Issue 7, September 2021

BIODIVERSITY & ENVIRONMENT AFRICA

COVER FEATURE

WORKING TOGETHER

permaculture for food security & communiy upliftment

HEALTH & WELLBEING

Organic & Earth-Friendly Shopping

budget tips

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Cover image: GLS Farm Permaculture Academy trainees from Badira Mmogo (Working Together) community upliftment projects.
Photo: Warren Schmidt

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

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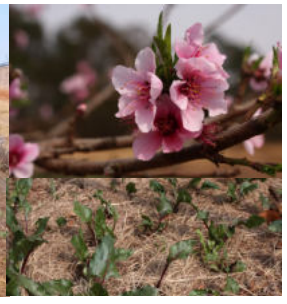


Nutrition for the World

I was recently walking through a fruit and vegetable store randomly selecting various items of produce. Some bananas, strawberries, butternut, a large cabbage, potatoes, and another item or two. As with most consumers, I never gave the origin of this produce a moment of thought. We have become so accustomed to simply picking our vegetables off a shelf that it's easy to forget that they were grown somewhere on the land.

When I gave the above some thought with this current issue of Biodiversity & Environment Africa, I started realising how little I know about agriculture and the growing of food for human consumption. The sheer scale of food production is staggering. Large swathes of land are needed to meet the demands of human consumption. Monoculture and large-scale agriculture have been identified as a threat to natural habitats, and by extension, biodiversity. In addition, the random use of herbicides and pesticides have also had negative impacts, although stricter international legislation is bringing this under control.

I recall my youthful days when I would visit family friends who farmed mangos in the Kaap Valley midway between Barberton and Kaapmuiden, in the lowveld of Mpumalanga. I can still smell the scent of mango achar as you approached the farmhouse. The owners, Jerry and Joan, were practically self-sustainable, growing a variety of fresh produce for their own needs, and mangos as the commodity crop. For lunch and dinner, we would be served a freshly picked assortment of lettuce, spinach, tomatoes and other fresh herbs and vegetables. The taste and aroma was exquisite. In addition, a variety of jams and pickled onions and relishes were available, and dessert was homemade mango ice-cream. Looking back, I feel guilty about how little I know about growing and harvesting my own food and preserving food for the months ahead. How does one even begin to harvest and store seeds for the upcoming seasons and when do you begin planting?

Modern city living has plucked and distanced us from the land. This is a sad situation. I feel cheated, as if some vitally important ancestral right has been denied. I'm increasingly alarmed when I drive around Johannesburg and witness the never-ending development of high-density housing. Living spaces are becoming increasingly smaller and smaller. We are heading in the wrong direction. We need to return to the land and outdoor spaces.

Industry, its pollution output, and high-density living have all contributed to the severity of SARS Covid-19. Air pollution has made people's lungs more susceptible and weaker, and crowded living spaces with inadequate ventilation have all being contributary causes of severe illness. Yet as a global society with an increasing population, we are all herded like cattle into tiny pens. This comes at a great cost to our health and wellbeing.

There is hope. With massive levels of unemployment, especially prevalent among African women and rural communities, getting back to earth is essential. A recent newspaper headline gave the unemployment figure for black women at 41% in South Africa. This is a catastrophic crisis. We, as a society, simply cannot rely on government or corporates alone to find solutions. We need to be pro-active.

Given the right nurturing, I firmly believe that Africa's greatest solution to unemployment is the natural environment. There is untapped potential providing resources are allocated fairly. Natural, earth-friendly organic farming has massive potential to bring rural communities out of poverty. But this needs government and corporate buy-in, efficient and measurable training outcomes, and accessibility to local and international

markets. An aside to small-scale farming is the potential for increased ecotourism and product development. There is a market for people wanting to stay at a farm guest house and enjoy fresh, locally harvested produce, and walk through the countryside. It is essential that rural safety is increased and that communities therein are given the training and resources to enhance the local economy in these areas.

Africa, with its wealth of natural resources and traditional knowledge, should be at the forefront of this wonderful opportunity.
Biodiversity & Environment Africa recently visited a smallholding on the outskirts of Johannesburg to experience first-hand the benefits of organic and environmentally friendly farming techniques. This initiative is also training surrounding communities to take their own practical steps towards a more sustainable and food-secure future.
I certainly hope that my future is one where I can walk outside in fresh air, surrounded by trees and unpolluted rivers, and pick my own fruits and vegetables, rather than one surrounded by mortar and concrete, traffic jams and overcrowded supermarkets. And I'd like to sit back knowing I've harvested my seeds for the next season's crop.

