

The Western Leopard Toad



**A Scientists' Workbook
for Princess Vlei Guardians**



Eco glossary

Species: Individuals that can interbreed and produce fertile offspring in nature.

Habitat: A habitat is the natural home of an animal or plant. Habitats have physical features and biological characteristics that allow species to find food, shelter, protection and mates for reproduction.

Endangered species: An animal or plant at risk of going extinct in the wild.

Ecosystem: A community made up of living (biotic) and non-living (abiotic) components. These biotic and abiotic components have special relationships which enable them to co-exist in harmony.

Biodiversity: An abundance of different living organisms from all sources, including terrestrial, marine and other aquatic ecosystems, and the ecological relationships which they form. A high level of biodiversity, including diversity within species, between species and of ecosystems, ensures that life can flourish.

Wetland: A wetland is an ecosystem characterised by the presence of water, either permanently or seasonally. Wetlands differ from other land forms or water bodies as they have a unique vegetation type consisting of highly adapted aquatic plants.

Distribution: Where and how animals or plants are spaced throughout the natural landscape. Animals and plants are usually distributed where they have access to food, shelter and protection.

Foraging: The act of looking for wild food in order to remain healthy and fit as animal.

Breeding: A process that produces offspring or young.

Life-cycle: A life cycle refers to the continuous change in a species' development, as the animal transforms from birth/ hatching to a juvenile to a reproducing adult.

Conservation status: This tells us whether the group still exists in nature, in what numbers, and if the species is in danger of becoming extinct in the near future.

Symbiosis: A long-term relationship between two organisms of different species. The relationship can be beneficial for both organisms or it can be harmful to one. It can also be a relationship that allows the organisms to co-exist in harmony without benefit.



Discuss

Take turns to explain each of these terms to each other in your own words. Look up words you don't know.



Why Princess Vlei needs Guardian Scientists

“Imagine a world where the environment doesn’t need saving...” – Lotus High Learner during a performance to raise awareness at Princess Vlei.

The Princess Vlei is the gateway to the wetland system that runs through Grassy Park, purifying the water before it runs into the sea. The Vlei has long been treasured by the many citizens who have enjoyed its beauty and tranquility. It is home to many plants, birds, and other animals, as well as a breeding ground for the endangered Western Leopard Toad (*Amietophrynus pantherinus*).

The Vlei was named after a Khoe Princess, who, according to local legend, was abducted by Portuguese sailors while bathing in its waters – her tears of anguish formed the little Princess vlei.



Though loved by the people, the Vlei was neglected by the authorities, and became more degraded when a road was built through it, with little regard for conserving its ecology. In 2009, the City put forward plans to build a shopping mall on its banks, with potentially devastating consequences for the wetland.

The people of the surrounding communities and all over Cape Town fought back in a creative campaign to save the Vlei, which involved planting fynbos on its banks, petitions, picketing and a campaign to reimagine the space as a nature and heritage park. In 2014, the City agreed to drop the plans for the mall, and to work with the Princess Vlei Forum to restore and conserve the site.

Learners from schools such as Lotus High and John Graham Primary played a critical role in the fight to save the mall. Since then, these and many other schools have continued to support the conservation of the site, with planting, clean ups and other activities. The Forum recognises that the future of this and all other wetland sites lies in the hands of our young environmental champions, and supports the formation of ‘Princess Guardian’ clubs for these learners to enjoy nature at the vlei while helping to conserve it.

This scientists’ workbook will help our learner guardians to develop their scientific understanding of the wetland, and will help guide our efforts to restore the natural systems that have been destroyed, and conserve the iconic and beautiful Western Leopard Toad. We need the help of these young scientists to gather data about the species on site, to monitor the movements of toads and other animals, and to spread the word in their schools and communities. This work starts here, but the ripples are felt far beyond the Princess Vlei. This is how vleis are saved, and how the earth can be saved from human destruction – one toad at a time.



What is a wetland habitat?

