, where he said, "Conservation without game rangers is just conversation".



The game rangers play a pivotal part in securing protected areas. The involvement and masterminds behind the crime syndicates that are driving the illegal killing and illicit trafficking in wildlife has highlighted the increased risks and challenges that the modern day game ranger has to face. In the past couple of years there have been hundreds of rangers that have lost their lives in the line of duty. Wayne Lotter, an ex KNP colleague, was murdered in Tanzania, and this just highlights the dangers that all rangers have to face when dealing with criminals and unscrupulous elements.

our efforts to fight this scourge. Please support the Greater Kruger Area and your environmental NGOs. Do not blindly commit money to any anti-rhino poaching fundraising schemes, but make sure they are legitimate and reputable. Spare a thought for our game rangers on World Ranger Day and remember that without their ongoing protection of our wild places, they will just be places, open for all the wrong kinds of exploitation. There needs to be a balance between development and protected areas so that the ecosystem services can be maintained for the benefit of all. Let us salute the men and woman who



Apart from the human threat, many rangers also lost their lives when they were killed by the very animals they are sworn to protect. One of the bitterest pills to swallow as a game ranger is when your own colleagues are implicated in rhino poaching or other illegal activities. The temptation of large sums of money promised by crime syndicates is often too much to resist, and they get drawn into the whirlpool of corruption, undermining everything their dedicated ranger colleagues are trying to uphold.

Now, as the warden of a large private nature reserve directly adjoining the KNP, I am exposed to the poaching and other challenges facing my neighbours daily. I can only plead with everyone who stills loves the wild open places, to support us in

have dedicated their lives to protect what we all love and recognise that these game rangers form the thin green line between sustainable long-term growth and possible extinction.

Bryan Havemann
Warden of the Umbabat Private Nature Reserve
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Bird / nature photography:
BASICS FOR THE BEGINNER

Photography is the ultimate final step in adding a great sense of pleasure and achievement to birding, game-spotting and touring worldwide. Photography enables you to capture those precious memories to the best of your ability, to ultimately share them with friends and family and have those special moments captured in time forever.

John Wesson



To add life to the picture watch for interesting behaviour and capture the eye clearly

How do you start?

What is your end-goal, and how much do you want to spend on equipment? Let's start with the possible goals:

- Do you want to take photographs as part of your birding or nature experience?
- Will you be carrying your equipment around when birding in the bush?
- Do you want pictures mainly to use on Facebook and to share with friends?
- Would you like to go commercial, illustrating magazines and bird books?
- Do you want to make large prints for display, or to share with friends?

The last two goals will most likely be the aspirations of experienced photographers and we will leave

those for another time and another article in our magazine.

The first three goals allow one a lot of flexibility and you can fit a limited budget more easily in meeting these goals. With the most basic or entry level Digital Single Lens Reflex (DSLR) cameras you can get great results with the correct lenses. 'Bridge cameras' will usually and adequately meet goal number three, but they don't have interchangeable lenses – they have impressive 'zoom' capabilities, at the expense of high resolution.

The minimum lens size for successful bird photography is normally a 400 mm lens (which could also be a good quality 300mm lens with a 1.4 x tele-converter). When used on a non-full frame camera you get a compensation of 1.5 or 1.6 on your 400 mm lens, making the lens effectively a 640 mm model.



An example of the use of low light to great effect



Another example of low light and interesting behaviour to bring life to a picture



The type of effect one can achieve by practising panning with moving animals

Your 'prime' lenses with fixed focal length (as opposed to 'zoom' lenses with variable focal length) manufactured by the likes of Canon and Nikon normally give excellent results and can often be bought second-hand for reasonable prices.

Disclaimer: When I mention specific brands in this article, this does not mean I am endorsing them. Today's modern cameras are all technological marvels, and there is very little to separate them on their capabilities. Every person has their personal preferences, and you should read widely and do your own research before investing in your particular brand of equipment. Also talk to people who you know are pretty good photographers – they will usually be happy to share their knowledge with you.

Zoom lenses, like the earlier Sigma 100-500 mm, can also be purchased at good prices second-hand, and although they are a bit slower in focussing, and do not have image stabilisers, they can give great results for the beginner.

Then we have the 'bridge cameras' with impressive zooming capability and which are ideal for atlassing and general birding because they are so compact and very light. Resolution is not always the best, but the images do provide enough clarity to identify the birds and get your 'specials' accepted when 'bird atlassing'.

The latest cellphones have improved their cameras to such extent that one can capture great pics, especially close-ups and landscapes. The technology seems to improve all the time!

However, if you are more serious and want pictures of a higher resolution and would like to tackle the challenge of capturing birds in flight, there are several somewhat pricier options. The critical aspect here



is good quality, high definition lenses such as those in the L range with the red ring manufactured by Canon. These lenses often feature a very useful wide aperture such as F2.8 or F4. Highlights of these lenses include the following:

They are generally more robust (dust- and waterproof) but also tend to be heavier. Once again, the best results can be obtained with 'prime' lenses; for example the L lens range in Canon from the 400 mm F5.6, or 500 mm F4 (both can be hand-held, with the latter reaching the limit) to the 600 and 800 mm models. These last two 'super-lenses' are so large and heavy that you would not usually take them on a long walk through a reserve or protected area.

On the 'zoom' lens side, a wide array is available, all of great quality and with variable price ranges. One of the most popular is the Canon 100- 400 mm lens, and especially the updated 'Mk 2' version. Used with the higher end camera bodies, the Mk2 lens retains its auto-focus capabilities when using a 1.4 x tele converter. Nikon, Tamron and Sigma also have good quality zoom lenses that go up to 600 mm.

It goes without saying that the faster the lens, the larger the front glass element has to be and also the higher the price. The use of good quality matched tele-converters, especially the 1.4 x, can add to your reach and not impact too much on increased shake or light-loss. The use of long lenses also flattens the image, and gives a great out-of-focus background which assists in making the subject stand out more.

For landscapes and close-up work, you need a zoom range of 24- 105 mm or a wide angle (35 mm), and a medium length lens in the range of 100-150 mm. It is best to hire to test before buying. Get the lenses to suit your application, and bear in mind their weight and bulk if travelling, especially by air.

Once you have the camera body and the lens or lenses you can afford, there is an array of other need-to-get items at some stage. These will be discussed in detail in later articles, and include the following:

Camera\ lens support systems like tripods, bean bags, and the like; filters; flashes; and carrying cases\ backpacks.

Before we start this journey two critical items that need to be in place:

Memory Cards: You should purchase a few good quality memory cards of at least 16 GB, so that you do not save all your pictures on one card that could fail.

Batteries: Always ensure you have spare batteries, and do not forget to pack your charger when touring!

Finally some important principles to focus on when getting going

Using Light: The most important part of photography is how you use the available light, as this will determine the success or failure of your results. To

this end (and as with birding itself) you need to get out before sunrise to make the most of the first hour of sunlight. The low angle and soft light of the sun at this time of day is often called the 'golden hour'. The same applies to the last hour before sunset.

The above periods can be stretched to two hours, depending in what part of the world you are in and the seasons. Some species like light-coloured birds, waders, and certain birds of prey, can be successfully photographed throughout the day.

For landscapes, the same thoughts about light as above also apply. You would be wise to experiment, especially with different lighting conditions and particularly so for landscapes. Try using side and frontal lighting; this can turn the picture into almost 3D and is great for autumn scenes! Try using a standard ISO setting where 800 is recommended. Full 'auto' is the safest way to 'grab shots' to practice composition.

You should try to get to know your camera well before heading out into the field. Experiment around your home, in the garden or in a park. Always remember to keep your manual in your bag so you can 'trouble-shoot' wherever you are.

Many photographers use the aperture priority (AP) setting to ensure good depth of field, where it is critical to get maximum sharpness on all your pictures, or soft blurred backgrounds. Once you get to know your equipment you can use Manual settings, where you have total control of your ISO, shutter speed and aperture.

