

EnviroKids™

WESSA's quarterly magazine for young eco-champions

Meet
4 superheroes
fighting alien
invaders

**5 quick clues to
help you ID a bird**

**Tribute to
Chief Chocolate
at WESSA Bush Pigs
Outdoor Education Centre!**

Understanding alien plants and animals in South Africa

**Who invited these guys? How some common aliens got to SA
When alien species start to take over...
Friend or foe? Are aliens *always* bad?
Checklist: Spot the aliens in your area!**

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ED'S LETTER

GET IN TOUCH: Write to us at EnviroKids, P.O. Box 30145, Tokai, 7966 or email envirokids@wessa.co.za.

Dear Enviro Kids

This special and important edition of the magazine could not have happened without the energy of Dorette, Sophia and Londiwe from Stellenbosch University's DST-NRF Centre of Excellence for Invasion Biology (C-I-B).

"We need to talk," Dorette said to me one day.
"About what?" I asked.
"About aliens!"

And that was that... a wonderful collaboration was born. And no, we're not talking about aliens from Mars – we're talking about plants, animals and other organisms that came from other places (on Earth!) to South Africa.

- How did aliens get to SA?
- When does an alien become invasive – and why is that a problem?
- Are aliens *always* bad?
- What does the law say about alien plants and animals?
- Is there anything we can do to help prevent the spread of invaders?

These are just some of the questions we try to answer in the following pages.

You can also expect some **environmental news** from around the world (see page 2); **five quick clues to identify a bird** (page 14); our **tribute to Chief Chocolate** (page 16); and some fun **crafts, games and puzzles** (pages 18-21).

Catch you later, my choccies...
Renata



Photo: Alison Dingle

We used the handy checklist on page 10 to help us identify aliens in our neighbourhood. Here I'm trying to get a closer look at the yellow berries of a syringa tree.

SA has a law dedicated to managing alien species – the National Environmental Management: Biodiversity Act. Just call it NEMBA, because that's easier to... REMEMBER!

Meet the team who helped us create this issue of EnviroKids...



Dorette du Plessis



Sophia Turner



Londiwe Msomi

Dorette, Sophia and Londiwe work for Stellenbosch University's DST-NRF Centre of Excellence for Invasion Biology (C-I-B), and are passionate about sharing science and biodiversity education with South African learners.



You can read more about the work of the C-I-B at <http://academic.sun.ac.za/cib>.



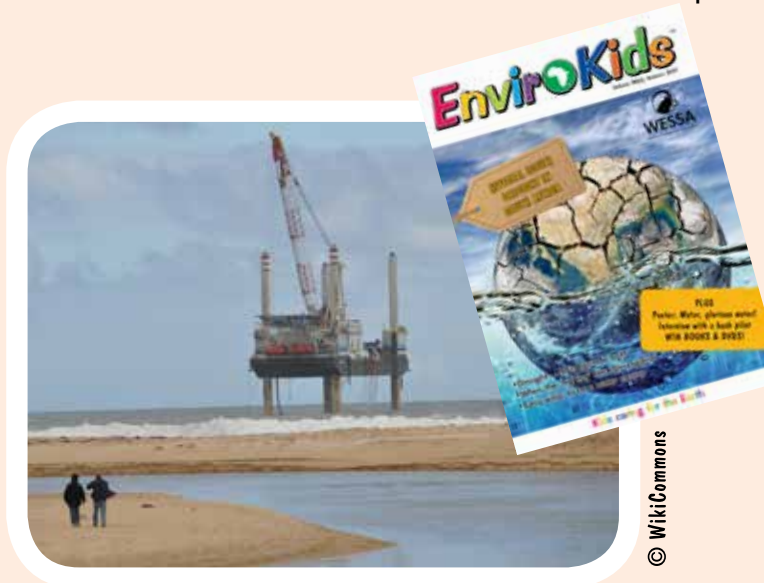
ENVIRO-NEWS



© Dave Owen (entrant: WESSA 90th birthday photo competition)

The great trek

The Zinave National Park in Mozambique was a thriving wildlife area back in the 1970s, until civil war wiped out most of the animal population. Fortunately, it will soon be flourishing again, as one of Africa's biggest wildlife relocations begins! With the support of Peace Parks Foundation, a mass movement of 7500 animals will take place over the next three years. Six thousand of these animals have been donated by the Sango Wildlife Conservancy in Zimbabwe and the rest will come from Mozambique and South Africa.



© WikiCommons

Taking the salt out of the sea

Remember how we discussed different ways of dealing with drought in the autumn 2017 issue of EnviroKids? It turns out the City of Cape Town may soon be putting one of these ideas into action, as it is hoping to use temporary desalination plants in the next few months. We'll be keeping a close eye on this story to see if Capetonian residents will soon have access to de-salted seawater!

Trump backs out of Paris Agreement

In June this year, American president Donald Trump shocked everyone by announcing that America would pull out of the 2015 Paris Agreement, the world's first comprehensive agreement on climate change. Its aim is to keep the global temperature rise below 2°C, and to help countries deal with problems caused by climate change. On a more positive note, Trump's decision has led to new alliance groups in the US, like the United States Climate Alliance, and the Mayor's National Climate Action Agenda. They remain committed to reducing the country's carbon footprint.



© Depositphotos



© WESSA

WESSA's 2016 Coastal Cleanup

An Oscar-winning idea

The Mexican vaquita ("little cow" in Spanish) is the smallest porpoise in the world. It's also the world's most endangered marine mammal, with numbers estimated at about 30 individuals. To try and save the species from going extinct, Leonardo DiCaprio's foundation is working together with Mexican president Enrique Peña Nieto to ban the use of gillnets – which entangle the creatures – and to create alternative jobs for local fishermen. The famous American actor and Nieto began talking on Twitter, before the two met in person earlier this year to sign the agreement. Now that's what we call using your fame for great gain!