Wetlands are large bodies of water which may be seasonal or permanent. They have unique vegetation consisting of aquatic and semi-aquatic plants such as *Typha capensis* and *Cyperus textilis*. Wetlands attract many bird species and make perfect homes for amphibians and fish. They provide food, shelter and protection to many species, and are spaces where biodiversity thrives.

When animals and plants share a wetland habitat, there are many different relationships between them. Below are two examples. Look out for these and other relationships when your next visit Princess Vlei:

- **Mutualism** (*Both species benefit*)
Double-collared sunbird and *Salvia africana* work together. The sun bird pollinates the *Salvia* plant and in return gets sweet nectar from its flowers.
- **Commensalism:** (*One species benefits but the other is not harmed in the process*)
Mole Snakes use old mole holes to seek shelter on hot days in order to regulate their temperature.

Discuss

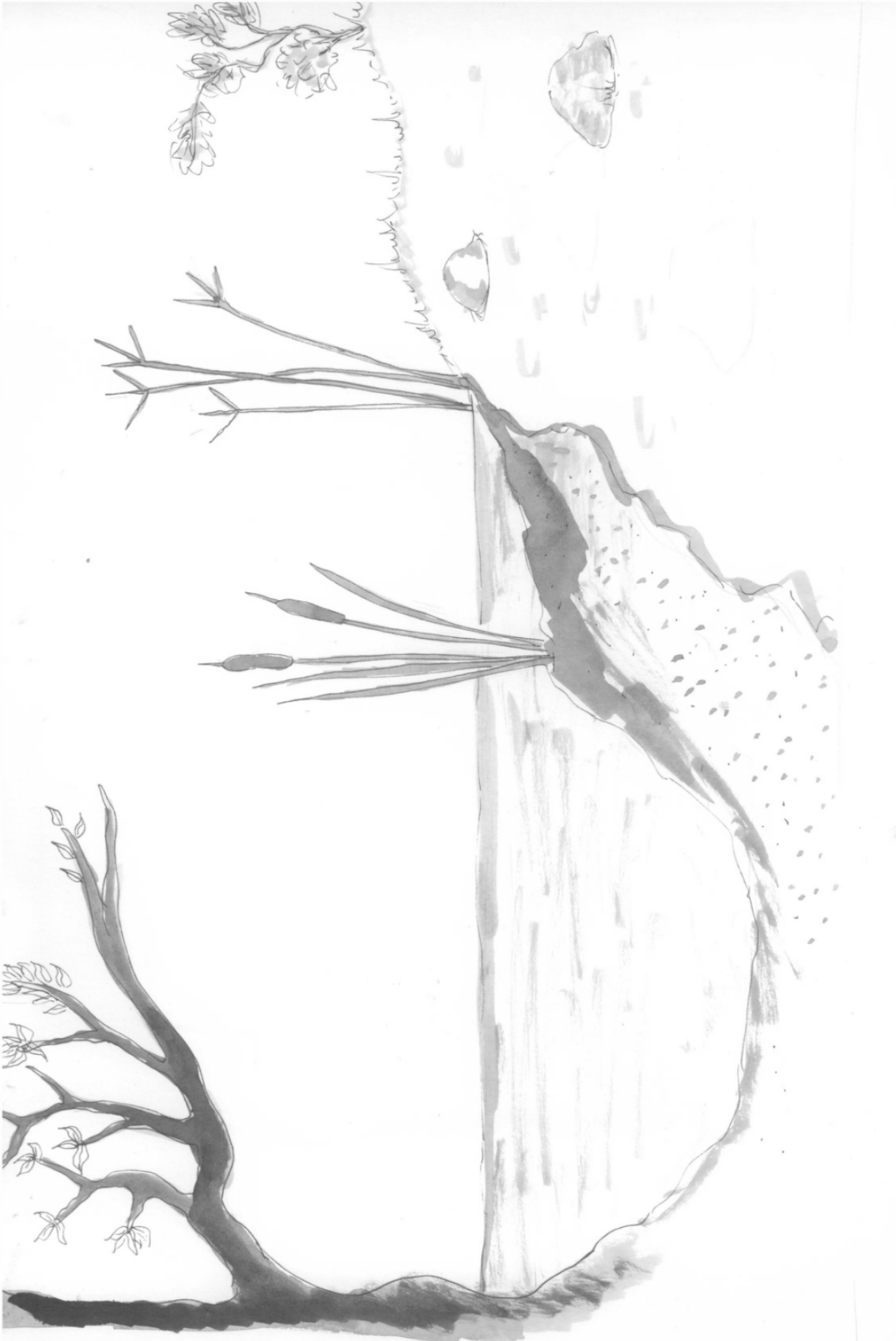
- What is a habitat?
Think of a desert habitat and a wetland habitat. How might each habitat shape the biodiversity of those living there?