> “ Monoculture and large-scale agriculture have been identified as a **threat to natural habitats, and by extension, biodiversity.**

WRITTEN BY: Warren Schmidt

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

Working together!

CONTRIUTIONS: WAYNE ADAMS | INTERVIEWED & WRITTEN BY : Warren Schmidt & Nicolette Da Costa

On the outskirts of Krugersdorp there is a 12-hectare smallholding growing minds, soil… and organic produce. It is almost reminiscent of Frances Hodgson Burnett's book, The Secret Garden. Tucked away unobtrusively against the backdrop of surrounding large-scale agriculture, a productive and insightful farming operation, Green Life Sanctuary, is taking shape. Run and managed by Wayne Adams, this property not only grows fresh and nutritious organic fruits and vegetables, but it also offers hands-on training to organisations and surrounding communities. We interviewed Wayne to find out more about this enterprise.

Food Security for All

Green Life Sanctuary (GLS) comprises several smallholder family projects and dreams built upon hard work, love and a passion for the Earth. Produce is grown according to permaculture, regenerative, and organic principles and standards. Permaculture involves the development of agricultural ecosystems intended to be sustainable and self-sufficient.

GLS also holds Bryanston PGS Organic Assurance. PGS South Africa (PGSSA) is a non-profit voluntary association of farmers, producers, retailers, and consumers who support the training and development of smallholder farming using organic and agroecology principles and developing a sustainable market access system for producers. **SAOSO (South African Organic Sector Association).** SAOSO provides the umbrella under which PGS-SA can provide producers with the route by which they can become formally recognised as Organic producers.

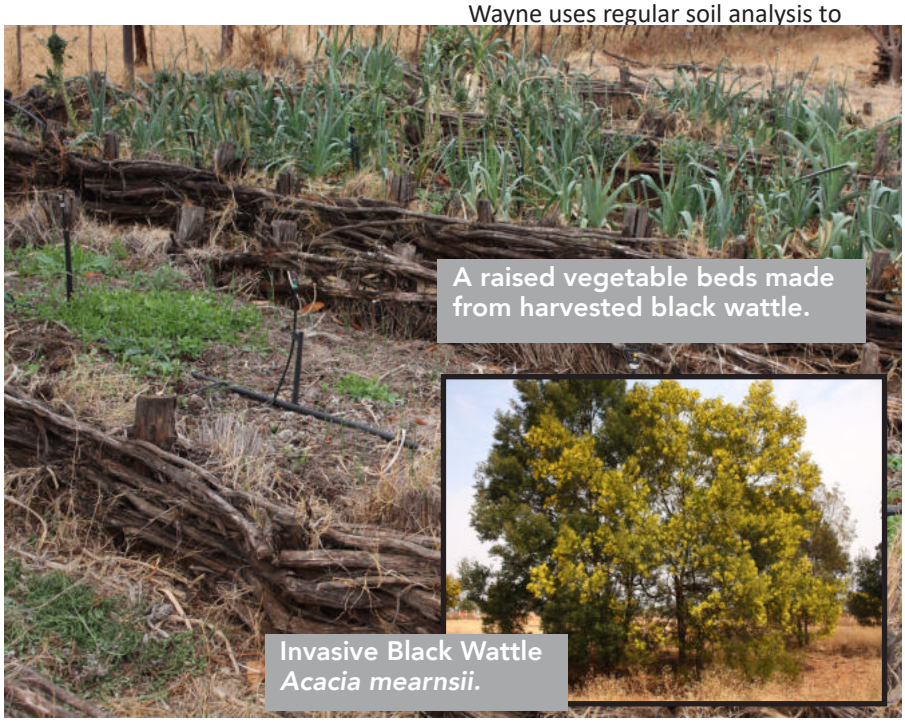
Farming in Harmony with Nature

There are stands of invasive black wattle growing on the property and Wayne is systematically removing and harvesting the wattle, using the pliable fresh wood to create raised flowerbeds, building material and fence posts. As the trees are removed, the barren ground is replanted with indigenous vegetation. Wattle is also converted into biochar, rich in carbon, which also provides essential nutrients to the plants.