© Wikimedia

A man with a porpoise



An army on our doorstep

A plague of armyworms has arrived in South Africa. The fall armyworm is native to tropical areas of America and Argentina, but was sighted in the Limpopo and North West provinces in early 2017 when farmers noticed damage to crops. The armyworms love to feast on grains like maize and sweetcorn and they lay about 1 000 eggs during their 10-day life span. The moths don't move very fast but they can fly long distances. Hopefully our farmers will win the battle against the worms before food production is more seriously affected.

SPECIAL ENVIRONMENTAL DAYS

(September - November)

Week of 1-7 September:
Arbor Week

Saturday 16 September:
International Coastal Cleanup Day
See www.facebook.com/WildlifeandEnvironmentSocietyofSA for updates about a beach cleanup near you.

Tuesday 26 September:
World Environmental Health Day will be looking at air pollution and the effect it has on human health. According to the World Health Organisation, 80% of people are affected by bad air quality.

1-31 October:
Marine Month

Monday 2 October:
World Habitat Day

Saturday 14 October:
World Food Day – to celebrate this day, an international poster and video competition (theme: how food security and rural development can change the future of migration) is open to kids around the globe.

Check it out at www.fao.org/world-food-day/2017/contest/en.

Week of 9-13 October:
National Marine Week

Friday 10 November:
National Education Day

Saturday 11 November:
International Day of Science and Peace was founded by the United Nations in 1999 to raise awareness of the importance of science.

Monday 20 November:
Universal Children's Day



© Margaret Kieser



WHO INVITED THESE GUYS?

An introduction to alien species

Although species can move on their own, natural barriers like mountains, oceans and rivers tended to keep species in their specific areas. When humans began to move around the planet, especially with our new modes of transport, we made it easier for other species to cross borders between different habitats. For example, explorers took many species to new continents – like maize. This important food for many South Africans is a domesticated version of a wild grass originally from Mexico. But as we will see, some alien species become a problem when they begin to multiply and spread, and have an impact on native species...



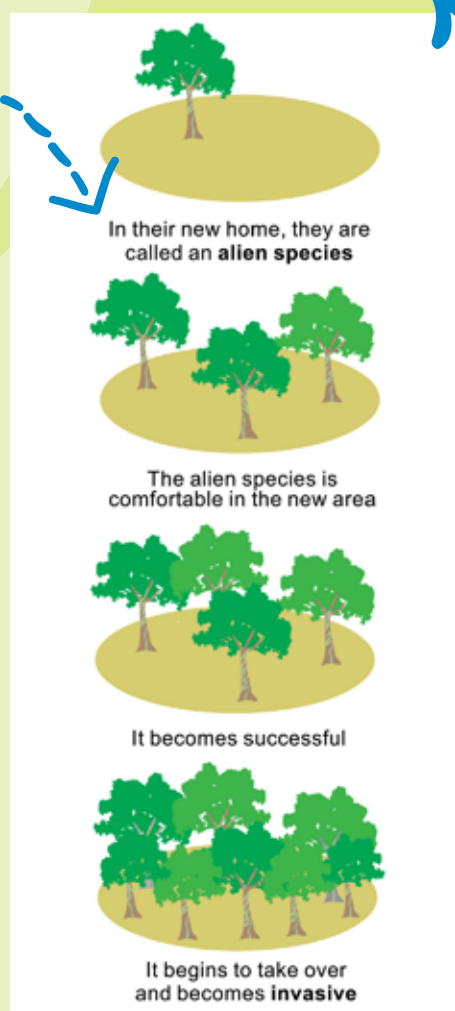
© Sophia Turner

When alien species become invasive



Trees in their native home

Sometimes, living plants and animals are moved from their home country to a new area. In the new area, they are called an **alien species**. In some new places, the alien species will not survive; in other places, it will grow very well and start to reproduce. If the alien species starts to take over the new area and kills other species, we call it an **invasive alien species**. See how the blue gum trees do it in the illustration on the right.



Art: Jacqui Rudling

The world's greatest hitchhikers?

Alien species move from one place to another in lots of different ways.

- People can move them by accident or on purpose.
- Alien species can take a ride in or on unprocessed wood, packaging, machinery and vehicles, especially those that aren't cleaned.
- Aeroplanes have lots of hiding places, like the cabin and wheels, and on passengers' clothing or in their luggage, giving species a free ride to a new continent.
- Sometimes gardeners import plants from all over the world, planting them here in South Africa. It might be because we think they are useful, or even just pretty.
- Alien species can travel across oceans in the water that is carried in ships, known as ballast water. This water can carry aquatic organisms, microbes and diseases. At the end of a voyage, there can be hundreds of different species moved to other countries!
- When pet owners release their domestic pets into the wild, they may be unknowingly releasing a future invader.
- Some invasive alien species cross our border by laying eggs in fruit that we import.
- Rivers help to spread invasive alien species by washing the seeds of trees on the riverbank downstream.
- Wind can also help to spread seeds. For example, the spear thistle (*Cirsium vulgare*) stores its seeds underneath its flowers in a spikey ball. The seeds have soft, feathery hairs so when the ball bursts open, the seeds drift into the air and are carried far away by the wind.

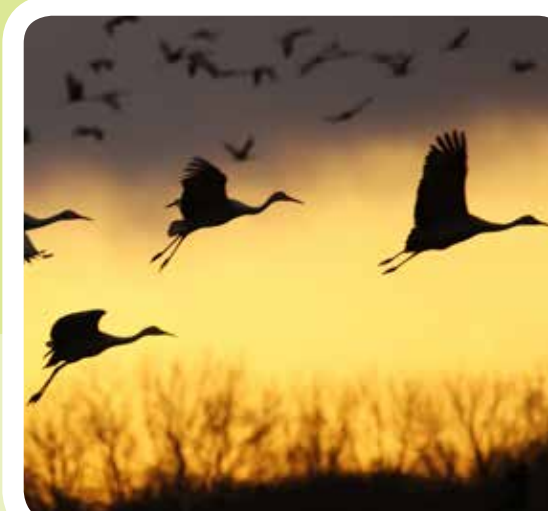


© Igor Poleschuk/Depositphotos



© Renata Harper

Cats were first domesticated in Egypt, but travelled with people all over the world as pets or by accident. Cats hunt a lot of our native birds, reptiles and small mammals.