I use these settings with ISO 800, normally around 2000 shutter speed and aperture around F11, depending on the time of day and the quality of the light. Luckily, with digital cameras you can now get an idea of your lighting by checking your camera's LED screen. This works especially well with the higher-priced cameras, where the rendition on the screen is almost identical as to what the picture will turn out like.

'RAW' or other settings: For most of your photography, the 'Jpeg mode' will be more than adequate. However, the 'RAW' mode offers a lot more flexibility in post-processing, if you have the time to spend on your computer to manipulate the RAW images. In many cases experienced photographers use both RAW and Jpeg to be able to view their pictures immediately, but still have the option of enhancing the best images at a later stage. Using both RAW and Jpeg will take up a lot of space on memory cards, but this is often worth the extra trouble.

Processing images: In most cases, even the most basic photo-editing software on your computer will be adequate to tweak your pictures. The real challenge is to capture images of high quality, with the correct exposure, lighting and sharpness, thus needing very little in the way of post-processing. In most cases post-processing will not make a poor picture a better one. In future articles we will go into what top photographers are using for image processing, such



Excellent use of silhouettes to enhance an African sunrise



These photos use flowering trees and nesting as opportunities for stunning images





A perfect example of how framing and the correct use of light results in dramatic photos



Capturing birds in flight IS achievable with patience and practise. The results are very rewarding



as the popular 'Adobe Lightroom' or 'Photoshop'.

Where to start your photographic journey once you are equipped?

Practice is the surest key to success, and visiting local parks, zoos, botanical gardens and nature reserves to photograph birds, mammals and other subjects will give you an opportunity to get to know your equipment and feel confident before venturing further afield.

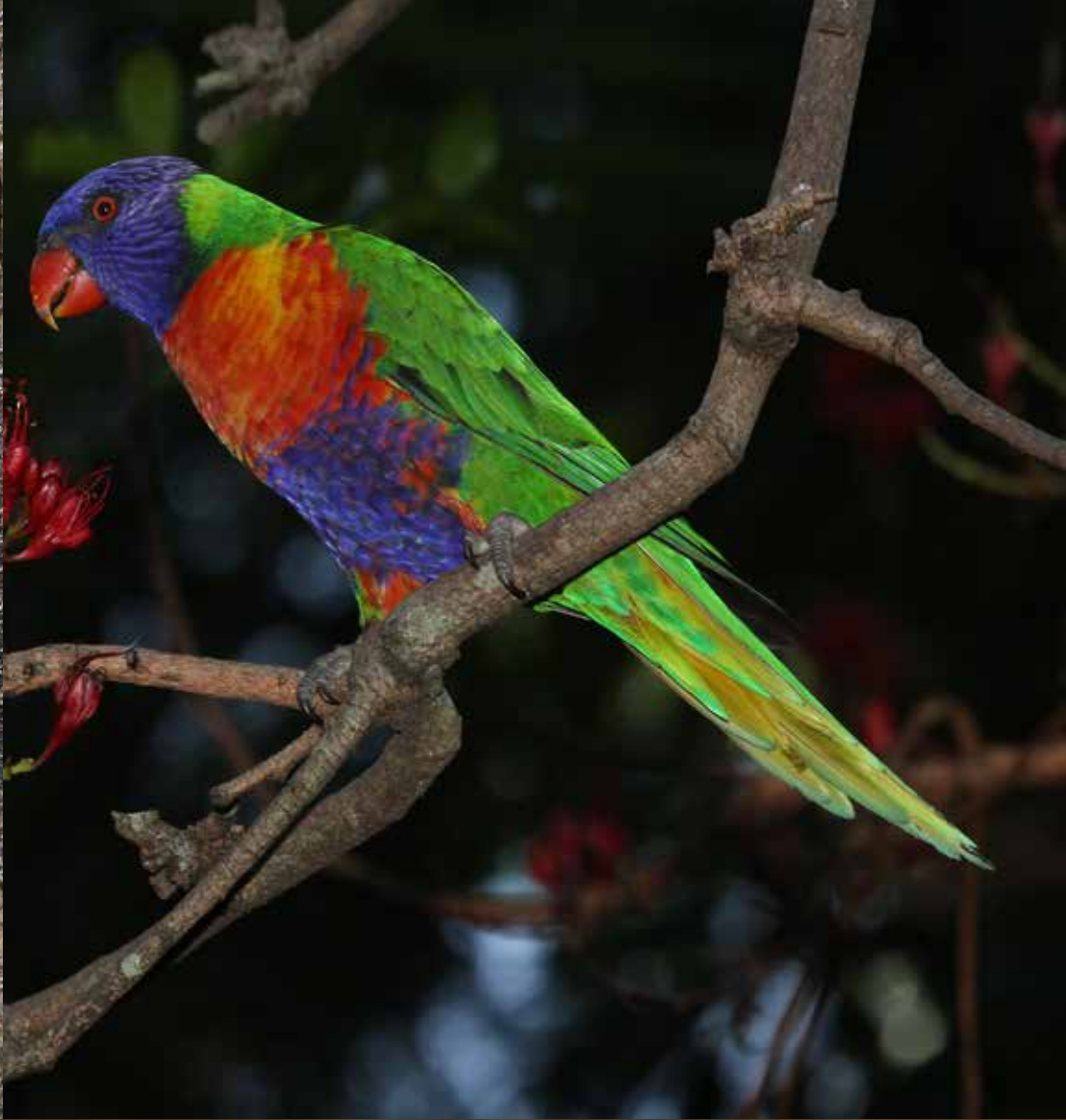
In future articles we will try to guide you on your photographic journey to the best places to see and have opportunities to capture the stunning landscapes and wildlife we have in South Africa and other spots in Africa and the world.

Finally - always remember to respect the birds and the wildlife, as well as property rights. The key to success, especially with birds, is knowing your subject and a great deal of patience!



Animals and birds always provide the perfect opportunity for stunning images





John Wesson
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A look at incredible and versatile ECOBRICKS

The problem with trash...is that it doesn't go away, it multiplies. The landfills fill up; litter blows in the wind, clogs up our rivers and is detrimental to our wildlife. As Charles Moore, an oceanographer who has brought attention to the Great Pacific Garbage Patch has said "Only we humans make waste that nature can't digest".

Caroline Mathew and Marion Mengell

Plastic doesn't break down, it breaks up (into smaller and smaller pieces). While the ideal is to radically cut down on plastic production, in the meantime we are promoting a new(ish) initiative that both gets rid of waste and produces something useful...the Ecobrick!

What is an Ecobrick?

An Ecobrick is an empty two-litre cooldrink bottle densely filled with non-recyclable waste. This literally becomes a building brick which is insulating, robust and affordable and can be used with cement and plaster to build low walls, outside benches, raised vegetable beds and even bigger structures. In Guatemala 38 Ecobrick schools have already been built and in Cape Town the first Early Childhood Development Centre has been built using reclaimed materials including 2000 eco-bricks.

Where did it start?

German architect Andreas Froese used sand-filled PET bottles for building in South America in 2000. Since then various simultaneous pioneers have helped shape the global movement. Alvaro Molina started using eco-bricks to build a primary school on the volcanic island of Ometepe (Nicaragua) in 2003. He was distressed by the amount of plastic waste that had nowhere to go on the isolated island.

Now his community is one of the cleanest in the country. Susana Heisse was an environmental activist around Lake Atitlan in Guatemala in 2004. She was inspired by a woman who was building her house with plastic bottles filled with plastic trash and she immediately realised the potential of this building technique for solving several challenges faced by the local community.

The movement spread to the Philippines in 2010 and since then eco-bricking has spread to the UK, Sri Lanka, Zambia, Uganda, Canada, America, Singapore,

Indonesia, South Africa and many more countries. Eco-bricks started in South Africa when American Joseph Stodgel brought the idea to the small town of Greyton's annual 'Trash to Treasure' festival. Since then eco-bricking has taken the Cape by storm. What are you waiting for?