Wayne explains that the principles of the farm follow that of a natural forest. The biomass is fed back into the system as mulch and compost, and this in turn stimulates a healthy microbiota in the soil, providing rich nutrients to the vegetables. Nutrient density is increased, including nitrogen, which enhances plant growth.

The farmland varies between very clay, very sandy, rocky and loam. It is necessary to bring the heavy clay and very sandy soil to a happy loamy range by amending the soil with organic matter. The use of resources gathered on-site helps with the amendment.

Wayne uses regular soil analysis to



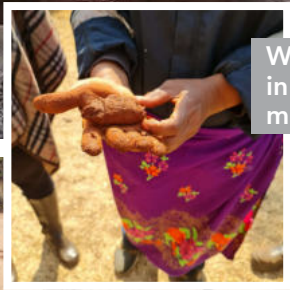
A raised vegetable beds made from harvested black wattle.

Invasive Black Wattle *Acacia mearnsii.*

> “the principles of the farm follow that of **a natural forest...**

Wattle is also converted into biochar, rich in carbon.

monitor the progress, from simple soil sediment samples such as these in the photos, to lab tests. Over the past six years, a huge amount of organic matter has been added both above and below the soil. An example of the improvement using only biomass management, mulch, compost and vermicompost, Wayne managed to bring up the soil pH in the clay soil from an acidic 3.4 to a more ideal 5.6 within only two years.



Wayne managed to bring up the soil pH in the clay soil from an acidic 3.4 to a more ideal 5.6 within only two years.

Following eco-sensitive methods, Wayne has noted an increase in indigenous animals moving into the property. These include owls and other birds, rabbits, mongoose, chameleons, snakes, and a plethora of other species. A system of companion planting takes place so that some plants either control pest insects or are in themselves more attractive to selected plants, such as nasturtium.

Vermiculture plays a big part of the composting operations. Vermiculture involves the cultivation of earthworms to be utilised for transforming organic waste into fertilizer. In addition, over a cubic meter of nutrient-rich compost is processed through the chicken run each week. The droppings from the chickens are added to the compost heaps and the chickens themselves sift through the organic debris feeding on weed seeds, sprouts grubs and insect larvae, effectively filtering out unwanted weeds and insects from the mix.
Over 30 different crops are harvested from Green Life Sanctuary including varieties of leeks, onions, garlic, chillies, tomatoes, cherries, cabbage, spinach and others.

Rosemary and lavender bushes attract insect pollinators.

Wattle sticks are pliable when fresh and can be bent and interwoven to form raised plant beds.

Grass mulch provides nutrients and conserves moisture in the soil.

Circular Economy Principles in Action

Permaculture practices, as demonstrated above, serve as an example of circular economy principles. Economic development is designed in such a way as to benefit not only business, but society and the natural environment as well. It features the elimination of waste by composting waste that is biodegradable, or, if it's a transformed and non-biodegradable waste, reusing, remanufacturing and finally recycling it. It also means cutting off the use of chemical substances (a way to help regenerate natural systems) and betting on renewable energy." (youmatter.world/en/definition/definitions-circular-economy-meaning-definition-benefits-barriers/)

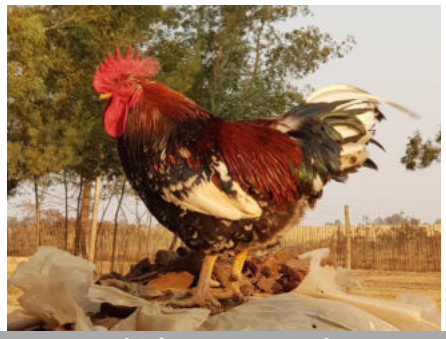
In contrast to the 'take-make-waste' linear model, a circular economy is regenerative by design and aims to gradually move away from enabling growth solely from the consumption of finite, limited resources. (archive.ellenmacarthurfoundation.org/explore/the-circular-economy-in-detail)

Permaculture Training

Wayne has been involved in corporate training for much of his career and he has taken this experience right to the community. GLS has a sister operation called GLS Farm Permaculture Academy.

The concept behind this permaculture training academy is to inspire those who don't have the technology or equipment that large-scale production farmers have.

The goal of the collaboration between GLS Farm Permaculture Academy and local community members is to grow and promote food gardens that will unselfishly serve as a model for others to learn from, in addition to providing healthy food. They are a registered NPC (non-profit company), dedicated to improving food security for all.



Free-range chickens are used as part of the composting process and assist in cleaning up grubs and weed seeds in the compost.

