

2021
CC KIDS 15

current conservation

Are ants miniature masterminds? 3 | A star ecologist 10 | Fascinating flamingos 23



Current Conservation carries the latest in research news from natural and social science facets of conservation, such as conservation biology, environmental history, anthropology, sociology, ecological economics and landscape ecology.

For more details, visit our website at www.currentconservation.org

This magazine is produced with support from:



ISSN 0974-0953

COPYRIGHTS

All content in Current Conservation is, unless otherwise noted, licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0)

You are free to copy, distribute and transmit the work, and to remix or adapt the work under the following conditions:

- You must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work).
- You may not use the material for commercial purposes.
- For any other reuse, adaptation or distribution, you must share your version under the same license as the original, while making clear to others the license terms of this work.

Any of the above conditions can be waived if you get permission from the copyright holder. Nothing in this license impairs or restricts the author's moral rights.

The full text of this license is available at: <https://creativecommons.org/licenses/by-nc-sa/4.0/>



CONTENTS

storytelling

3 Why are ants miniature masterminds?

Anuja Vartak

interview

6 Meet a conservationist: Dr. Dani Rabaiotti

Caitlin Kight

poem

10 A star ecologist

a day in the life

11 A day in the life of a bar-tailed godwit

storytelling

16 Nature's own poop workers

storytelling

18 An Unusual Friendship

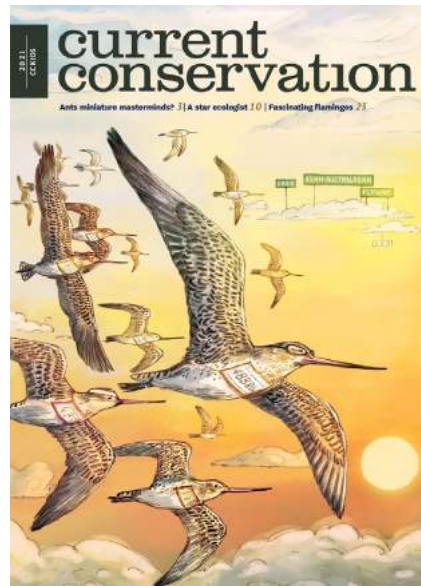
fun facts

23 Fascinating flamingos

activity

27 Building a better relationship with nature





Cover art **Rajiv Eipe**

There is nothing more thrilling than receiving your very own copy of a magazine, which you can take wherever you go, share with friends, and read from cover to cover as many times as you like—immersing yourselves in exploration and adventures through the articles.

In these pages, you can follow migrating godwits, learn why flamingos stand on one leg, make friends with a chinkara, learn about what it's like to be a wild dog expert, and more. Our authors, as well as the organisms and habitats they write and draw about, are from around the world. Hopefully they will help you learn something new about our amazing planet and your place on it.

CC Kids is not just meant for you to read, but also for you to help shape—we want you to be our next contributors! To send us your conservation questions or share some of your writing and artwork for us to publish in the future issues, email us at editor.ccmagazine@gmail.com. Share photos of yourself enjoying the magazine through Twitter (@[ccmagazineindia](https://twitter.com/ccmagazineindia)) or Instagram (@[currentconservation](https://www.instagram.com/ccmagazineindia)).

We hope you will have as magical an experience reading the magazine as we had creating it!

— **Caitlin Kight and Payal Bal**

Editor

Kartik Shanker

Executive Editor

Devathi Parashuram

Managing Editor

& Art Editor

Manini Bansal

Asst. Managing

Editor

Greta Ann Sam

Associate Editors

Caitlin Kight

Kanchi Kohli

Eduardo Gallo-Cajiao

Tarsh Thekaekara

Junior Editors

Marianne Manuel

Krishnapriya Tamma

Payal Bal

Handling Editors

Catarina Ferreira

Daniel Read

Geri Unger

Jonathan Barzdo

Copy Editor

Devathi Parashuram

RiT Editors

Abhishek Harihar

Archana Anand

Geetha Ramaswami

Krishnapriya Tamma

Madhuri Ramesh

Tammy Cloutier

Advisory Board

Ananda Banerjee

Josh Donlan

Brendan Godley

Eben Goodale

Ferenc Jordan

Fred Nelson

Kalyan Varma

Gladys Kalema-Zikusoka

Chris Sandbrook

Why are ants miniature masterminds?

Author **Anuja Vartak** | Illustrator **Ritika Nair**

As a kid, I'd spend hours observing ant trails, curious to find out what would happen if I broke the trail. It turns out I wasn't the only one curious! Scientists have been studying these creatures for over centuries and myrmecologists (ant biologists) spend their entire lives studying ant communication.

Ants are able to communicate in several ways—with chemical and physical signals, sounds, and body language. How? Mostly with their antennae. They use these forms of communication to recognize members of their colony, give warning signals to approaching predators, inform other members of the colony of new food, and grow the colony during mating season (during 'nuptial' flights, named after a word describing human weddings).