© Stephen Goodwin/Depositphotos

Migrating birds often spread seeds

Why do some aliens do so well in their new homes?

Some invasive alien species are able to live in different climates: hot or cold, dry or wet, windy or calm. They eat many types of food so they always find a meal. Often there is nothing in the new area, like predators or diseases, to stop them flourishing. This means they can eat, grow, multiply and expand their range quickly and easily.

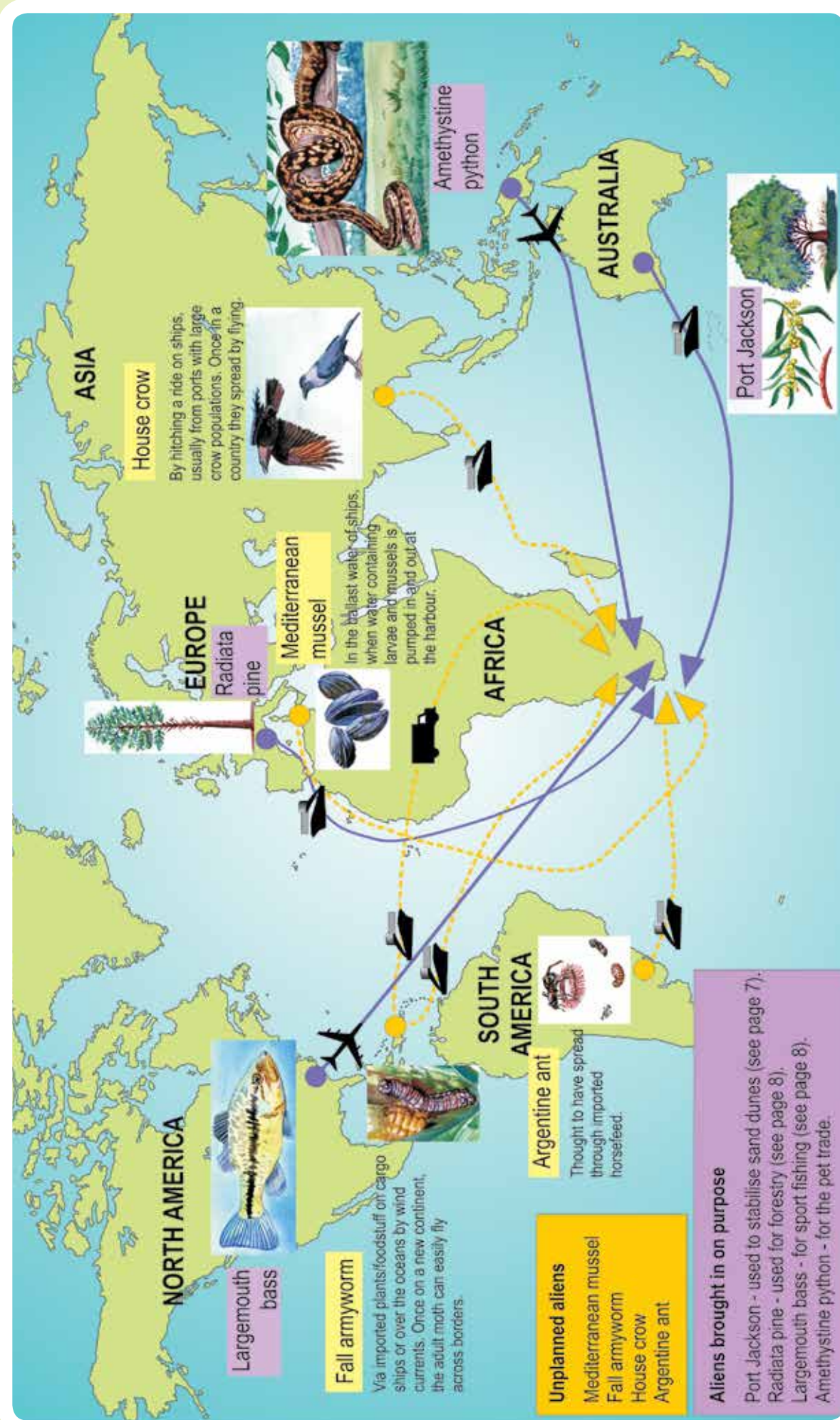
Words to impress your teacher

Species: the same type of living organisms that can breed with each other

Native range: this is the home country of a plant or animal



Here are some of the ways in which some well-known alien species have reached South Africa



Friend or foe? What impact do invasive species have on our environment?



A threat to biodiversity

Some invasive alien species are useful to us, but others can harm our local biodiversity – the variety of plants and animals in a particular area.

Biodiversity is important because it creates healthy ecosystems, where all kinds of species – small and large – can live together. Some invaders take over the space and food of the local animals or plants, which may then go extinct or be forced to move to new areas.

Changing the soil

Some alien plants can change the soil so that no other plants can grow around them. Many years ago, the South African government planted **Port Jackson** trees (*Acacia saligna*) to cover sand dunes in the Western Cape (see the map on page 6). These trees have spread and destroyed large areas of natural vegetation. They have tiny bacteria on their roots, which helps them to trap nitrogen from the soil and air. Fynbos plants, indigenous plants of the Western Cape, don't like a lot of nitrogen and will stop growing in this soil.

Ferocious predators

A predator is an animal that kills and eats other animals – its prey. In nature, there is a balance between the number of predators and their prey: low numbers of prey means low numbers of predators, as there will not be enough food for the predators. When there are fewer predators, the prey species increase, because they are not being eaten. Unfortunately, invasive alien species can change this balance if they are “better” predators: if they eat more prey more often than indigenous predators!