How to make an Ecobrick

1. Find an empty, clean, dry two-litre cooldrink bottle – keep the top!
2. Pack the bottle tight with waste – non-recyclable plastic, chip packets, sweet wrappers, tinfoil, wax paper, cling wrap, cable ties, elastic bands etc
3. Use a dowel stick (think feather duster or wooden spoon It must be long enough to reach the bottom of the bottle) to compact the plastic into the bottle – make sure the base is tightly packed before you fill higher up.
4. Weigh the brick – it should be 450-500 g – which is surprisingly difficult to achieve!
5. When finished it should be non-squishable and you can stand on it without it crunching.

N.B! No biodegradables or wet waste to be put into the bottle!

Where to take your completed Eco-brick:

Please contact Marion for advice (details below).

With thanks to JAEI (Johannesburg Anglican Eco-Spiritual Initiative) for providing information.

Marion Mengell

012 667 2183

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Chad Gifford thanks the ENVIRO-CHAMPS

Jim Taylor

Chad Gifford spoke to the Enviro-Champs from Mpophomeni at ground-zero outside house in the Burger Street rubble. The street is being re-built from scratch. Tragically, Chad lost both legs in a vehicle accident and so he gets around on a crawler with leather gloves to help him move along. The crawler is only five centimetres above the ground, but he gets around very effectively, propelling himself with his strong arms and hands.

His message was simple “You guys are doing a great job helping to keep Midmar Dam clean. Thank you.” It was the night before the Midmar Mile and Chad is a famous swimmer. The next day he was aiming to swim eight miles and again eight miles the day after. 16 miles in one weekend. All this for charity and the great work that DUCT is doing to keep our rivers and dams clean. Chad also mentioned that before the Enviro-Champs started their work the pollution in Midmar was greater. In fact, in those days, he often became sick after doing the Midmar Mile. He says in the last four years he hasn’t been sick after doing the Midmar Mile.

Mpophomeni is a township just above Midmar dam. When water, waste and sanitation goes wrong, and it often does, the pollution ends up in Midmar dam. This is a major issue because Midmar supplies most of the water to Durban and Pietermaritzburg, South Africa’s second largest economic hub. By working with DUCT the Enviro-Champs monitor and work together to help solve the sewage and waste related problems that happen in the township.

Midmar dam is home to the world’s largest open water swim, the Midmar Mile. Thousands of people come from all over South Africa and from many other parts of the world to participate in this amazing event. Most of the competitors just swim one mile, that’s far enough! But not Chad, he swam back and forth for two days and managed to complete 16 miles! By doing this incredible swim Chad managed to raise R26 000 for DUCT. This is simply outstanding, in every way!

The Enviro-Champs have been working as a community project for seven years now. At first the changes came very slowly, explains Ayanda Lepheana, who has been working with the project since 2012. It was only after about four years that breakthroughs started to happen he explained. A significant reduction in the number of surcharging sewers. By this time the work of the Enviro-Champs was becoming well-known

and widely respected. The Department of Water and Sanitation, Umgeni Water, various other NGO’s and the District and local municipalities started to join in and help.

Some outcomes of this work reveal how effective it is to work in partnerships. In this regard the Enviro-Champs have saved 10 million litres of treated water in just six months. This represents an estimated cost saving of R180 000. When the project started, many sewers surcharged continuously into Midmar. In fact, 18 manholes were the main culprits, surcharging continuously. Each Enviro-Champ is allocated to one or more manholes and he or she continuously keeps an eye on them, reporting problems to the authorities. The Enviro-Champs meet from time to time with their Ward Councillors to keep them posted on developments. There are now one or two problem manholes that need major attention, but there has been an 80% improvement in the situation.

Many people are noticing the effective work of the Enviro-Champs. Such is the interest in this community project that similar projects are now being implemented in other parts of South Africa, such as Pongola, Amanzimtoti, Stellenbosch, the Berg River region and at Knysna.

In 2018 the President of South Africa established the ‘Presidents Jobs Summit’. In the framework agreement that came out of the conference the Enviro-Champs were singled out as a community best practice project for water management. One of the best ways of providing jobs is to take care of our fresh water resources!

All Enviro-Champs participate actively in capacity building programmes. Every Tuesday is a learning day and learning ranges from how to recognise and repair leaks to understanding the importance of citizen science tools for monitoring water.



They're off! Thousands of swimmers set off for the Midmar Mile

© Kingston Oliver



The 14 swimmers who each swam the Midmar Mile 16 times - in just two days! Each swimmer raised over R20 000 as their contribution to DUCT to ensure that we have "Healthy Rivers: Healthy People"



1. Chad swimming the Midmar Mile. Supported by Bruce Acutt

What else have we learnt through this project?

- Education and citizen science tools help us understand our rivers and streams
- Clean rivers clean themselves better than polluted rivers!
- For every percentage of pollution in the water it can cost up to ten times more to clean it for human use.
- Everyone lives downstream
- We are privileged to be part of a small yet powerful movement for mobilizing change

DUCT is the Dusi-uMngeni Conservation Trust, an NGO that does an enormous amount to clean and heal our rivers.

Dr Jim Taylor

Director: Environmental Education WESSA
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The revered PEREGRINE FALCON

The Peregrine Falcon is a swift and very agile bird of prey, with pointed wings and a relatively short tail. Sexes are alike except for size - the female is larger. The upperparts are dark slate-grey, shading to blue-grey on rump. The cap is blackish, extending into prominent malar stripes below eyes, mostly white buffy breast, spotted and finely barred on belly and undertail. At rest wingtips extend beyond end of tail, in flight, underwing finely barred. The iris dark brown, bill blue grey; cere, eye ring, legs and feet are yellow.

-----●
The late Willie Froneman





Bird fanatics around the world are fascinated by the falcon's irresistible energy and attitude, by its perfection of form, and by its incredible powers of flight. The Peregrine Falcon *Falco peregrinus* (R 171), Afrikaans 'Swerfvalk' is one of the most comprehensively studied and best-known birds on the planet. This is partly because it is so widely distributed, found on every continent and major land mass except New Zealand and Antarctica. The species received intensive conservation attention in the latter half of the 20th century, after populations in Europe and the U S were decimated by the effects of persistent organochlorine pesticides like DDT.

There are two subspecies of Peregrines present in South Africa, the African Peregrine and the larger 'migrant Peregrine'. The migrant bird breeds in the far eastern tundra region of the USSR and forages in the rolling, treeless marshy plains of Siberia and northern Asia. It migrates to South Africa from about

late November to March. Apart from its larger size, it is pure white, not buffy on the underparts with less barring and spotting than the African Peregrine.

Peregrines inhabit high cliffs and gorges, coastal and inland, being scarce and uncommon; however, the local race is locally common in the Western Cape. Breeding birds require high, inaccessible cliffs and gorges, or tall buildings on which to nest. Migrant birds occur in a wide range of open habitats, and often forage over wetlands. The distribution of the African Peregrine is very widespread in South Africa, with the highest density on the Cape Peninsula, Western Cape. They are most active during early morning and evening.

Their call is a raucous "Kak-kak-kak-kak-kak", uttered around nesting cliffs, and they are very vocal at the nest site.

They are usually solitary or in pairs, and may perch for long periods on a favourite ledge or crag.





They hunt from a perch or on the wing, striking with the hind-claw and killing the prey instantly. Peregrines prey mainly on birds, especially pigeons, but occasionally on bats and insects. Stoops onto prey at a speed in excess of 300 km/h and is the ultimate bird-hunting raptor. For birds of prey, they possess massive pectoral muscles, sharp wings, stiff and smoothly contoured plumage and large long-toed feet. These features combine to produce a flying machine optimally designed to generate and control extreme velocity, to catch and carry fast-moving prey in open airspace. With all these attributes, this falcon still depends heavily on surprise to hunt successfully. The levels of fine control in hunts at such high speeds are sublime, and the G-forces exerted on the falcon's body are phenomenal.

