small, shiny

Dung Beetle

This story starts with a small, green beetle feeding on a fresh pile of elephant dung. She is a dung beetle with super strength and extraordinary senses. Read about how she turns the dung into protection and food for her babies, and how, in doing so, she helps all the animals of the African savannah. **This story ends with a fold-out map.** Are you ready to think big?

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START SMALL, THINK BIG

Unfold a world of discovery with this series that takes readers from the small and familiar to new areas of knowledge where you really have to think big.



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SMALL, SHINY DUNG BEETLE Auld • Bailey

START SMALL, THINK BIG

small, shiny

Dung Beetle

by Mary Auld



with a GIANT fold-out map

illustrations by Hannah Bailey

Here is a fresh pile of elephant dung. It is poo that elephants leave all over the grasslands of Africa. That's good for me. I am a dung beetle and I love to eat poo.

All animals produce poo or dung. It is the waste left over when they digest their food.

What is waste for an elephant is food for dung beetles. It contains lots of goodness, energy and nutrients.

Can you find me in the dung? I am small and green. Other dung beetles are coming to feast.

There are over 100 species of dung beetle in this type of African grassland, known as the savannah.

Dung beetles work fast. Together, they can clear a pile of elephant dung in two hours.

A dung beetle is an insect. Insects have hard, outer skeletons (exoskeletons), six legs, two antennae, and three parts to their bodies.



Antennae are sensors. Dung beetles use them to smell.

Most insects have wings. A dung beetle's wings are hidden under hard outer wings.

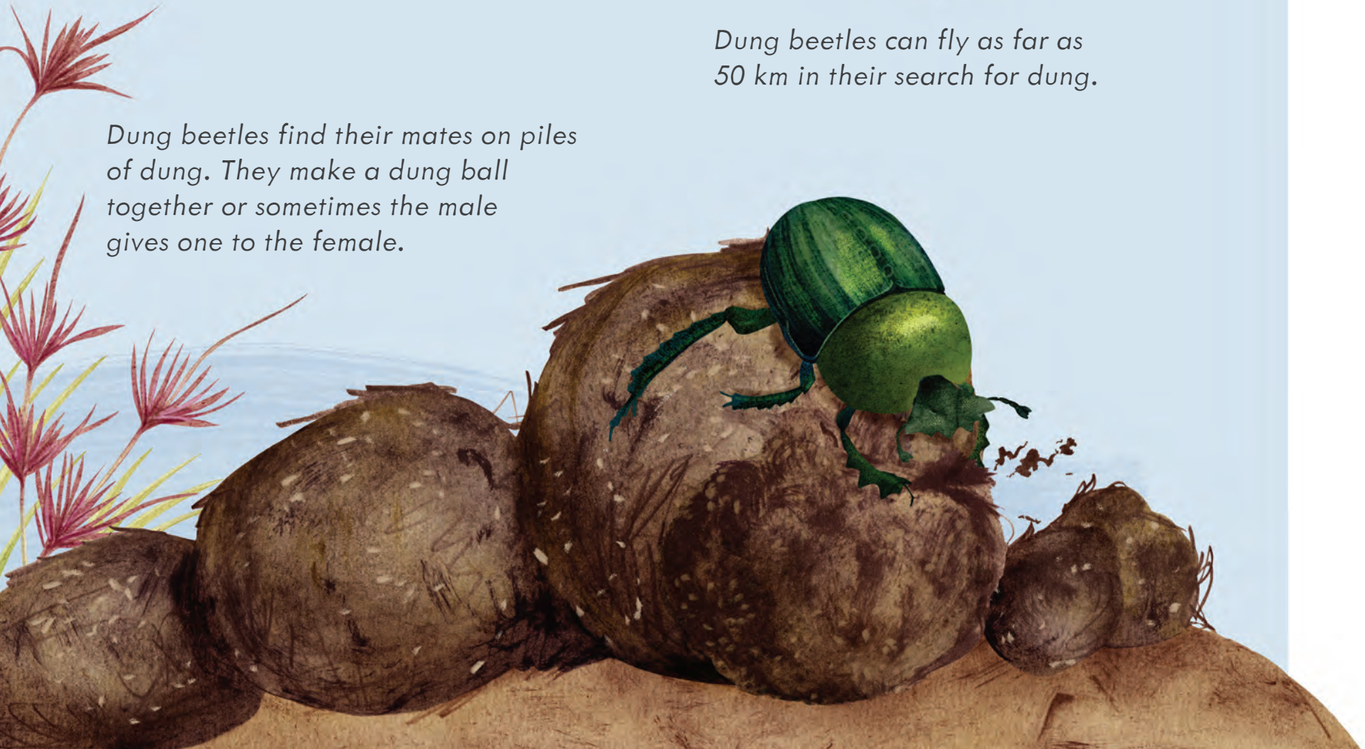
Here I am making a dung ball. The dung is nice and fresh – so easy to shape. A male beetle flies in to help me. I am female and need a strong mate. Soon we will have a family.

Dung beetles have a specially shaped beak called a clypeus (clip-ee-us) to cut dung. They shape the ball with their front legs.



Dung beetles can fly as far as 50 km in their search for dung.

Dung beetles find their mates on piles of dung. They make a dung ball together or sometimes the male gives one to the female.



Now our ball is ready. I sit on top while my mate rolls it. He pushes it with his back legs, keeping his front legs on the ground.