What happens to redfin minnows when alien bass enter our river ecosystems?



Tiny redfin minnows know where to hide from native predators like eels. (Can you spot the eel?) Eels move along the sides of the river, so the minnows escape by hiding in groups in the middle of the river.



Alien bass are large species that prefer to charge down the middle of the river, eating anything that moves! So when shoals of redfin minnows try to hide in the middle of the river (from the eels) they encounter the hungry bass, which will eat mouthfuls of them at a time!

Art: Anne Westoby



Costly visitors

Invasive alien species can cost our country a lot of money. For example, the aquatic invader, the **water hyacinth** (*Eichhornia crassipes*) smothers rivers and dams, causing other organisms in the water to die. Removing water hyacinth is a huge task and costs us millions every year!



© John Wilson/Centre of Excellence for Invasion Biology

Are aliens always bad?

Sometimes, invasive alien species can be both good and bad. We call these *conflict species*.



© Sophia Turner

Pine trees are great for making furniture, and the pulp of the pine trees is used to make paper, even your schoolbooks! Our country exports R9.5 billion worth of pine products each year, so that's a lot of "moolah" from an invader! The bad part is that pine trees in plantations can easily spread into nearby valleys, where it is difficult to get rid of them. This is a problem because pine trees are very thirsty trees and use up a lot of water, which we don't have enough of in South Africa.



Bass are popular with people who like to go fishing for fun. But, as we see on page 7, these species have a dark side. Bass are excellent predators of small indigenous fish and insects in our rivers, and harm our river ecosystems.

👉 Enjoy underwater fishy scenes in this short documentary by a local scientist who investigated the decline of redfin minnows: <https://vimeo.com/82198787>.

The **mesquite tree** (*Prosopis*) was brought to South Africa because it makes good food for farm animals. These trees have long roots that can reach water deep underground, which makes it easy for them to grow in hot and dry areas. Today the trees form thick forests that make it difficult for animals to find grass. These trees are also a real threat to water resources in these water-scarce areas.



© Ross Shackleton

What can we do about invasives? Some DOS and DON'TS

Did you know?

In South Africa, we use different ways to control alien plants. Some invasive species can be stopped by simply **removing** them and some trees must be sprayed with **herbicides** on their stumps to stop them from growing. Another way is using **biological control**, where we use the natural enemies of the species to stop it from growing. Biological control agents can be any insects, mites and organisms that damage a specific alien plant by feeding on their stem, root, leaves or flowers.



Do plant only indigenous plants

When choosing plants for your garden, ask your nursery to help you to choose the right plants.



Don't "pack a pest"

Remember not to bring home any animals, plants, shells, firewood or food from other countries. Clean your hiking boots and socks, and wash your pets before leaving to make sure they're not carrying seeds in their fur.



Do help

Volunteer as an "invasive alien fighter" at a nearby nature reserve. These volunteers uproot, cut or spray invasive plants, and you can help!



Don't release exotic fish, birds or other animals back "into nature"

This is not where they belong. Rather take them back to the pet shop. You may need a permit to keep certain exotic (alien) pets.



Do learn more

Use our cool checklist on the following pages to find any invasive species in your area. Or check out 📱 www.invasives.org.za for pics and info on the worst ones.



© Dorette du Plessis

Learners survey areas invaded by eucalyptus, calculate the biodiversity, and then compare this to the biodiversity in uninvaded areas.

What does the law say?

Category 1

These alien plants and animals are a real no-no, and must be removed or reported IMMEDIATELY! An example is the common house crow (*Corvus splendens*) (see page 11).

Category 2

These species have some value for us, but are harmful if they spread. An example is the radiata pine (*Pinus radiata*) (see page 6).

Category 3

These species are also invasive, but we can tolerate them because they are not too harmful. We no longer want to plant them though and must replace them with something else when they die. An example is the jacaranda tree (*Jacaranda mimosifolia*).

We have the National Environmental Management: Biodiversity Act (NEMBA) that tells us how we should treat invading aliens. In South Africa, we have 559 invasive alien species, divided into three categories.



CHECKLIST: SPOT THE ALIENS!

Invasive plant and animal species love the hustle and bustle of cities... can you spot these common invasive alien species in your neighbourhood? Take a photo and send it to envirokids@wessa.co.za or to 073 963 4663. You could win a copy of *My First Book of Southern African Insects!* (Find our review on page 15.)



© Sophia Turner

Rose-ringed parakeet

(*Psittacula krameri*)

Rose-ringed parakeets are the most invasive parrot species in the world. In South Africa, we find them mostly in Gauteng and KwaZulu-Natal but the real home of this species is the tropical regions of Africa, Asia and India. You can spot them easily by their beautiful green feathers, red bill and long tail. Unfortunately, these birds damage fruit and vegetable crops.

Spotted: 7am, Thurs 12 Oct 2017, our garden, Boksburg

Mallard duck

(*Anas platyrhynchos*)

This beautiful duck is a common sight around dams and you can identify them by their emerald green heads. Mallard ducks came to South Africa in the 1940s as pets. Sadly, these ducks eat the same food and use the same areas for building nests as our indigenous ducks. Mallard ducks can also breed with other ducks, which means that our indigenous duck species can disappear over time.