Heirloom seeds ready for harvesting.

An increase in biodiversity with indigenous animals moving into the property.

Farming Terminology

Permaculture: involves the development of agricultural ecosystems intended to be sustainable and self-sufficient.

Monoculture: a form of agriculture that is based on growing only one type of a crop at one time on a specific field.

Organic farming: Organic farming is the process of using environmentally friendly farming methods to improve soil health, to protect the environment and to ensure human health. Farmers use traditional and modern farming methods and combine it with research to ensure a balance in nature's ecosystems.

Drip irrigation: or trickle irrigation is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface.

Rotational farming: Crop rotation is the practice of planting different crops sequentially on the same plot of land to improve soil health, optimize nutrients in the soil, and combat pest and weed pressure.

Companion Farming: planting of different crops in proximity for any of a number of different reasons, including pest control, pollination, providing habitat for beneficial insects, maximizing use of space, and to otherwise increase crop productivity.

Rhizosphere: the region of the soil in contact with the roots of a plant, where interactions happen between plant roots, soil micro-organisms, nutrients, and water.

Hierloom seeds: come from open-pollinated plants that pass on similar characteristics and traits from the parent plant to the child plant.

Biomass: charcoal produced from plant matter and stored in the soil as a means of removing carbon dioxide from the atmosphere.

Contact Information

- https://www.facebook.com/greenlifesanctuary
- https://www.facebook.com/GLSFarmPermacultureAcademy
-https://www.backabuddy.co.za/champion/project/community-food

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-Circular Economy Learning Hub (ellenmacarthurfoundation.org)
Food and the circular economy (ellenmacarthurfoundation.org)
-https://youmatter.world/en/definition/definitions-circular-economy-meaning-definition-benefits-barriers/
-https://youmatter.world/en/soil-artificialization-erosion-ecosystem-biodiversity/
-Wikipedia

Vegetables with a drip irrigation system.

A plastic milk bottle is used as a white board for marking crops.

Wayne Adams of Green Life Sanctuary / GLS Farm Permaculture Academy.

Organic & Earth-Friendly Shopping

TOP 10 Budget Tips

"How does a person afford organic food today, isn't it expensive?" What if the reponse to this common queastion surprised you?

As with any conscious eating, be it going vegan, or vegetarian, pescatarian, or simply adoptiing 'Meatless Mondays' as the way to go, it can be difficult for many to convert to an all-organic diet overnight. By taking gradual small steps in this direction -that personally work for you and your family -you may be more likely to stick with it. Surely it all contributes towards that 'critical mass'/'snowball effect' -right?

Concerns about food security, ecological awareness, or just a preference to eat fresh, and to eat less processed foods are turning cost-conscious shoppers to ask how they can stretch their organic food budget? Plus there is the question of whether there are other food production options that may also be kinder to the planet? *See our cover feature article on permaculture!*

Today, organic foods are big business, sold in chain supermarkets and are even produced by multinational companies. Nevertheless, organic and free-range foods and beverages *can* cost more than conventional foods -even though prices are increasing for both organic and conventionally grown items. Organic foods are generally more expensive due to the lack of pesticides which means that growing them is ofen more labour intensive, and the crop yield is not always as good.

What makes food 'organic'...or NOT?

"100% organic" is for foods that have no permitted synthetic or artificial ingredients. Food is grown, harvested, and processed according to national organic standards that restrict the amounts and residues of pesticides, hormones, and antibiotics. Organic foods have a minimum of 70-95% organic ingredients. Foods called "organic" cannot be treated with any synthetic pesticides, sewage sludge, bioengineering, or ionizing radiation. They may, however, use biological pesticides derived from natural sources).

"Concerns about food security, ecological awareness, or just a preference to eat fresh, less processed foods are turning cost-conscious shoppers to ask how they can stretch their organic food budget?

The Dirty Dozen

Fruits and vegetables are conventionally still treated with pesticides and fertilizers to enhance growth and prevent infestation, and are thus likely to contain pesticide residues.
If you can afford the organically grown options, buy them. If you can't afford organic all the time, try to at least avoid those on the 'dirty dozen' list.