A beetle can push a ball for 200 metres or more – that's a long way when you are only 15 mm long.



We travel in a straight line. Our journey is hard work! To us, a small ridge is a mountain and grass is a thick forest.

The ancient Egyptians had a god called Khepri who was often drawn as a dung beetle. They believed that Khepri pushed the sun into the sky each day, just like a dung beetle pushes its ball.



Here we are burying our dung ball.
One of us tunnels under the ground, while the other pushes the ball down the hole. Then we mate to make a family.

A pair of dung beetles make a burrow to hold their dung ball. They choose a spot where the soil is soft and easy to dig.

My mate leaves and I carefully lay an egg in the dung ball. Then I close up the ball.

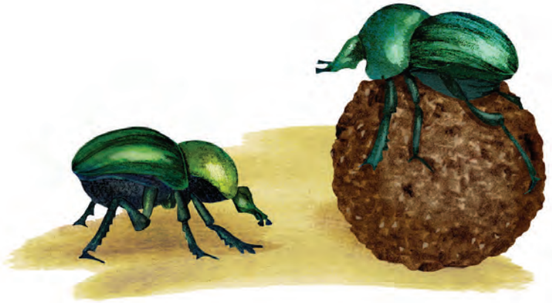


Dung beetles mate underground. The male fertilises the female's eggs so baby dung beetles will grow in them.

Each egg needs its own dung ball to protect it and provide the baby with food when it hatches.

But I have more eggs to lay, so I need more poo! It will be hard work on my own.

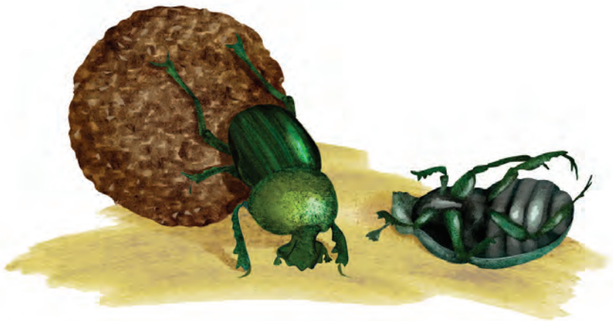
Here is another dung beetle with a ball of dung.
It looks so good, I am going to steal it!



Dung beetles often steal each other's dung balls.



It seems mean but for dung beetles it is a useful way to survive. Collecting dung and making balls takes time and energy.



We fight and
I push her off –
the ball is mine!

I work day and night to have enough balls for my eggs.
Normally, I use the sun to find my way back to my burrow.
In the dark, I am guided by the glow of the Milky Way.

The Milky Way is the name of our galaxy of stars.

On a clear night, you might see the Milky Way as a white, milky cloud across the sky. It looks brighter in places like the savannah where there are fewer lights from buildings and streets.

START SMALL...

This is the life cycle that begins with two small beetles burying a ball of dung to hold an egg. It leads to a baby hatching, changing and then emerging from the ball as a fully-grown adult dung beetle.



parents make a dung ball



female lays egg



larva hatches



larva begins to eat the dung



larva grows and grows



larva becomes a pupa



pupa changes into an adult inside its hard case



adult dung beetle emerges



dung beetle flies away



There are large areas of grasslands in Africa, particularly to the south of the Sahara Desert. Dung beetles live in all of them. Savannah grasslands have trees and bushes scattered through the grasses.

The African grasslands cover more land than those found in any other continent and are home to many different plants and animals. They are an important habitat that needs protecting.

SERENGETI I-SPY

Find these Serengeti animals somewhere in the book. Do they come out during the day or at night?



fly



wildebeest



lilac-breasted roller



bat-eared fox



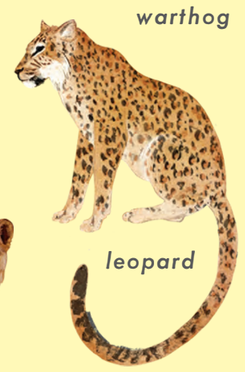
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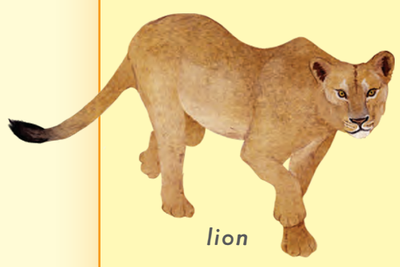
warthog



aardvark



leopard



lion



spotted hyena



Kori bustard



lappet-faced vulture



banded mongoose



gazelle



white rhino

THINK BIG!

THE STRONGEST
The horned dung beetle *Onthophagus taurus* is the world's strongest animal relative to its size. It can move something 1,141 times its own body weight. Compare that with the world's strongest men, who have moved buses 156 times their own body weight.

PICKY EATERS
Even though dung beetles eat poo, they are picky eaters! They only eat the dung that is rich in the nutrients they need to build their muscles.

THE LARGEST
The biggest dung beetles can grow as big as 70 mm long. From a species group called *Heliocopris*, these beetles feed on the poo of big animals such as elephants.

DAILY DISH
One elephant in the savannah poos enough dung to feed over two million dung beetles in a day – and they make dung balls with the rest so it all gets used.

WHERE DUNG BEETLES LIVE



The orange area on this world map shows where dung beetles live – on every continent except Antarctica! They live wherever there is dung to eat. Species are found not just in grasslands but also forests, farmland and deserts.