Spotted:



© Sophia Turner

Harlequin lady beetle

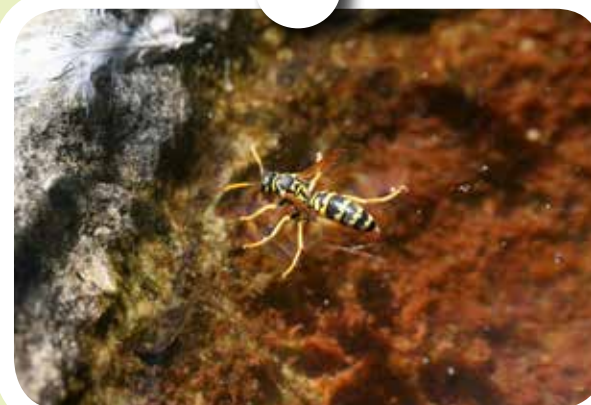
(*Harmonia axyridis*)

For this one, you're going to have to look very closely! The harlequin lady beetle has large white "cheeks" and a black "W" (or "M") on its head. This little invader is all the way from Asia and spreads easily by flying to new areas. Harlequin beetles are known to give a funny taste to the grapes that we use to make wine. They are not fussy eaters – when food is scarce, they will even eat their own eggs or larvae of our indigenous lady beetles!

Spotted:



© Ingrid Minnaar



© Sophia Turner

European paper wasp

(*Polistes dominula*)

This wasp is 12–16mm and has bright black and yellow patterns. The home of these wasps is Europe and they spread to other countries by flying. BE VERY CAREFUL – if you disturb these wasps, they can sting you and it really hurts!

Spotted:

Water hyacinth

(*Eichhornia crassipes*)

These plants are from South America and are planted in fishponds for their beautiful purple flower. Sadly, this plant is now a serious invader in rivers and dams. They grow as dense mats and change the chemistry of the water so that indigenous plants cannot grow, and fish starve because of too little oxygen.

Spotted:



© Roger Bosch/Stellenbosch University



© Sophia Turner

Syringa

(*Melia azedarach*)

You can be almost sure that there is one in your garden, so look out for them! You will recognize this tall tree by its yellow berries; birds love to eat these berries and then drop the seeds elsewhere. These trees need a lot of water and this can slow down the water flow of our rivers.

Spotted:

House crow

(*Corvus splendens*)

House crows are really bad invaders! They eat the eggs and nestlings (birds that are still too young to leave the nest) of indigenous birds. You will identify this bird by its glossy black feathers with a pale grey neck.

Spotted:



Did you know?

You can help our scientists! All photos of sightings, together with GPS coordinates, can be reported to www.ispot.org.za.



© Roger Bosch/Stellenbosch University



I love my job!

Invasive alien species cause so much damage to our indigenous plants and animals, and are so expensive to keep under control, that we need a special group of people to understand them. We call this field of study "Invasion Science". Invasion scientists study:

- how a species arrived in a new area
- what sort of impacts the new invasive species have
- how to get rid of them
- how to prevent the invasions from happening



Mashudu Mashau
City of Cape Town's Invasive Species Unit

I grew up in a rural village and would walk in the bush and eat wild fruits whenever I could. I was first introduced to invasion biology in my second year of studying botany and zoology. From then on, it was difficult to forget that among the natural plants and animals were other species which cause harm.



My job is to identify and control all invasive species in Cape Town. Every day I am either out working with a team to control a specific species, or researching potential invasive plant and animal species. An exciting highlight of my career has been travelling to Marion Island on a research trip. You can only get to this tiny island in the southern ocean by a ship which goes there just twice a year!

Elsje Schreuder
Fruit Fly Coordinator, FruitFly Africa

Even as a little girl visiting our farm in the Karoo, I noticed the blue gum trees and thought they seemed out of place amongst the local "bossies". It was only during my studies that I understood they were an invasive species which change and damage landscapes.

I now work with the invasive fruit flies which are pests that cause serious problems for farmers, particularly those selling their fruit overseas. I manage all the field operations for controlling and monitoring fruit flies in certain areas of South Africa where fruit is grown.



One way we control the numbers of fruit flies is the sterile insect technique – we breed millions of sterile male fruit flies and when they mate with females in the orchard, the females produce infertile eggs. In this way, we get the fruit fly population to die off in the area.



Zombuso Mbatha
Invasive Aliens Trainer, WESSA Work Skills Unit
I grew up in a rural part of Ulundi, KwaZulu-Natal, where my playgrounds were the open fields. I loved seeing the birds, flowers and insects signalling the change in seasons and felt inspired me to work in nature. I decided to study a B.Sc. in botany and zoology. Today I train people – at municipalities and other environmental organisations, for example – on identifying and controlling invasive alien plants. I also help people to better understand their natural environment. The most exciting part of my job is going into the field – our "practicals" – to identify invasives and remove them. I also travel a lot for my work, which I really enjoy.

It's important for us to understand invasives so that we can work together as a country and remove them as early as possible. People often don't realise that certain invasives affect water supply, reduce agricultural production, are toxic to humans, and displace indigenous species – all these have an impact on us as South Africans!



Dr Candice-Lee Lyons
Biocontrol Insects Unit: Invasive Trees at the Plant Protection Research Institute

I originally wanted to become a marine biologist and work with turtles or whales. When I got to university, I quickly realised that there was far more to the field of zoology than only the "big" animals. So, I decided to work on the "little" animals, the insects, and studied mosquitoes that cause malaria.

Today I run several projects that use insects as biological control agents to manage invasive weed species in the Western Cape. I work outside a lot of the time as I need to measure how effective the biological control insects are, and what impact they are having on the specific invasive weeds we are working on. I also need to collect and release the insects at different locations throughout the Western Cape.

Photos supplied



Five quick clues to help you identify birds



Birding is amazing. You can do it anywhere *and* it's a challenge. Below are five important clues to help you quickly identify a bird before it flies off.



Source: *Birds of Southern Africa* (SASOL) 4th edition

Before we begin...

You'll need two important tools: a **bird book** and a good pair of **binoculars**. If you have a smartphone, a **bird app** is handy to listen to calls and learn even more about the bird. It also helps to work out **which birds occur in your area**. Chances are that two thirds of the birds in your bird book aren't found in your neighbourhood! Using a highlighter, go through your book and mark the birds to look out for in your location.

These five questions are a good start to help you narrow down the type of bird. Let's use the grey heron as an example.