The Peregrine Falcon generally hunts doves, starlings and granivorous passerines, but does take a wide variety of prey, including birds as big as cormorants, as small as waxbills, and even prey as fast and agile as Alpine Swifts. Also on their menu are insectivorous and fruit-eating bats; they typically 'catch-and-carry' their prey, grabbing and subduing it in mid-air.

The resident birds breed in late spring from August to October, and are monogamous with high mate fidelity. Studies have shown one pair together for at least eleven years. Their nest is a simple scrape made in the substratum on a sheltered ledge. Two to three oval-round, pale brownish to deep red-brown eggs with variable dark red-brown speckles and blotches are laid. Incubation is 34 days by both sexes, female at night; the male provisions the female during incubation.

Fledglings fly from the nest at 46 days; the female broods and feeds the young with plucked and partly-eaten prey delivered by the male. The young usually disperse two to three months after fledging.

Peregrines are obsessed with occupying the highest ground in their surroundings. Under pristine conditions, breeding pairs favour terrain with plenty of sheer, towering cliffs, big escarpments, prominent inselbergs, rocky peninsulas and incised river gorges. Many of the world's big cities, where skyscrapers substitute for cliffs and with teeming flocks of feral pigeons, provide a super-abundance of easily caught food. In fact, the rapid proliferation of Peregrines over the last 10 – 15 years in sprawling metropolises like London and New York, and locally in Cape Town, suggest that the urban landscape may now be optimal habitat for this supreme aerial predator.

Albert Froneman

<http://www.wildlifephotography.co.za>

A man for all seasons

ENOS MABUZA



When I first mooted the Eco-Hero series in 2010, my initial thoughts were very much on the contributions that have been made by South African men and women to environmental conservation. While the series has not changed this prime focus, every article has brought the realisation that each and every Eco-Hero had a visionary approach to life itself, and that the men and women who carried the flag for the environment were first and foremost ‘heroes’ in the society in which they lived their lives.

Lynn Hurry

And so, it was with Dr Enos John Nganani Mabuza – a classic example of a man who applied himself selflessly over a distinguished career in the Lowveld of South Africa for over 30 years. Born on 6 June 1938 into a family working on the Sheba Gold Mine in Barberton, Dr Mabuza died from the effects of cancer on 13 December 1997.

Rosemary Smuts (pers comm.), Dr Mabuza’s personal assistant during the kaNgwane days, recalls that Dr Mabuza had spent much of his early days living with his hymn-singing grandmother in what he recalled as an idyllic rural life. It is most probable that in this early time the first seeds of his life-long walk with the natural environment began.

A lifetime of service

In his relatively short working life, he packed in an activity load that might have strained other leaders of lesser mental strength. The title of a 2011 Rhodes University doctoral thesis prepared by Ashley Sarimana reflects a ‘life well lived’ by Dr Mabuza over those 30 years. That the thesis *Trials and Triumphs in Public Office. The Life and Work of E. J. N. Mabuza* is a 487-page document speaks volumes for the workload carried by Dr Mabuza.

Reflecting a lifetime of service to the world of business, Dr Mabuza was a director of several South African companies covering a diverse range of economic activities. To each board he gave his undivided attention.

But, equally as important (if not more so), he served on (sometimes as Chairman), or gave advice

to, numerous charitable trusts including those focussed on the needs of communities of people. These included The Independent Development Trust; the Management Committee of the University of Witwatersrand; the St. Stithians School Board; the Promat Colleges’ Board of Trustees; the New Era Schools Trust; the Donaldson Trust; the National Parks Board; the South African Economic Advisory Board; 1820 Foundation; the Wilderness Leadership School; the Group for Environmental Monitoring; Trees for South Africa; the South African Nature Foundation; and the National Botanical Society.

In 2005 – some 10 years after his death – a group of prominent leaders held a commemorative symposium in Nelspruit to pay tribute to Dr Mabuza. That the chairman of the Symposium committee was Dr Matthews Phosa, and that dignitaries such as the (then) Vice-State President Jacob Zuma and the Vice Chancellor of UNISA Dr Barney Pityana were amongst the speakers, reflected the high regard in which Dr Mabuza was held by his peers.

Dr Mabuza was an unusual political leader (especially in the early days of the new democratic South Africa) in that he kept environmental conservation firmly in the mix of development activities throughout his political career. He had an intuitive understanding of conservation issues and, amongst his many conservation achievements, was the driving force behind the establishment of the Songimvelo and Mthethomusha game reserves in areas that made up the former KaNgwane ‘state’.



Early days – and the Mandela connection

Smuts recalls that Dr Mabuza “could see the long-term necessity for setting aside land (that was) under pressure and that (since) he had the authority (he was able) to prevail on tribal leaders to cooperate with conservation initiatives proposed by the KaNgwane Parks Corporation under the leadership of Dr Jeremy Anderson.”

Working with Dr Anderson, Dr Mabuza consolidated the Songimvelo Reserve – a perfect 57,000 ha tract of land just outside Barberton on the border of Swaziland. Songimvelo is home to the oldest known rocks and earliest single cellular life on the planet and as such has featured prominently in a recent BBC film on the origins of the Earth. According to Smuts “Enos

Dr Nelson Mandela was a lifelong friend with Dr Mabuza and so he accepted Dr Mabuza’s offer to holiday in Mthetomusha shortly after he was released from prison in August 1990- and again in March 1991 for a total of 30 days. The man who became the first president of a democratic South Africa had his first break here after 27 years’ incarceration and revelled in the opportunity to reconnect with nature and the African bush. Between Enos Mabuza and Jeremy Anderson they facilitated his desire to hunt and recall his childhood experiences of bringing home a piece of meat. Once again, Enos’s vision for conservation has proved sustainable, as this reserve is also today incorporated into SANParks Kruger National Park.



Dr Salomon Joubert (left), past Director of the Kruger National Park, Dr Enos Mabuza and Dr Jeremy Anderson

visited Songimvelo regularly and consulted there with officials over the future of the land once apartheid collapsed. Their initial efforts proved sustainable- it now forms part of SAN Parks.”

Smuts recalls the early proclamation of the Mthetomusha reserve – a reserve on tribal land that fell under the leadership of the late Chief Charles Nkosi. Nkosi readily cooperated with the proposal to form a partnership with KaNgwane Parks Board to set aside this magnificent piece of Lowveld for conservation of the biodiversity of fauna and flora. This tract of land lies along the N4 in the Crocodile Gorge and abuts the southern borders of the Kruger National Park.

Linking with the broader conservation community

In 1976 an important meeting took place that was to put new energy into Dr Mabuza’s efforts. This was the year in which Dr Mabuza met with internationally respected environmentalist Dr Ian Player. The meeting of the minds of these two leaders led to a series of events that were to significantly change the conservation landscape in South Africa.

As Dr Player recalls: “(When I first met Dr Mabuza) I was immediately impressed with his bearing and his sharp mind. He was obviously very interested in conservation and so I invited him onto a Wilderness



Leadership School trail and like many others who have been on the trail he said that the experience had changed his life. At that time, we were preparing for the first World Wilderness Congress and I invited him to be a speaker and he was the last speaker on the first day. There were many luminaries who spoke, including Edmund de Rothchild the banker, Laurens van der Post, the Minister for Conservation in Canada, Stewart Yudall the former Secretary for the Interior (a cabinet post of the US Government) and others too. As you can imagine by the end of the day people were exhausted and then Enos had to give his talk. From the moment he opened his mouth he had the audience in the palm of his hand, and, as I glanced around, I saw the people who had been slumped now sitting bolt upright listening intently to what he had to say. It was indeed a magnificent speech, delivered impeccably and at question time he answered brilliantly.”

Dr Player invited Dr Mabuza to the second World Wilderness Congress, which was held in 1980 in Australia at Cairns. He recalls that Dr Mabuza “was again the star of the congress and, as a result, he was invited to address the second World Wilderness Congress in Queensland Australia in 1980. Accompanied by his wife Esther he attended, and again addressed a distinguished international audience.”