The "dirty dozen" refers to 12 fruits and vegetables that the non-profit Environmental Working Group says are among the most susceptible to pesticide residue and have thin skins. It is thus generally safer to buy organic produce for this list:

Peaches
Apples
Pears
Nectarines
Grapes
Strawberries
Cherries
Celery
Spinach
Lettuce
Potatoes
Sweet bell peppers

The Environmental Working Group also has a list of 12 fruits and veggies likely to have the fewest pesticide residues.It may not be worth the added cost of buying organic for these items:

Papaya
Broccoli
Cabbage
Bananas
Kiwi
Sweet peas
Asparagus
Mango
Pineapple
Sweet corn
Sweet potatoe
Avocado
Onions
Mushrooms

Farmers Markets around South Africa

- Bryanston Organic and Natural Market; Neighbourgoods Market, Braamfontein Johannesburg
- Boeremark Market, Bloemfontein
- Greyton Saturday Morning Market (Western Cape)
- Outeniqua Farmers Market, George, Western Cape
- Karkloof Farmers Market, Howick, KwaZulu-Natal

Organic Food-Box Schemes

Green Baskets Health Shop in Bedfordview, Johannesburg sells organic family food boxes of different sizes from Wensleydale Farms and other suppliers.

thinking Earth friendly
|storage |distribution |packaging

SUPPORT LOCAL

Produce from local farmers' markets may not all be 100% organic, but it is often fresher than the same foods avaialable at a supermarket.
It may also have less of an impact on the environment (lower carbon footprint) when it comes to storage and distribution. Plus, foods from local markets require much less packaging other than your own baskets, material bags, and containers to help you get them home.

BUY IN SEASON

Eat foods when they are in season, which goes along with the natural rhythm of the land.

OPT FOR WHOLE FOODS

Choose less processed versions of conventional foods whenever possible.

PLANT-BASED

Organic meat can be expensive, and raising animals for meat generally takes more natural resources than growing produce. Plant-based meals are nutrient dense and cheaper & becoming more popular budget savers.

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-https://wholelifestylenutrition.com/gardening/organic-on-a-budget-10-tips-to-help-you-buy-organic-food-for-less/
-https://www.unlockfood.ca/en/Articles/Farming-Food-production/Organic-Foods-and-Growing-Methods-FAQ.aspx
-https://sixtyandme.com/container-gardening-growing-organic-vegetables/

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MAKING THE TRANSITION

10 Golden TIPS

1. Grow your own. Plant your own organic produce using hierloom seeds and natural compost methods. Gardening became a popular hit during stringent lockdowns. Even where space is limited people are turning 'flower beds' into 'food beds' and harnessing smart container gardening ideas which are good for the soul, community, and planet.

2. Learn how to ferment, pickle, preserve your organically or home grown fruits and vegetables naturally when in season. This is a great way to save money, particularly for the winter months, especially if you grow your own! **Read more**

3. Comparison shop. It is important to comparison shop in order to get the best deals.

4. Visit farmers markets. See above for some farmers markets around South Africa.

5. Create meal plans around the most affordable produce and items on sale. Organically grown foods do go on sale, especially when in season.

6. Join a Box scheme. Get a new box of fresh produce delivered to your door or find a service provider that offers weekly pick-ups. In the box is a variety of seasonal produce, so boxes are always changing. Variety is good. One can get to try so many new fruits and veggies which one would never have purchased before thanks to these ever-changing boxes. You can have enough produce to get through the week. Different sized boxes are available to suit your family size and budget.

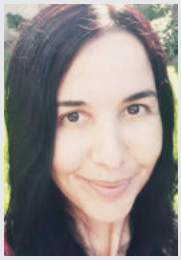
7. Buy in bulk if you can use the food, ferment / pickle and store it without spoilage.

8. Compare prices between fresh and frozen, dried and canned varieties of organic foods. They may be less expensive than fresh, yet equally tasty when prepared correctly.

9. Shop grocery chains that feature their own organic brand. Buy the generic organic version in your favourite market.

10. Buy in season. Organic produce can vary in price depending on when you buy it. You can often save money this way. Substituting ingredients that are out of season with new ones that are in season can even improve the whole recipe!

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



The African Stonechat

The African Stonechat is a small and handsome bird particularly common in the Highveld Grasslands, but also found across the Midlands and into the Southern and Western Cape where they occupy Fynbos and Scrub. Around 13 subspecies or races have been described from across Africa attributed to size differences and intensity of plumage colouration.