- 1 What *size* is the bird, compared roughly to a sparrow, pigeon or guineafowl?**
The grey heron is much bigger than a guineafowl.
- 2 What kind of *beak* does the bird have?**
The heron has a long beak. It uses its beak for catching and eating fish. It also has other prey on the menu, like other birds, small mammals and snails.
- 3 What shape and colour are the *legs*?**
Its legs are very long and yellowish-orange in colour.
- 4 Do you see any *colours* or *bold markings*?**
The grey heron is mostly grey with white on the head and behind the neck. It has a black eye stripe ending with a wispy feather.
- 5 What is the bird *doing*?**
The grey heron is often found standing near water with its neck stretched out looking for food. It sometimes sits hunched down with its neck over its chest.



© Andreas Trepte/www.photo-natur.net

Now use these questions to help you identify a bird you've spotted in your street, garden or playground!

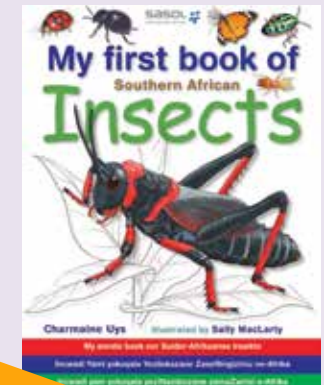
FGASA (Field Guides Association of Southern Africa) is the official organisation that certifies local nature guides. To join their junior programmes, visit www.fgasa.co.za/membership/junior-membership.

ENTERTAINMENT CORNER



Insect alert!

My First Book of Southern African Insects (Struik Nature) by Charmaine Uys helps you to easily identify 58 fascinating insect species. You'll find illustrations as well as notes – in English, Afrikaans, Zulu and Xhosa – on important details like size, what it eats, when it's active and (what you probably want to know first!) whether it bites or stings. Be careful: you might catch insectalitis! Symptoms include spending hours searching for insects and sharing tons of insect facts with your friends and family. Available from all good book stores.



See how you could win a copy on page 10.



Alien versus indigenous!

Alien & Invasive Animals: A South African Perspective (Struik Nature) is perfect for anyone who'd like to learn more about aliens after reading this issue of EnviroKids! This book, by well-known biologists Mike Picker and Charles Griffiths, describes all kinds of alien (invasive) animals in South Africa, and has beautiful photos, as well as maps that show the spread of individual species. Available as an e-book from takealot.com.

Think green when keeping clean

Made from organic ingredients, the Beauties and Buddies bath range from Healing Earth is great for eco-conscious kids. We love how each bath product is designed with an African animal in mind – the body scrub, for example, is perfect for a rhino's tough skin. And the two-in-one shampoo and conditioner? It would keep a lion's mane healthy and beautiful, of course!



See how you could win a Beauties and Buddies hamper, including an educational colour-in poster and crayons, on page 20.



Adapting to survive

Southern Africa has an astonishing number of succulent species, which come in all shapes, sizes and colours. With *Field Guide to Succulents in Southern Africa* (Struik Nature) in your backpack, you'll soon be able to tell your pig's ear from your scrambling aloe! The authors share the wonder of these striking plants as well as their impressive ways of adapting to the harshest of environments. Available from most book stores.



A tribute to Chief Chocolate!

WESSA Bush Pigs Outdoor Education Centre in Limpopo is celebrating 30 years of going the whole hog for the environment. Daniel Nyarenda, aka "Chief Chocolate", has been there from the start...

Daniel belongs to the Tsonga people and was born on 14 July 1957. In the mid-'80s, he was hired by cattle farmer Robin Emmett to do building and farm work. In 1987, Kim and Merwyn Wilson took ownership of the property, and Bush Pigs was born! Daniel and his wife Elizabeth – known by all as "Mama Lizzy" – stayed on and helped to make the outdoor education centre what it is today. Daniel does anything and everything at Bush Pigs, while Mama Lizzy dishes healthy and delicious meals prepared with lots of love. In 2003, their daughters Bertha and Suzan were appointed full time as education officers. Together, this family brings a lot of energy and experience to Bush Pigs.

But wait... how did Daniel get his nickname?

Well, we have Glenanda Primary School in Gauteng to thank for this. In 1998, at the end of their visit to Bush Pigs, a certificate of excellence was handed to Daniel for his incredible rapport with the learners, along with a new name: Chief Chocolate, or Chief Chocs (the nickname for his nickname...). Why? Because he calls anybody and everybody "my choccie".

A man of many talents

When he's not teaching and entertaining guests, Chief Chocolate is a traditional healer. On bush walks, you'll learn about the "Bushman Panado": take a leaf of a large-fruited bushwillow and put it on your head and the headache disappears, says the Chief. And did you know that you can make a bow from the stem of the rough-leaved raisin bush and rope from the bark of the silver cluster-leaf? Chief Chocolate can tell you all about these things!



Learners are always amazed when Chief Chocolate makes a small bow and hits the target, spot on, every time!



Wishing Bush Pigs
a happy 30th birthday!
(1987 – 2017)

Bush Pigs wouldn't be the same without him

"Sweet like a lemon and sour like a banana..." Many a learner visiting Bush Pigs has giggled at this favourite phrase of Chief Chocolate, used to describe the tasty fresh fruit that is served at breakfast. Daniel is famous for his jokes, as well as his positive energy and fatherly warmth, which inspire the hearts and minds of learners, teachers and staff alike. To you, Chief Chocolate, the living legend of Bush Pigs!



"That's magic!" come the cries, as Chief Chocolate holds a burning ball of grass with his bare hands, or when he starts a fire with only newspaper, dry animal dung and ostrich fat.

Photos supplied



Come on over to Bush Pigs!

- Bush Pigs Outdoor Education Centre is one of four WESSA environmental education centres providing environmental awareness, leadership development and outdoor adventure programmes to schools across South Africa.
- Bush Pigs welcomes more than 3 000 learners each year from schools in Gauteng and Limpopo as well as from Botswana.
- Enjoy exploring a diversity of habitats, including grasslands, rocky ridges plunging into a ravine, bushveld savannah and a perennial stream with adjacent wetland.
- A variety of animals, like buffalo, zebra, giraffe, sable, eland and wildebeest are found in the area as well as a resident hippo in the dam.