In the years that followed, Dr Mabuza continued to make significant contributions on the international conservation stage. In 1981 he addressed the Eighth International Game Conservation Conference in the United States of America and in 1986 he attended the Conference of the World Wildlife Fund in Italy.

Any comment on Dr Mabuza’s impact on conservation would not be complete without a mention of the Varty brothers who, although pioneers of ecotourism on their Londolosi / Conscor private reserve, owed a great deal to Dr Mabuza. He was also very close to the Vartys and regularly visited them, responding to their regular requests for guidance on the integration of local communities in conservation initiatives, a trail-blazing initiative at the time.

The National Parks Board

On the domestic front, Dr Mabuza was appointed in October 1985 as Chairman of the (then) National Parks Board – the first black South African to hold this prestigious position, and a position that he held until his death. As Dr Player recalls: “It was my privilege and joy to serve under him until his untimely death and to witness his gentlemanly approach, incisiveness and humility during the crucial transformation period through which the National Parks had to pass. He was an excellent Chairman, attentive, considerate and innovative.”

In July 1997 (just six months before he died) the Parks Board appointed Dr Mavuso Msimang as the Director of the Kruger National Park. According to Sarimana (2011) when writing on this appointment Dr Mabuza noted that Msimang’s appointment would bring to the post “extensive national and international management experience.” He affirmed his belief that the organisation’s priorities were to “make it financially viable, transform its composition and strategies and to position it as a truly post-1994 organisation, whilst retaining its standing as one of the leading conservation agencies in the world”.

Further to his belief that the Kruger National Park should be a major player in the economic development of its adjacent communities, Dr Mabuza was party to the establishment of the Park’s Social Ecology programme, an outreach programme that has worked tirelessly since the early 1990s with leaders in communities adjacent to the Park, to encourage and promote sustainable development practices including, *inter alia*, local natural resource management while at the same time working to ensure economic growth and community welfare.

Penryn College and Penreach

No record of Dr Mabuza’s life would be complete without a mention of Penryn College and its Penreach Programme. Dr Mabuza’s dream of establishing an independent school to serve the education needs of the Lowveld was realised when, working with Dr Rob Snaddon (a local businessman who later became Chairman of the Penryn Council), David Wylde (then headmaster of St Stithians College), Penryn College and its associated Penreach programme of community outreach were established in the early 1990s. At the time I was consulting to KaNgwane and one of my tasks was to assist with the establishment of Penryn. Dr Rob Snaddon (Chairman of the Penryn Development Committee) and I together identified the site on which the College was later to be built.

Dr Snaddon remembers Dr Mabuza as “A true leader grounded in faith!” As a whole school development programme, Penreach works with stakeholders at all levels in targeting disadvantaged communities in Mpumalanga and beyond to improve teaching and learning in schools. The model of delivery is to develop the Penreach pipeline around a model High School and its feeder Primary Schools and Early Childhood Development and Home-based Care Centres.

Since St Stithians had an established record of effective Environmental Education (EE) programmes (with its own outreach campus in the Waterberg), and since Dr Mabuza was so personally committed to environmental conservation, it was inevitable that both Penryn and Penreach should continue to



promote EE at every opportunity. As a reflection of this the campus Environmental Management Plan has as one of its goals 'Enhancing the education of scholars to enable them to live in a sustainable manner.'

Progreen: Trees for Africa

Jeunesse Park (*pers comm.*) the founding director of 'Progreen/Trees and Food for Africa', first met Dr Mabuza in 1992 when he agreed to judge the MNet Environmental Awards that Progreen was running at the time. He was so impressed by the work that the organisation was doing and agreed to join the non-profit organisation as a patron. Later he sat on the board of directors and was still later elected chairman. This was an unpaid position, and despite his numerous other professional commitments, he was consistently present and personally involved, to the extent of assisting to raise funds and attending meetings with funders. His services at the National Botanical Institute dovetailed with the programmes of Trees for Africa, now called Food & Trees for Africa (FTFA).

While he was Chairman, Dr Mabuza oversaw the beginnings of the 'EduPlant' programme in 1994. When EduPlant was started, only a handful of schools participated, all from Gauteng. Over the past 19 years, this national school food gardening and greening initiative has grown to become a leading schools' development program in South Africa that reaches thousands of educators and learners annually, enhancing environmental education and contributing to food security.

At a political level he shepherded FTFA's leading role in introducing urban forestry and permaculture into the earliest draft legislation of the new democracy that later formed part of the promulgated acts. But, most important, Enos's belief in FTFA's vision for community and environmental upliftment empowered us to address these issues in a dynamic and lasting way. His quiet counsel and considered opinion was invaluable to us at a time of social and political turbulence.

In 1999, in memory of the Dr Mabuza, the Enos Mabuza Horticultural Fund was initiated. The fund offered two bursaries for Horticultural studies. The Rembrandt Group donated R5,000 for the first of these. Many applications are received every year, indicating the huge need for subsidized tertiary education.

A Good Man

In 1993 Rhodes University recognised Dr Mabuza's contributions to the welfare of South Africa by awarding him with an Honorary Doctor of Laws (LLD)

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degree. But in trying to best reflect on Dr Mabuza's life and times I have found that the most honest comments came from those people who had known him well. The common thread that ran through all the communications that I received was the fact that Dr Mabuza was first and foremost a gentleman, a man whose quiet presence commanded much respect no matter what the issue at hand.

As a lifelong friend Dr Frank Raimondo wrote in a letter to me recently: "Dr Mabuza was to me the perfect gentleman, a man who could straddle the divide between our black and white population groups. A person of great integrity." Dr Raimondo went on to comment: "He would have made an excellent leader of our country, if only he had been given the chance."

As Dr Player put it: "I will always count him as one of my great friends in life."

One final anecdote from Dr Player: "The meeting between Enos Mabuza and Magqubu Ntombela was very interesting to watch. Magqubu's judge of character was faultless and I knew after watching him for close on 40 years what he thought of people when he first met them. I could see that Magqubu was highly impressed with Enos Mabuza and afforded him the same sort of respect and attention as he would have done to someone in the Royal Zulu House."

And as 'a man deserving of the highest respect' is the way that I believe we will all remember Enos Mabuza best of all.

Dr Lynn Hurry is an author and consultant in Sustainability Education. Between 1989 and 1991 he was Consulting Director of Education for Dr Mabuza and the KaNgwane Government.