Activity 1 - Draw a wetland habitat

- Below is a picture of a wetland habitat (turn the page on its side). Draw pictures of the species on page 2 in places where they might live, and add drawings of other species.
- Show inter-species relationships with coloured lines between the species.

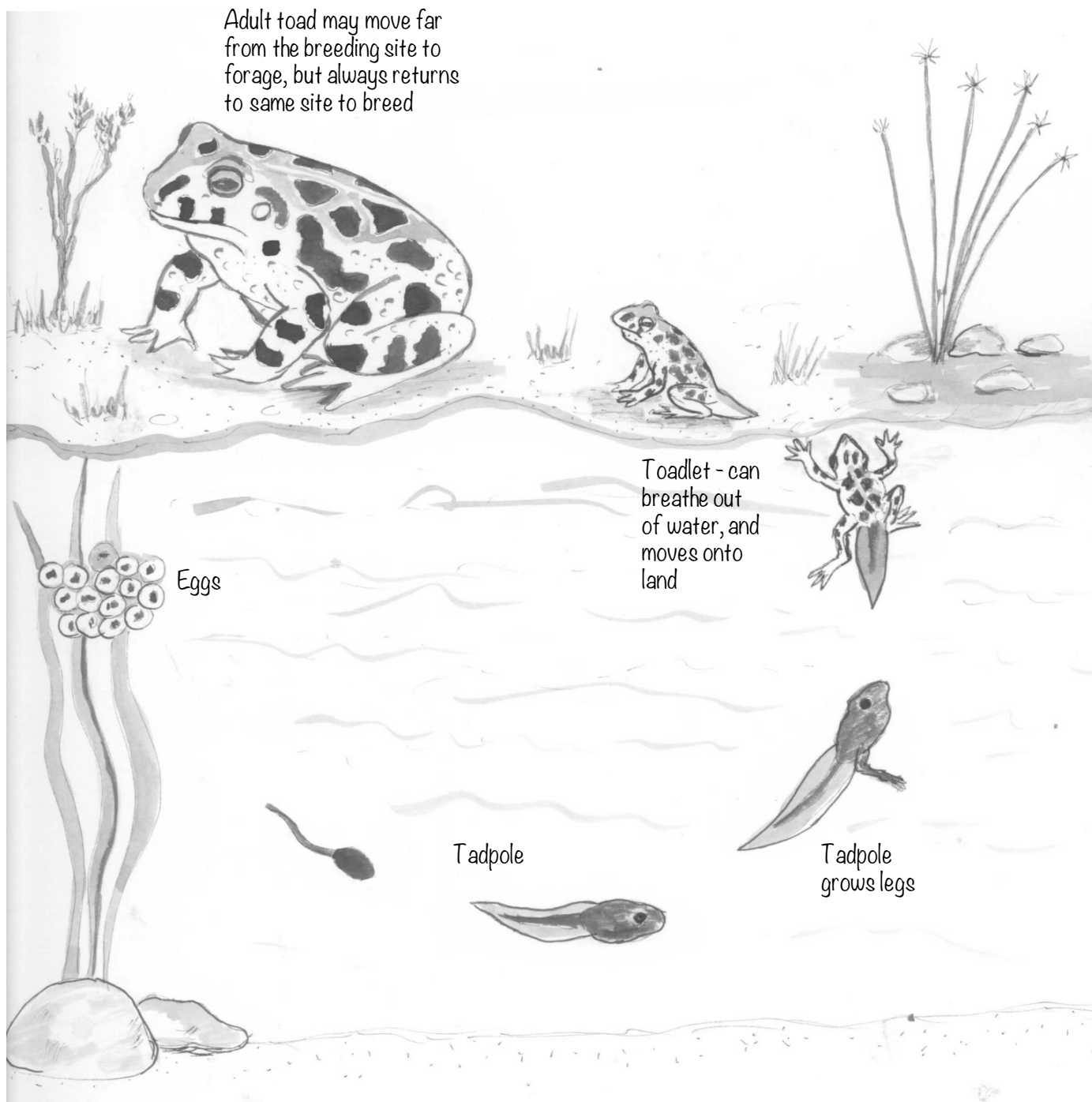


Match the
Species
depicted on
page 2 with
their name:

*African
Spoonbill;
Terrapin;
Shrew;
Praying
Mantis;
Butterfly;
Bass;
Dune Mole
Rat;
Snail;
Mole snake;
Pied
Kingfisher;
Cape Dwarf
Chameleon;
Western
Leopard Toad*