For more info, visit
www.bushpigsedu.co.za or
[www.facebook.com/
WESSABushPigs](https://www.facebook.com/WESSABushPigs) or email
admin@bushpigsedu.co.za.



Let's make this!

Crazy critter vanilla cupcakes

Enjoy baking these delicious cupcakes and decorating them with your favourite creepy-crawlies!

Ingredients (makes 10 cupcakes)

- 2 cups self-raising flour
- ½ teaspoon salt
- 1 teaspoon baking powder
- ¾ cup sugar
- 110g butter
- 3 eggs
- 6 tablespoons milk
- ½ teaspoon vanilla essence

For the icing

- 100g butter, at room temperature
- 500g icing sugar
- 1 teaspoon vanilla essence
- 1–3 tablespoons milk

Put on your creative hats and make these crafty crafts at school or at home...



For the critters

- small box of Smarties
- liquorice cut into thin strips

What to do

- 1 Sift all dry ingredients.
- 2 Stir in the sugar.
- 3 Add butter, eggs, milk and vanilla essence and beat well.
- 4 Spoon the mixture into paper baking cups placed into a muffin pan.
- 5 Bake at 180°C for 20 minutes.
- 6 For the icing, beat butter until light and fluffy, add the icing sugar and vanilla essence, then beat further. Add a little milk if icing is too thick.
- 7 Allow cupcakes to cool before icing.
- 8 Design your cool critters on top.



Pebble frogs

What you need

- a few roundish pebbles or small rocks
- thick paint (green and yellow)
- paint brush
- green cardboard
- scissors
- craft glue
- stick-on eyes

What to do

- 1 Paint your pebbles green.
- 2 Leave to dry, then paint yellow markings.
- 3 Draw and cut out a base with webbed feet on your cardboard.
- 4 Stick your pebble on the card, and glue on the eyes.
- 5 Place the frog in a spot where you think it'll be happy!

Barn owls

These adorable barn owls are easy to make and don't cost much. Start by going pine cone gathering in your neighbourhood!

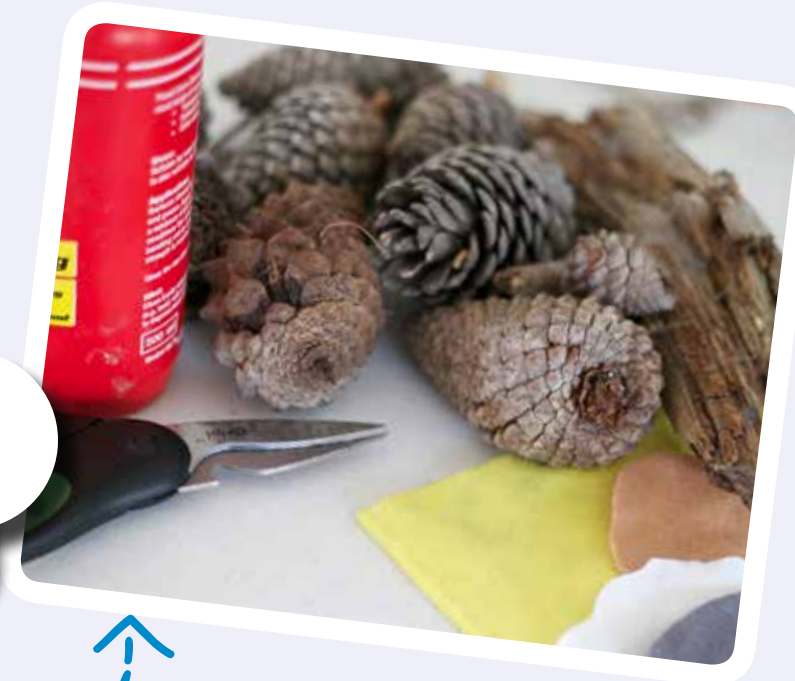
P.S. Read all about pines in South Africa on page 8.

What you need

- pine cones
- scraps of felt
- scissors
- craft glue

What to do

- 1 Trim pieces of felt to make a face, eyes, beak, wings and decorative feathers.
- 2 Glue the eyes and beak onto the face, and the shreds of felt on wings for texture.
- 3 Glue face and wings onto pine cones.
- 4 Place in a tree or somewhere special for all to see!



P.S. Notice the typical heart-shaped face of the barn owl. Who wouldn't love this beautiful creature?!



Friends and foes...

Colour in the pictures and label them with the correct descriptions.



PRISTINE FYNBOS HABITAT

- ① GOOD SUPPLY OF FRESH WATER
- ② LOTS OF DIFFERENT LOCAL ANIMALS AND GOGGAS
- ③ VARIETY OF PLANT LIFE

INVADERS TAKEN OVER

- ④ REDUCED WATER FLOW
- ⑤ LOSS OF PLANT AND ANIMAL DIVERSITY
- ⑥ DOMINATED BY EUCALYPTUS TREES



Send your completed picture and you could win a bath hamper with educational colour-in poster and crayons. (Find more info on page 15.)