Dr Lynn Hurry

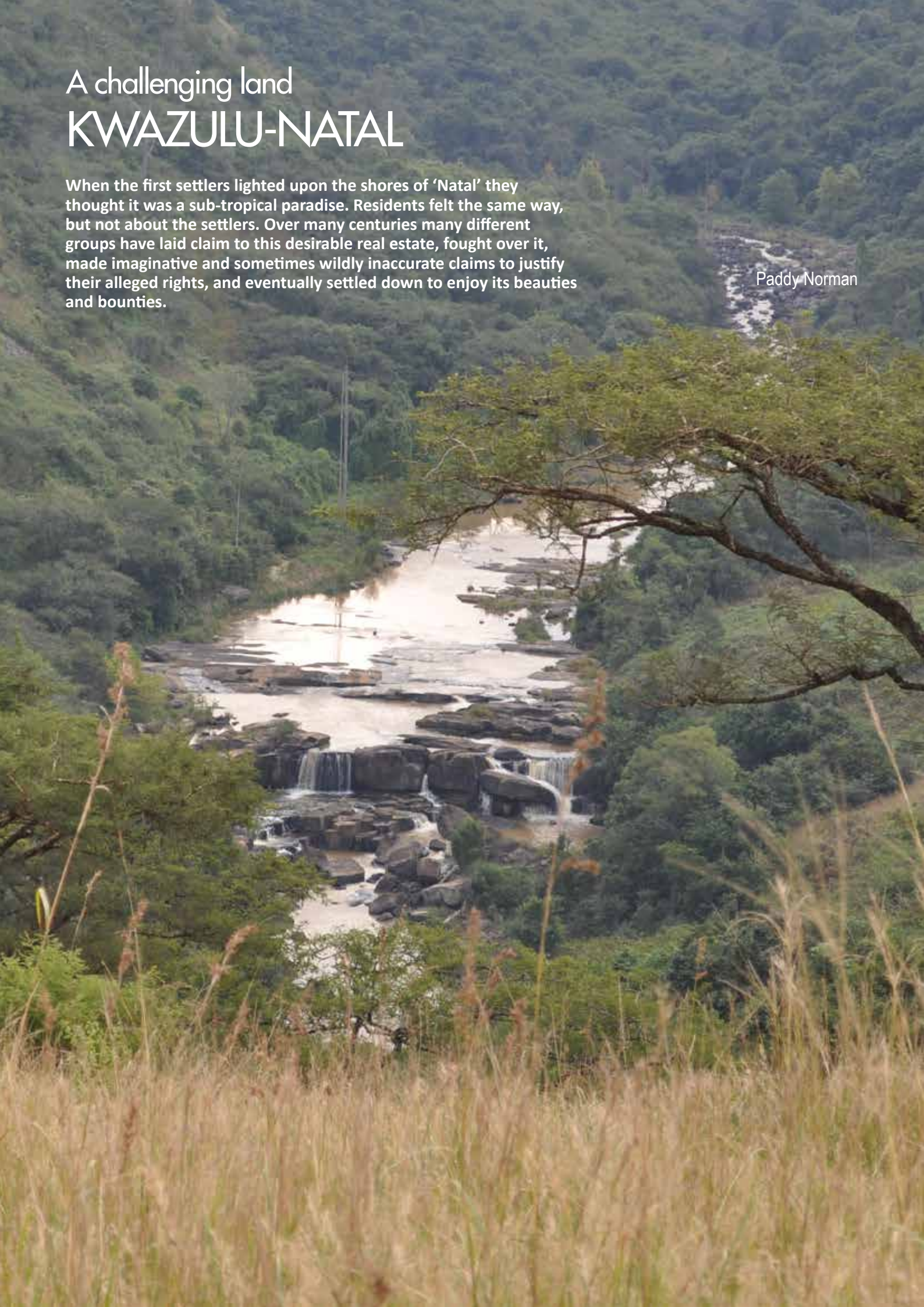
The Honorary Editor of the Eco-Heroes series is Dr Lynn Hurry. Suggestions for future articles will be welcomed and may be sent to him at:

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A challenging land KWAZULU-NATAL

When the first settlers lighted upon the shores of 'Natal' they thought it was a sub-tropical paradise. Residents felt the same way, but not about the settlers. Over many centuries many different groups have laid claim to this desirable real estate, fought over it, made imaginative and sometimes wildly inaccurate claims to justify their alleged rights, and eventually settled down to enjoy its beauties and bounties.

Paddy Norman





For the Wildlife Society it has been a proving ground, a setting for remarkable victories and achievements, a place to nurture new eco-warriors and treasure the older warriors - a place which gives inspiration to our motto 'People Caring for the Earth'.

KwaZulu-Natal has always liked to be a bit independent; they only joined with WESSA in 1960. But the Natal Society for the Preservation of Wildlife and Natural Resorts had worked closely with other conservation organisations for many years. Its origins go back to 21 August 1883 when a group of five sportsmen met in Durban to establish the Natal Game Protection Association, chaired by SF Beningfield. After just 60 years of uncontrolled hunting, it was only too clear that the wildlife had been virtually wiped out over large areas. Even before that the governor, Sir Henry Bulwer, had recognised that the forests and fisheries were also being harvested at an unsustainable rate. And already there were complaints in the press about industrial pollution from the sugar mills. Today's challenges are not new, although the causes have evolved, and the issues often seem complex.

The NGPA's stated objectives were to preserve the wild game, to secure prosecution of offenders against the game laws, and to take an active role in improving those laws. That mandate still holds good but has much increased in scope to cover every aspect of conservation. And in due course it was supplemented by a new and powerful concept; environmental education for all. KwaZulu-Natal can be justly proud of its four Environmental Education centres, (can you name them all?) which have had such a great impact, as well as the world-renowned Wilderness Leadership school founded by Ian Player in the 1950s.

Zululand's first game preserve was set aside by King Cetshwayo. In 1895 five game reserves were proclaimed by the Zululand government. But then disaster struck: not only 'rinderpest' but also 'nagana' became a major problem for domestic livestock, and the then government decided that eliminating the big game was the easy solution. That policy was bound to fail, but it decimated the Zululand wildlife and upset the whole ecosystem. By 1926 Natal could only boast six nature reserves, and the few remaining White Rhino.

Today there are numerous local reserves supporting the provincial parks, and White Rhino are flourishing, although the activities of poachers are an increasing cause for concern, affecting many of our wildlife species. The Metropolitan Open Space System (MOSS) of Durban was a WESSA initiative. Part of the MOSS was Pigeon Valley Park, which was transformed into a nature reserve in 1989 and is now managed by a WESSA Friends Group. However, it was not all plain sailing.

In 1958 the Zululand Branch was formed in order to oppose a proposal to de-proclaim the Mkhuze Reserve for farming, and to protect the Zululand crocodiles from extermination. Those battles were won. In 1963 the Natal Branch of WESSA launched the African Wildlife Society; at a time of political division they tried to bridge the racial divide by creating a branch for the previously excluded. Sadly, it never really got going, but it showed that in Natal conservationists had recognised both that conservation issues affected everyone, and the need to involve all communities.

In 1970, and again in 1976, another, more local, campaign was successfully fought in Durban to prevent the municipality from driving a road through Yellowwood Park and bisecting the Kenneth Stainbank Nature Reserve, the largest reserve in the metropolitan area.

The Natal Region also has an outstanding record of publishing guides to our wildlife, including titles as diverse as *Forest Trees of Natal*, *Wild Walks of Natal*, *Suburban Wildlife*, *Mangroves*, and the indispensable *Antelope of Southern Africa*. The little handbook on eradicating invasive alien plants (WESSA-KZN, 2008) was recognised as a first-class aid to practical conservation, not only in the members' neighbourhood but also at government level. These well-illustrated guides were supplemented by numerous Sharenet publications emanating from Umgeni Valley which supported the eco-schools programme.

It has recently been announced that Umgeni Valley has been proclaimed nationally as a nature reserve. But it has been a WESSA flagship for over forty years. It was bought and established in the 1970s by the efforts of the KwaZulu-Natal Region members, and in 1976 an outdoor education centre was created to enable scholars of all ages to study the environment and learn about our natural heritage. With three camps, a variety of biomes, well-trained leaders, and a pioneering approach to learning it has changed the lives of many thousands of young people, and quite a few schoolteachers as well. It is a key component of the Umgeni Biosphere Project, and visitors are still warmly welcomed.

The Upper South Coast Branch can take credit for the Umbogavango Nature Reserve and an equally successful environmental education project. With sponsorship from the Umbogintweni Industrial Complex, they have been running regular day courses for local schools for some twenty-seven years, based at the rehabilitated site. The trail wanders through magnificent trees around an artificial lake which is slowly transforming back to a paradise for birds. And in the last few years the conservation area has been extended as 'Vumbuka' has been transformed from a toxic waste dump into an indigenous forest.



Another KwaZulu-Natal Friends Group has charted a different course. Coastwatch was established partly as a watchdog but mainly as a team of well-qualified specialists who could provide informed and relevant responses to conservation issues affecting the coast and the marine environment. The coastline is very special to a great many people, both residents and visitors, and consequently the pressures upon it have steadily increased, especially for 'development'. But recent events have shown just how vulnerable our beaches and our beachfronts are to storm damage and climate change. Our estuaries also were becoming very degraded, not least due to land-derived waste and to sand-mining operations. Calling on the varied expertise of its members, Coastwatch has challenged illegal and ill-considered activities and developments, although usually its successes will not even be noticed. We can be particularly proud of their efforts in lobbying for better legislation, including NEMA, NEM:CMA, and NEM:BA and the subsequent regulations, and most recently our new MPAs.