Life-Cycle: Western Leopard Toad



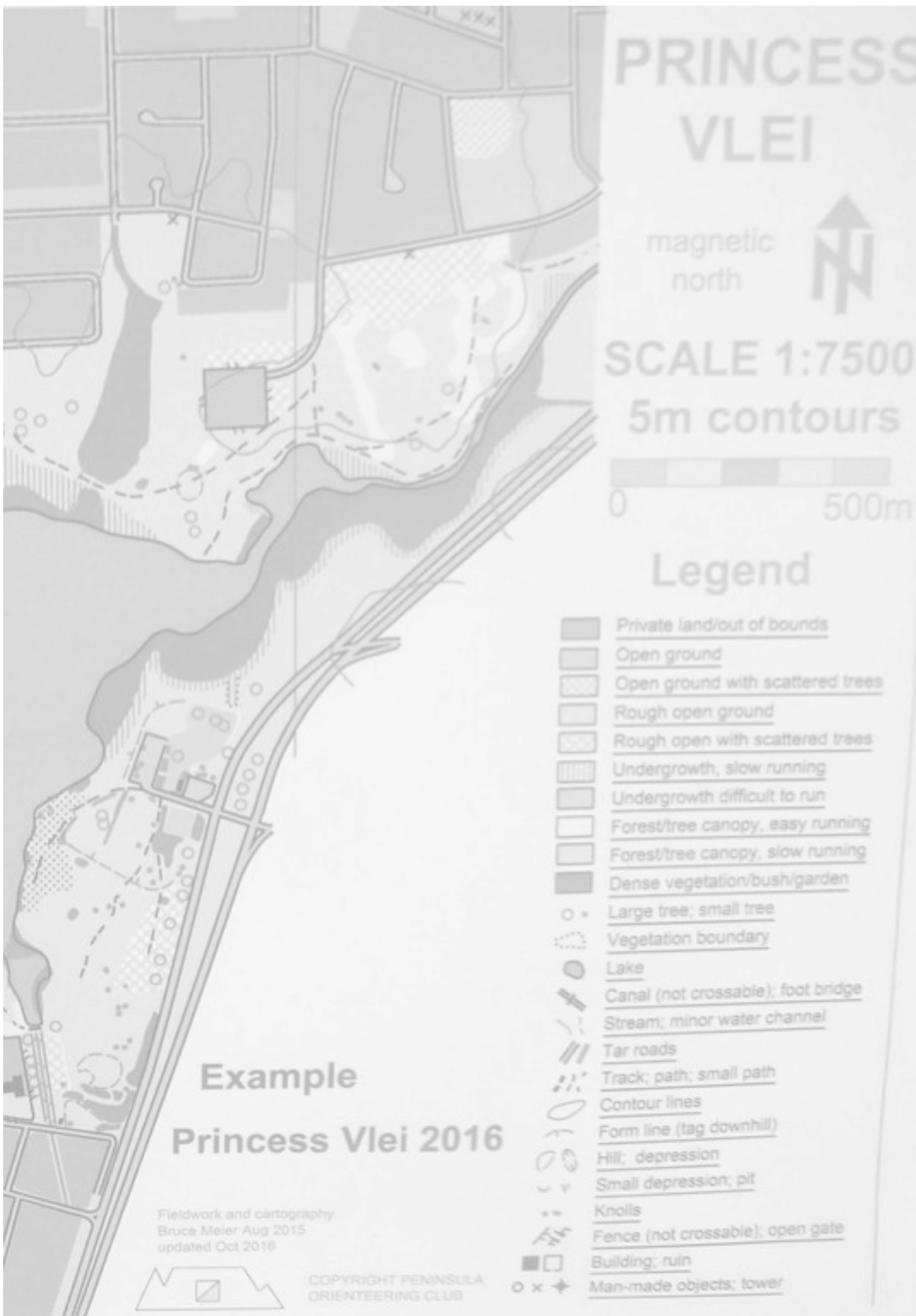
Discuss



- What does the word amphibian mean?
- What is metamorphosis?
- When is the breeding season of the Western Leopard Toad?
- How does the Western Leopard Toad's life cycle make it more vulnerable in a city?

Thanks to the Peninsula Orienteering Club for this map







Baseline data collection

An important task for the citizen scientist is collecting baseline data. Baseline data is information on where a species usually lives, where its food comes from and how many of the particular species currently exists in an area. This data gives us background or preliminary information on a particular species or habitat. This helps us to see if there are any changes, which helps us identify threats to the species and its habitat, and helps us to create conservation projects for endangered species.

The Western Leopard Toad is an endangered species that occurs at Princess Vlei Wetlands. Although they breed at Princess Vlei, they also travel to the surrounding neighbourhood to forage. We need your help to gather some information about our toad population.



Activity 3 – Baseline Data Collection

Do research to find out the following information, and write your answers below.

- What is the conservation status of the species?
- What threats endanger the Western Leopard Toad?

Use the following websites to gather information:

<https://www.arkive.org/western-leopard-toad/amietophrynus-pantherinus/>

<http://www.leopardtoad.co.za/research.html>

<https://www.capenature.co.za/fauna-and-flora/western-leopard-toad/>

https://www.aquarium.co.za/species/entry/western_leopard_toad



Collecting Data: Door-to-door survey

Surveys can help us gather information on the movement and behaviour of species. Because the leopard toads move away from the vlei to forage, we need to find out about their movements in the neighbouring areas. In this activity, we will use surveys to collect baseline data for the Western Leopard Toad population at Princess Vlei by visiting the houses neighbouring the Vlei. Visiting these houses is also a good opportunity to make people aware of leopard toads and to get others involved in helping to conserve them.