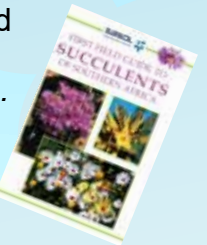


Art: Jacqui Rudling

A tasty invader

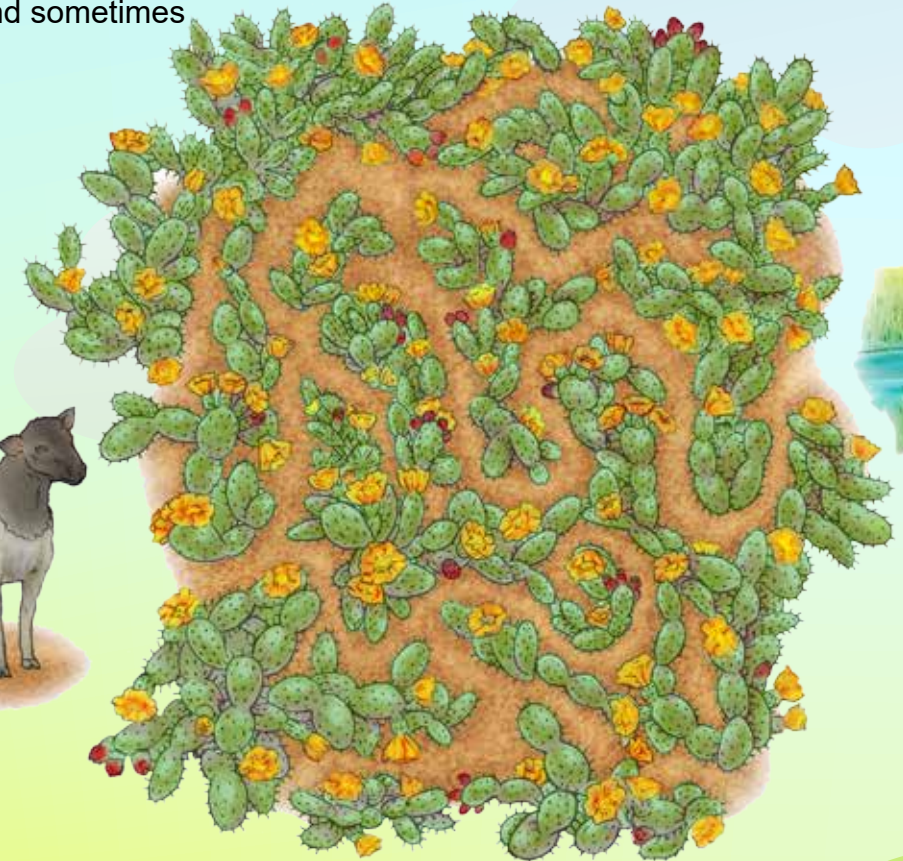


Send in your entry and you could win a copy of *First Field Guide to Succulents of Southern Africa*.



Help this sheep to reach the green grass and water by finding a way through the dense invasive prickly pears without getting pricked by thorns!

Have you ever enjoyed a sweet prickly pear? They're delicious on a hot summer's day! Farmers also use the juicy leaves of prickly pears as food for their animals. Prickly pears can grow very fast and sometimes grow so thick that indigenous shrubs and grasses struggle to survive and may disappear.



Art: Colleen Brice

Aliens word search

WORD LIST

Find all the words in the list below. The words can go in any direction (even backwards) but are always in a straight line. Some letters may be used more than once. Use the leftover letters to spell out a word.

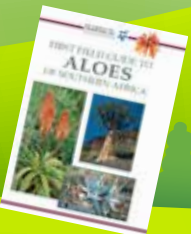
ANT
BORDER
BURN
CAN
CAT
CROW
EXOTIC
FLY
FOE
LAWS
MALLARD
MESQUITE
MONEY
NATIVE
NEMBA
NODE
PEAR
PETS
PINE
TREE
WIND

T	P	E	T	I	U	Q	S	E	M
A	B	U	R	N	E	M	B	A	O
C	R	O	W	R	E	A	F	E	N
P	E	A	R	V	R	L	S	L	E
P	D	A	I	D	T	L	T	A	Y
C	I	T	O	X	E	A	E	W	T
A	A	N	T	O	O	R	P	S	R
N	O	D	E	S	F	D	N	I	W

Answer: _____



Send your answer and you could win a copy of *First Field Guide to Aloes of Southern Africa*.



How to enter our competitions:

Send your entry by:
Post: EnviroKids, P.O. Box 30145, Tokai, 7966
Email: envirokids@wessa.co.za
SMS/Whatsapp: 073 963 4663

Please include your full name, age, postal address with postcode, and email address on your entry.



COOL SCHOOL

To find out how your school could join the WESSA Eco-Schools programme, visit www.wessa.org.za or email delana@wessa.co.za.

When their boreholes ran dry earlier this year, Baropodi Primary School in Limpopo decided to investigate and take action!

Where did all the water go?

Baropodi Primary has always relied on two boreholes that supply a 200-litre water tank twice a week. This water is used for drinking and cooking at school. When their water dried up, the learners and WESSA Eco-Schools did an eco-audit – this is a special tool used to assess, identify and understand environmental issues in the schoolyard.




Baropodi Primary is proud to have been part of the WESSA Eco-Schools Programme since 2014. The school was recently placed third in the Department of Water and Sanitation's provincial Baswa le Meetse (Youth in Water) competition, which celebrates the important role learners play in water awareness campaigns.

What they did

Alien trees can be very thirsty! Some of them take all the nutrients and water from the soil, making it difficult for local trees to survive. Many invasive trees also grow rapidly and invade land that is high in biodiversity or that could be used to grow crops.

Lots of schools in South Africa have alien invasives on their properties – does yours? If we all take action and remove alien invasive vegetation, we can help to turn the tide for water in South Africa!

DID YOU KNOW?

-  The Department of Environmental Affairs describes invasive alien plants as one of the biggest threats to plant and animal biodiversity in South Africa.
-  About R600 million is spent every year to clear more than 10 million hectares of alien-invaded land in South Africa!¹
-  Scientists estimate that our country's reduction in water would be more than eight times greater if invasive alien plants were allowed to keep spreading.²

WESSA Eco-Schools, DWS and 50 schools across South Africa are working together on meaningful water action projects. Each school strives to become a water-wise institution that responds to the water challenges and risks its community faces.



water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA



Grade 7 learners take part in a water measuring activity.

Photo supplied

1. Groenlandberg Conservancy, 2017
2. Van Wilgen et al., 2008