KwaZulu-Natal is not just a strip of coastline. The Sani Branch has become famous for its annual Wildflower Walk down the Sani Pass; there is an excellent guide to the flora you may encounter, *Mountain Flowers*, written by Elsa Pooley. The Midlands Members are known for their conservation activities, protecting the sources of so much of our water supply from fracking and other idiotic schemes.

Other members have made DUCT a force to be reckoned with, and the incredible work of the Duzi-Umgweni Conservation Trust from source to sea means this river system can continue to host the world famous Duzi Canoe Marathon.

Kwazulu-Natal has had the benefit of some truly outstanding talent. WY Campbell, the first secretary of the NGPA, was tenacious, persuasive and well-informed; in his second day in office he was already petitioning the authorities to enforce the game laws. In 1947, Dr George Campbell led the first scientific expedition to survey the wildlife of Maputaland, which subsequently led to the founding of SAAMBR and the first Durban aquarium, which was built with funding from the Natal Branch of WESSA. This has now become Ushaka Marine World and, along with SAAMBR and ORI, still plays a significant role in research and conservation.

Lake St. Lucia found a champion in Nollie Zaloumis and was transformed into the Isimangaliso World Heritage Site; Dr Zaloumis subsequently was elected as WESSA's chairman. We have neither time nor space to do justice to Ernest Warren, Ian Garland, Mlindeli Gcumisa, Keith Cooper, Di Dold, Jim Taylor, Jerry Goznell, and so many others who each in their own way have helped turn conservation into a better way of life for so many of us. The challenge is to follow in their shoes.



Umgeni Valley

Perhaps WESSA's crowning glory was the successful campaign to prevent mining in what is now Isimangaliso. That battle started in 1972 when RBM was issued with prospecting licences for areas within the St Lucia Wetland Park. The public outcry led to a four year long environmental impact assessment and a judicial review. Over 222,000 people signed a petition to preserve the park before the battle was won, but the fight is not yet over as once again application has been made to mine the dunes right next to the world heritage site. Can we once more unite to show that we are indeed 'People Caring for the Earth'?

For those who didn't know: KwaZulu-Natal has Four Environmental Education Centres; Umgeni Valley; Treasure Beach; Twin Streams; and Umbogavango.

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The exceptional PIGEON VALLEY

When your wait is rewarded by the sight of a male Buff-spotted Flufftail coming to bathe before you, resplendent in its chestnut front and dark back, you may forget that you are close to the city centre. So too when you watch a Water Mongoose shuffle through the undergrowth, or be privileged enough to see the elusive Short-barred Sapphire butterfly.

Crispin Hemson



Spotted Ground-Thrush



Pigeon Valley is a thoroughly urban reserve, in Glenwood, four kilometres from the city centre of Durban. Despite its location, it is home to two rare tree species – the Natal Elm *Celtis mildbraedii* and Natal Forest Loquat *Oxyanthus pyriformis*. These are only found in small numbers in South Africa beyond the reserve, but both grow in large numbers within the Valley. The list of locally indigenous tree species in the reserve is 110, a remarkable diversity for a reserve of only ten hectares. There is also a *Cryptocarya* species or hybrid that has not yet been identified, and on the edge of the reserve was found the almost unknown creeper, *Telosma africana*.

The bird life is equally diverse, with 163 species on the list. The favourite must be the Spotted Ground-Thrush, the winter visitor, an endangered species, located often by its rustling in the leaves. There are from time to time unusual sightings, such as White-faced Owl, Scimitarbill and Knysna Warbler. Butterflies are a major attraction, with 91 species on record. A realisation that a Natal Elm on the northern fence is host to a large amount of Banded Matchflower *Oncocalyx quinquevius*, the mistletoe with its profusion of crimson flowers, led to the discovery that the Short-barred Sapphire is breeding on the tree.

New species are identified from time to time. Our first sightings of the Forest Queen and Red-line Sapphire butterflies have been in 2019, and Village Indigobirds have arrived, no doubt in response to the presence of Red-billed Firefinches that have established themselves in recent years. Seed-eaters are doing well, with good numbers of Grey Waxbills and Green Twinspots.

The botanical significance of the area was first recognised by John Medley Wood in the mid-19th Century, though it was only recently legally designated as a nature reserve. It slopes down towards Durban Bay, but the divide between a southern slope covered in thickets and a northern slope with a high canopy may have fostered its high biodiversity. In summer its cooling effect over the whole area is noticeable; in winter the central spine can retain its chill during the day.

Start of the Friends

How then did the work of the Friends start? It dates back to the time when I moved to the area in the early 1990s and spoke to the conservationist there. He was pessimistic about the future of the reserve, as so much had been smothered by the alien *Ipomoea indica*, a highly successful invader. I said that if I had permission, I would willingly take it out.

I think that environmental action often starts with one person's decision to do something that then becomes a project, eventually with an organised group to support it. The first action is significant; we should never underestimate the potential that lies in one person's decision to do the right thing and to start building links to others with the same commitment.

Alien clearing

The initial focus was thus on alien clearing, and that still continues to absorb our funds, relying largely on young township dwellers, most recently from a drug rehabilitation project, and on myself. The work on *Ipomoea indica* turned out to be immense but is now almost complete. There is no doubt a few roots of the invasive plant in thickets, that we visit systematically to check for regrowth, still remain. Apart from poisoning of tree stumps, we have used manual methods of removal, which are less damaging to the reserve. Such areas are highly sensitive to poisons, and it is gratifying to see the profusion of butterflies that are currently massing in open areas.

Alien clearing requires a readiness to take on new challenges and we are spending more time now on invaders such as *Tradescantia fluminensis*, and Creeping Inch plant *Callisia repens*. You are most unlikely to be able to find typical problem plants such as *Chromolaena odorata* or *Lantana camara* in Pigeon Valley.

We thus have accumulated expertise in tracking down and removing invasive plants; our one concern is that because this freed the staff of Natural Resources from doing this work, they are not developing their expertise. This raises the questions as to whether we are giving up on the fundamental requirement that government takes full responsibility for protection of the environment.

Relationships with management

From the outset we have tried to keep in regular communication with staff of Natural Resources, the division of the Parks, Recreation and Beaches Department in the eThekweni Metro that manages Pigeon Valley. It takes time to build such relationships, although I think there is now a true sense of public-private partnership. Having a regular presence and speaking informally has helped greatly. It has been difficult for management to resolve some major practical problems, such as erosion damage on the main track and fencing, but we now have a clear commitment to address these from mid 2019.

A key event was the relocation of Red Duikers; we had reported the continued growth in their numbers,



Celtis mildbraedii



from an original four to an estimated 65 by 2017. In a major undertaking, six were moved to Umdoni Park reserve and more will be moved to New Germany Nature Reserve. This required the full support and participation of senior management, led by Kenneth Mabila of Natural Resources.

Services to the public

A monthly walk open to the public is used mainly by birdwatchers. Occasionally I am asked to lead another group. For example, a group of Muslim nature lovers, or children from schools on the Berea. The reserve provides people with a chance to learn from the connection with nature. WESSA has used it for environmental education, through inviting people simply to explore and reflect on what they see and hear.

Since early 2019 I have written a weekly column for the local newspaper, the *Berea Mail*. This has been highly popular. It undoubtedly builds the sense of commitment to the reserve and increases the numbers of people seeking to enjoy the park. Since the newspaper has limited circulation, I send a downloaded version of the column to the Friends email group weekly.

Organisation of the Friends

From the outset of the Friends group, the structure has been informal. Our initial need to join WESSA was that we needed a fundraising number to sustain the alien clearing work. Since then, the Friends have been represented on the Durban Branch Committee by the leader of the Friends group, a mutually beneficial link.