Despite the common and scientific name, these birds are more commonly observed perching on thin branches, grass tufts, shrubs and fence wire. They will also perch on upright poles. From these vantage points they scan the ground for small invertebrate prey. Stonechats feed on spiders, grasshoppers, termites, ants, millipedes, centipedes and beetles. They will also take fruits and seeds.

Males are energetic and will defend their territory against intruders. They construct their nest at the base of grass tufts or shrubs made up of a deep cup of intertwined grass. Only the female is involved in nest building. 2-5 small pink to greenish eggs are laid by the female and these are incubated for 14-15 days. The fledglings mature rapidly and leave the nest within two weeks.

Class: Aves

Order: Passeriformes

Family: Muscicapidae

Species: *Saxicola torquatus*

Etymology: *Saxicola* = dwelling among stones. *torquatus* = from Latin meaning collared.

IUCN Conservation Status: Least Concern

PLASTICS

CATEGORIES FOR PLASTIC RECYCLING

TEXT: WARREN SCHMIDT

There are many kinds of plastic types used in the making of packaging, household items and for industrial applications. Plastic remains one of our greatest pollutants in terrestrial and aquatic environments. Despite awareness campaigns and regulations, the dumping of plastic waste seems to be increasing exponentially. Many buy-back centres and recyclers are very specific about what types of plastic they will accept. A while back, I drove to over a dozen recyclers on the East Rand of Johannesburg, trying to find someone who could recycle hard computer casings and PVC, and not one would accept these products. The final outcome was that they ended up on a waste landfill site.

Tragically, millions of tons of plastic is being washed into our oceans and dispersed across the globe with sea currents. The impact on marine creatures such as fish, whales, dolphins and marine turtles is catastrophic.

Microplastics are also becoming a serious issue. It is up to each and every consumer to think carefully about their plastic usage, and importantly, how we dispose of our plastic. I firmly believe that almost every material item can be salvaged and recycled or repurposed for another use.

Microplastics are generally considered as any plastic particle with a diameter of 5mm or less. However, nanoplastics are even smaller at one micron or less. Although scientific consensus varies depending on study design and sampling methods, it is generally accepted that today most organisms, including humans, are consuming tens of thousands of microplastic particles annually through our food, water, and air. To what degree this is impacting our health and wellbeing is unknown, but some studies suggest it may be detrimental and disruptive to natural cellular and physiological processes.

Alarmingly, micro- and nanoplastics have been found on the highest mountain peaks such as Everest, and at the bottom of the deepest ocean trenches. It is everywhere. In fresh and marine water environments, microplastics look similar in colour and composition to microorganisms such as plankton. As a result, they are easily consumed by fish, crustaceans and other aquatic creatures.

In this article we discuss the seven main plastic recycling categories so that you can sort and recycle them accordingly. Many products such as jars and containers will have the recycling symbol imprinted somewhere on the item, usually at the bottom. These will be numbered 1-7 inside a three-arrowed triangular symbol. Based on this guide, you can separate your plastics into the various divisions and find the appropriate recyclers.

Category 1 – PET (Polyethylene Terephthalate)

Polyethylene Terephthalate (or polyester) is commonly used in water and cooldrink bottles, as well as clear food packaging. It is a valuable plastic for recycling and the item most sought after by informal recycling collectors. The basic composition of polyester is ethylene glycol and terephthalic acid.

Category 2 – HDPE (High Density Polyethylene)

High density polyethylene is another plastic type that can be recycled. This falls into the category of plastics also known as polyolefin – and includes Category 4 (LDPE) and 5 (PP) plastics. HDPE has a high strength to density ratio and it is therefore used in many container and packaging applications, as well as non-corrosive pipes.

Category 3 – PVC (Polyvinyl Chloride)

PVC is a hard plastic type but can be brittle. It is used to manufacture electrical conduit, plumbing drainage pipes and chemical storage containers. At one time PVC was not accepted as a recycling product but there are more recyclers now accepting this material, with new and innovative methods being developed to recycle PVC. PVC is recycled mechanically by grinding it down or through a process known as feedstock recycling which uses chemical processes to break down the material.

"millions of tons of plastic is being washed into our oceans ...