Before you go

Discuss



- What will you say to the residents about leopard toads? How will you encourage them to help with the conservation project?
- How will you explain why you are conducting the door-to-door survey?
- What information do you think you need?
- What questions do you need to ask to get this information?
- Decide which neighbourhoods you will go to and divide the areas between you. Make sure that two of you go together.



Activity 4 – Door-to-Door Survey

- Use the questions you designed, or the ones on page 12 of this booklet, to gather information on the toad's range and movements.
- Collect all your information together. You will use it in the next activity.

Did you know?

- A female Leopard Toad lays up to 25 000 eggs at a time, but only a few of those will make it to adulthood
- A Leopard Toad takes two to three years to reach maturity
- Leopard toads spend most of their time out of water and don't have webbed feet.





Mapping our Data

A map is a tool that can be used to display information about a place and its physical features e.g. rivers or roads. But maps are also very useful in plotting distribution and location data of a particular species. This makes it easier for us to locate them and to ensure that their habitat is being protected. If we know where a species lives, we can make sure that we look after that particular area. We can also use the map to monitor the species distribution, and to monitor changes. Creating a species distribution map for the Western Leopard Toad population on and around Princess Vlei will help us identify the areas that need monitoring and protection, and will help us track their movements. A legend should be created to explain what certain colours and patterns symbolise on the map. We can also use different colours to shade particular functional areas for the - for example, breeding sites could be red .