Members join the Friends through a membership form and a fee set at R120 for full membership. In 2019 we have had 31 paid-up members. What has greatly enlarged our income is the additional donations from members, in particular an annual donation of R30,000 from Telesa Comms, a telecoms expense management firm that has supported our alien clearing work.

Instead of a formal structure, we have used social media as the means of communication amongst the Friends, such as a WhatsApp group for those most directly connected, mainly to report immediately an interesting sighting, a Facebook page (<https://www.facebook.com/FriendsOfPigeonValley/>) open to the public, with a constant record of sightings and images, an email list for whoever expresses an interest, and a Wikipedia page on Pigeon Valley that provides basic information.

A huge advantage in our work has been active expert

involvement. Richard Boon, whose *Trees of Eastern South Africa* is well known, has expertise beyond botany and has contributed invaluable advice. Steve Davis has given ongoing guidance on birds, as did the late Roy Cowgill, who also linked the work of the Friends to ongoing conservation and monitoring, and Steve Woodhall has advised on butterflies.

Looking ahead

Pigeon Valley has enjoyed the advantages of a small area, remarkable biodiversity and the presence of people who enjoy its riches and have the resources to advance its interests. There are though constant threats from being in an urban environment, such as sewage leaks, security fears, erosion and pollution, or the Polyphagous Shot-hole Borer.

A different threat has become evident in 2019 – a sudden decline in the number of Spotted Ground-Thrushes, possibly because of habitat destruction in an area where birds have been coming from on their annual migration or because of high autumn temperatures. Another has been the growing frequency of extreme rainfall events that cause major erosion, intensified by the hardening of surfaces in the small catchment area.

Despite such threats, much has been achieved. The Friends group has been an expression of the surrounding community's commitment to the ongoing conservation of the reserve.

Crispin Hemson

Friends of Pigeon Valley
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WESSA MEMBERSHIP



WESSA is one of South Africa's oldest membership-supported, non-governmental organisations and for over 90 years has played a key role in the conservation of our country, helping to ensure sustainability for present and future generations through environmental action; education programmes; and human capacity development to empower individuals and communities to make sustainable choices. Friends Groups and Affiliate members make a valuable contribution to the work WESSA does in the areas of conservation and education as well as strengthening the environmental movement by networking and actively working in communities at a grass roots level.

EARTH CARER MEMBERSHIP OPTIONS 2019/20

MEMBERSHIP ONLY OR WITH DIGITAL AFRICAN WILDLIFE | SPECIAL SPONSOR | SUPPORTER

STANDARD	EC01	275	Standard membership + digital African Wildlife
BASIC	EC02	180	Membership only
DISCOUNTED	EC03	195	Discounted membership + digital African Wildlife: Youth & Seniors under 25 over 60
GROUP	EC04	500	Membership x 3 digital African Wildlife add members @R180 each incl. digital mag
SPECIAL SPONSOR	EC05	2500	Donation complimentary membership + print African Wildlife & EnviroKids
SUPPORTER	EC06	FREE	Optional donation

MEMBERSHIP WITH PRINTED MAGAZINES

FULL BENEFIT	LEVEL A	575	Standard membership + print African Wildlife & EnviroKids
AFRICAN WILDLIFE	LEVEL B	425	Standard membership + print African Wildlife
ENVIROKIDS	LEVEL C	260	Discounted membership + print EnviroKids: Youth & Seniors under 25 over 60
DISCOUNTED	LEVEL D	335	Discounted membership + print African Wildlife: Youth & Seniors under 25 over 60

EARTH CARER MEMBERS RECEIVE

- Letter of acknowledgement & membership card
- Full web portal access
- According to level subscribed to, quarterly in-house magazines (digital or printed)
- Activity newsflashes & e-newsletters
- S18A Tax Receipt issued for additional donations

Earth Carer special sponsors receive:

All of the above benefits plus complimentary print issues of African Wildlife & EnviroKids; S18A Tax Receipt; Certificate of Appreciation; Acknowledgement of support on the WESSA web portal.

Earth Carer supporters receive:

Letter of Acknowledgment | Limited web portal access | Activity newsflashes & newsletters

To find out more about:

Business membership, Friends Groups & Affiliates, School membership, Gift membership, Group membership or magazine subscriptions only, go to: www.wessalife.org.za | or email membership@wessalife.org.za

Donations

As a non-profit environmental organisation we rely on the support of our members, sponsors and the general public. As such, we are most grateful for any additional donation you are able to give. WESSA is a Section 21 company registered as an Incorporated Association not for gain with Section 18A status.

Leaving a LEGACY



WESSA has played a key role in the conservation of our country's natural heritage. Our mission is and remains to implement high-impact environmental and conservation projects, which promote public participation in caring for the Earth. As an NGO, we depend on funding from individuals and businesses to make possible the work we do. Unrestricted gifts allow us more flexibility in dealing with environmental priorities. Below are some examples of options you might like to consider.

All of us would like to leave this world knowing we're passing on a healthy and thriving planet to our children and others. One of the most significant ways to show your support and passion for the conservation of the earth, and all that lives upon it, is to leave a bequest to WESSA in your will. Making a will ensures that everything you have worked hard for in your life is passed on to your loved ones and the causes you care about. A bequest is a personal gift of great importance and a lasting legacy to your beliefs and values. It is thanks to bequests made that WESSA is able to run hundreds of conservation projects, protect many species and improve the quality of people's lives – today and into the future. If you already have a will it is easy to add a codicil which names WESSA (the Wildlife and Environment Society of South Africa) as a beneficiary.

A Specific Sum:

This is the simplest form of bequest. However, it does not allow for inflation or charges within your estate.

A Residual:

After making provision for your family and friends, you may wish to leave the unallocated portion of your estate to WESSA.

A Percentage:

Often it is difficult to predict the final value of your estate. By giving a percentage of the total, rather than a fixed amount, you can be sure that all your beneficiaries will receive the stipulated share.

A Gift of Real Estate or Property:

This may be made outright, or you can arrange for the property to pass on to WESSA after the death of another beneficiary, such as your spouse.

An Assurance or Endowment Policy:

Often an insurance policy taken out years ago loses its relevance as you get older. Such a policy may be ceded to WESSA as the beneficiary.

COMPANY REGISTRATION NUMBERS

Reg No. 1933/004658/08

(Incorporated Association not for gain)

Registration Number in Terms of the Non-Profit Organisation Act 1997: 000-716NPO

Tax Exemption Number:

18/11/13/1903

WESSA MEMBERSHIP

- New and renewal membership
- Information update
- Donations

Return information and proof of payment to:

Email: membership@wessalife.org.za
 Fax to email: 086 519 2018
 Postal: c/o 100 Brand Road Durban 4001
 Phone: 031 303 6099



See also, regional contact details on page 1

EARTH CARER MEMBERSHIP APPLICATION

Main contact person if in name of family, company, group, school, organisation or institution			
NAME MEMBERSHIP HELD IN			
MEMBERSHIP OPTION			MEMBERSHIP NUMBER
SURNAME			TITLE
FIRST NAME			
POSITION if company, group etc.			
YEAR OF BIRTH if an individual			
EMAIL			
LANDLINE			
CELL			
POSTAL ADDRESS			POSTAL CODE
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EXTRA POSTAGE: International & SADC country magazine subscribers add extra postage (per annum) as follows:
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<p>BANK ACCOUNT DETAILS Name of Account: WESSA Membership Bank: First National Bank Branch & Code: Howick 22-07-25 Account Number: 62 219 969 732</p>	<ol style="list-style-type: none"> EFT DIRECT DEPOSIT: Deposit ref: Initials & Surname + membership number if existing member ONLINE: Go to: www.wessalife.org.za DEBIT OR CREDIT CARD: Complete details below and return. CHEQUE: Cross and make payable to WESSA
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Payment type & amount	Payment amount	R	Renewal	New	Donation
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