Category 4 – LDPE (Low Density Polyethylene)

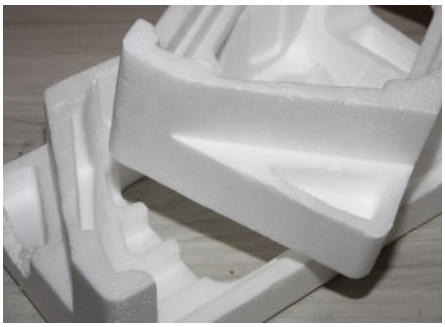
This plastic type is mostly used for manufacturing grocery bags, bread packets, bin liners etc. It can be made extremely thin whilst holding a certain degree of strength and elasticity. It is another plastic type that can be recycled.

Category 5 – PP (Polypropylene)

Polypropylene is used in many plastic applications, from durable plastic buckets to food packaging such as yogurt containers and bottle caps. This is a thermoplastic addition polymer made by combining propylene monomers.

Category 6 – PS (Polystyrene)

Polystyrene is commonly used in packaging and insulating materials, as well as disposable food containers. It is a very lightweight material and easily moulded into many different forms. It is a synthetic aromatic hydrocarbon polymer made from a monomer called styrene.



Category 7 – Other

These are other plastic types that don't fit into the above categories. They include acrylics, polycarbonates, fibreglass and nylon. Nylon is often used in textiles and microfibres are often separated when clothing and related items are washed. Wastewater often makes its way into our stream and waters. Even after treatment, it is impossible to separate and filter out these tiny particles.

Storage of plastics for recycling

If you want to accumulate and store plastic recyclables over a period, it is best to thoroughly wash and dry the plastic items. Our method is to wash all plastics in hot water with a small mixture of detergent. These are then rinsed and dried. The practical reason for this is so that it prevents bacterial growth and unpleasant food odours. Unwashed items will also attract ants, cockroaches, mice, and rats.

We have marked carboard boxes into which the different plastics, including glass and aluminium, is sorted and packed. Once enough is gathered, these are then taken through to the appropriate recycling depot or buy-back centre.