On pages 6 and 7 is a map of the the Greater Princess Vlei Conservation Area, and surrounding roads. You will use this map for the following activity

Activity 5 – Map your data



- Use the results of your survey to map the species distribution on site, including Greater and Little Princess Vleis as well as the Mocke wetland.
- Plot the range/distribution of the WLT using colours and create a legend (you can draw this below)
- Add meta data that explains the activity in each area at the different times of year (eg. breeding, mating and foraging) and include months during which it will occur.

Legend



Saving the world one toad at a time....

How can we protect the Western Leopard Toad from extinction?

We all know that wildlife is in trouble in the world right now. Many species are going extinct because of human activity. Humans are transforming huge areas of land with industrial and agricultural development. Our forests are being cut down to make room for monocrops, our wetlands are being filled in, our grasslands taken over by houses and factories and shopping malls. Our highways, roads and railways make it dangerous for animals to move around in search of food and a mate. Fences also limit the movement of animals – and if pollinating insects and birds have no free movement, plants cannot propagate.

Our earth home is in trouble, but there are many people working together to protect the earth and all the wild animals and plants that live on it. Citizen Scientists and nature guardians like yourselves are making all the difference in helping to save these wild creatures – and ourselves.

You have learnt a lot about the Western Leopard Toad through this workbook. How can you use your knowledge and your passion to spread the word and tell others about this wonderful little toad? In the next activity you will create a flyer to distribute at your school and other high schools to help other learners understand why these toads are important, what threatens their existence, and why we should be trying our best to protect them.

Discuss

- What are the threats to the species?
- What can people do to help protect the WLT?
- What message do you think will make people want to help conserve these creatures?



Activity 6 - Create a pamphlet



Draw, cut and paste and write to create your pamphlet on Page 12. Use eye-catching lettering and graphics to make it attractive.

Your pamphlet must include the following information, but do not write more than 300 words:

- Your own drawing of a WLT
- Why WLTs are cool and should be saved as a species
- Where you can find them
- The conservation status of the WLT
- Name 4 threats to the species
- How people can help to save them

Draw your pamphlet



Western Leopard Toad Survey

Princess Vlei Wetlands: Citizen Science Project

Survey No: ____ Street name & coordinates _____

No. of individuals: Adult _____ Juvenile _____ Estimated size _____

Activity: Foraging ____ breeding: ____ habitat outside of breeding: _____

Survey No: ____ Street name & coordinates _____

No. of individuals: Adult _____ Juvenile _____ Estimated size _____

Activity: Foraging ____ breeding: ____ habitat outside of breeding: _____

Survey No: ____ Street name & coordinates _____

No. of individuals: Adult _____ Juvenile _____ Estimated size _____

Activity: Foraging ____ breeding: ____ habitat outside of breeding: _____



About the Princess Vlei Forum

The Princess Vlei Forum is dedicated to the ongoing conservation of the Greater Princess Vlei Conservation Area (GPVCA) for the benefit of communities and nature.

The Forum was formed in 2012 to co-ordinate the struggle to protect the vlei from commercial development. On March 22, 2014, at the Princess Vlei Forum's day of Action, the City announced its decision to scrap the proposed mall and to work with the community on restoring the site.

Since 2014, the Forum has worked with the City to ensure that the area is transformed in accordance with the community's vision of a nature and heritage park at Princess Vlei. The Forum has raised funds to employ a fulltime manager on the site to help with this work.

The Forum works with local schools to build environmental awareness, and to involve them actively in the conservation and restoration of the vlei. The Forum collaborates with the Peter Clarke Art Centre and Jungle Theater Company to run a dynamic and creative programmes for local youth aimed at evoking passion for sustaining the wildlife at Princess Vlei and elsewhere.

- Thanks to the Hans Hoheisen Charitable Trust Managed by Nedbank Private Wealth for supporting our educational programmes and rehabilitation work on the site.
- For more information, email imagine@princessvlei.org, or look at our website www.princessvlei.org or Face book page.
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