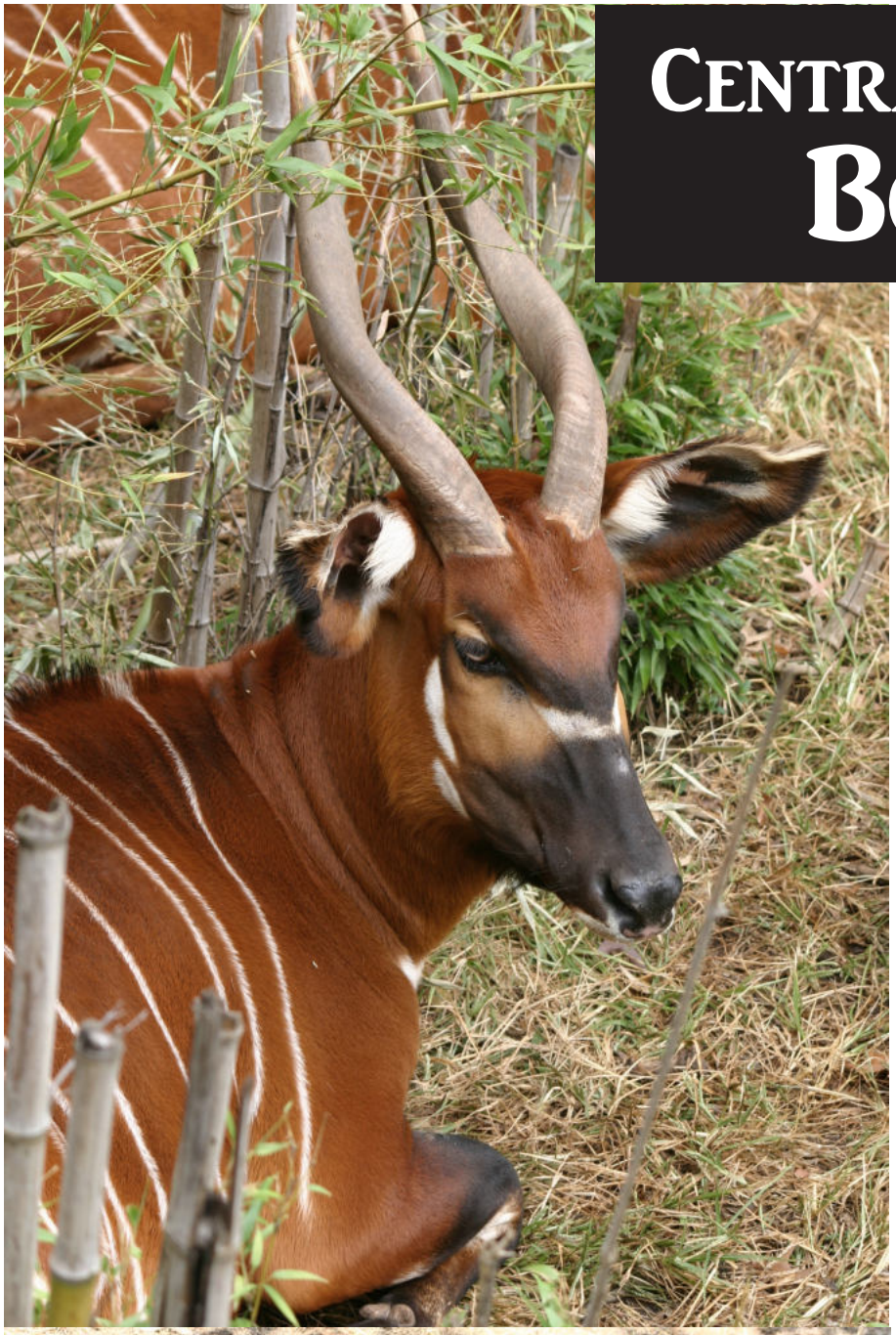
Re-using or repurposing

Some plastic jars and containers can be used for other purposes once cleaned and de-labelled. Two good examples are empty ice-cream containers and plastic mayonnaise jars with the screw-on lids. These jars are durable and can be used for storing nuts, bolts, screws, washers, and a range of other small items. Interestingly, they often cost more when you purchase them new from a hardware or plastic retailer than the full jar of mayonnaise! Ice-cream containers can be used to store stationery and various arts and crafts.

Further Information About Recycling Resources

South African Plastics Recycling Organisation - https://www.plasticrecyclingsa.co.za/
Plastics SA - https://www.plasticsinfo.co.za/
Polystyrene Association of South Africa - https://polystyrenesa.co.za/recycling/
Petco - https://petco.co.za/
Polyco - https://www.polyco.co.za/

Central Africa's Bongo



The Bongo *Tragelaphus euryceros* is an impressive antelope with robust horns and an upright mohawk that runs along the crest of the back. This animal is found in central and west Africa. It is an antelope of the Congolean lowland forests, as well as the Guinean forests of West Africa. There are also fragmented populations in Kenya, especially around the Aberdare Mountains and Mount Kenya.

They are reddish-brown in appearance with a series of vertical, almost straight, distinct white stripes running from the spine down the flanks. It looks like lines of dripping white paint. Males and females are similar in appearance and both have robust, slightly spiralled horns. The horns are black but have white tips. White patches are found on the cheeks and the legs have a black and white pattern against the red. This is a species of true forest where they prefer dense thickets, but will come out into the sunlit open grassy patches to graze on herbaceous plants. They are primarily browsers and feed on a range of trees and shrubs, as well as bamboo and creepers, various fruits and berries.

Bulls are mostly solitary and cows and young will form loosely associated nursery herds. Combat between bulls is rare and they usually only display elaborate posturing behaviour. Being in a tropical climate, mating and birth appear to take place throughout the year, but seasonal variation may occur in some regions depending on rainfall. Gestation is around 284 days and a single calf is born.

Bongo are still reasonably common in the Democratic Republic of Congo but elsewhere their numbers are declining due to hunting and competition with agriculture.

ABOUT US.

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

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

Never has environmental communications been as important and pertinent as it is in today's rapidly changing, dynamic world. It is critical that people receive reliable information about biodiversity, conservation, and environmental issues. Just as important, communities need to understand why biodiversity is important in their daily lives and why environmental issues are personally relevant to their health and wellbeing. Given the levels of poverty across Africa, the challenges may seem insurmountable, but can be overcome strategically with foresight, dedication and consistency.

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

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

Africa is custodian to some of the world's most unique landscapes, plants, and animals. Elephant, rhino, gorillas and a plethora of less enigmatic but no less interesting creatures call this continent home. Nurturing an appreciation and spiritual connection to these plants, animals and landscapes is critical to ensuring their long-term survival. It is the continent's youth that needs to be uplifted and guided to do this. Environmental education and resource management are essential skills that should be taught at every stage of a child's education, from pre-school to tertiary level. B & E Africa strives to be a communications channel bridging the gap between academic research findings and translating scientific literature into a format that anyone can appreciate and understand.

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

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

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