With these superpowers, they communicate not only with ants, but also other living things! Sometimes these tiny superheroes play the role of bodyguards for thorny plants like Acacia. The ant colony nests inside the trees' hollow thorns, but repays this favour by protecting the plant from hungry herbivores that are on their way to nibble the leaves. This is a 'give and take relationship', where two different species have significant impacts on each other.

Another example is the relationship some ants have with seeds called elaiosomes. These ants are vegetarian and love to feed on nectar and fleshy structures attached to these seeds. In return, they help the plants by pollinating their flowers and dispersing seeds.

Some ants are farmers. They loosen up the soil, allowing water and oxygen to reach plant roots. Ants also help to keep the environment clean by feeding on organic waste and dead organisms. For example, carpenter ants make use of dead or diseased wood to build nests, subsequently speeding up the process of decomposition.



But remember, some ants can be pretty dangerous too! Among all ants, army ants are the most evolved predators. They are known to attack as a group and can hunt organisms ranging from insects to reptiles. Army ants can expertly search for food, and have sharp tooth-like structures called mandibles to attack their prey. The trap-jaw ant, a type of army ant, has sensory hairs projecting from its labrum (a lip-like structure) and when they touch prey, the mandibles involuntarily open and grab the prey before it can escape.

While such foolproof mechanisms prove to be deadly for several organisms, not all are fearful of the ants. Many animals, such as spiders, pangolins, and bears, feed on ants as their primary source of nutrients. In fact, because of ants' nutritional value, some tribes in India are known to consume them as a part of their regular diet. The Mavilan tribal community of Kerala prepares ant chutney by mixing ants with turmeric, grated coconut, chillies and salt. The chutney is believed to cure asthma.

These brilliant organisms have not just fascinated biologists, but also people across a range of professions. For example, software developers have studied ant behaviour to help them design problem-solving operations, or algorithms, for computers. Some algorithms have also been inspired by the structure of ant colonies—for example, the Ant Colony Optimization Algorithm. The first algorithm was created by studying a trail of ants as they navigated a path between their colony and a food source.

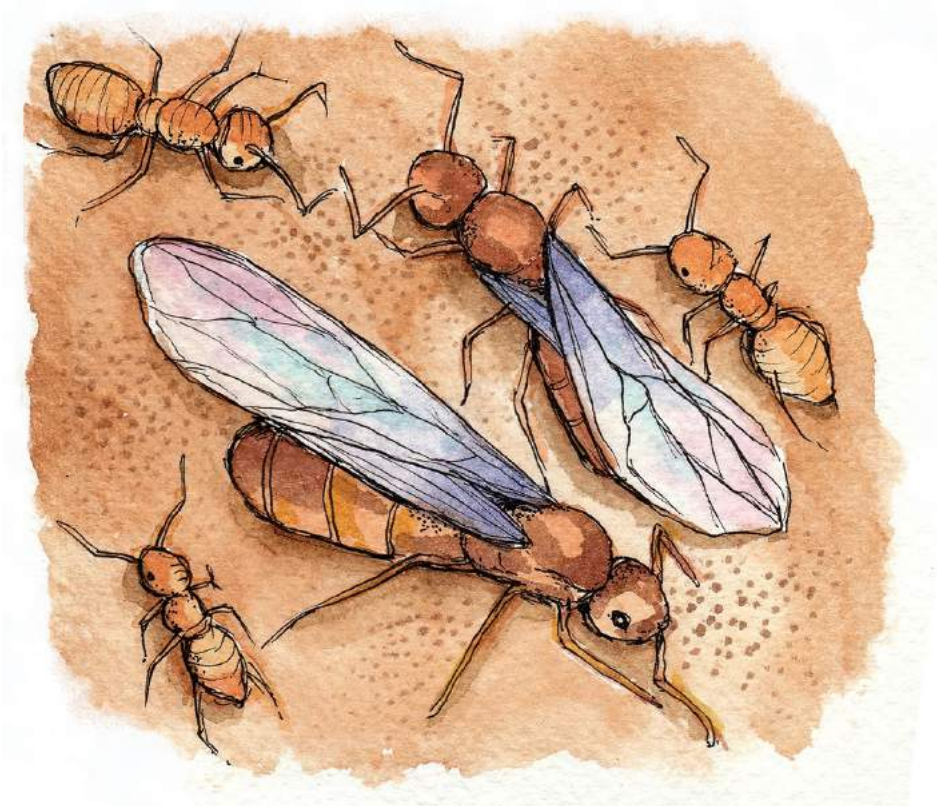
As the human population continues to grow and crowd into busy cities, architects are taking inspiration from the intricate structures of anthills to make best use of space. Several species of ants use their own bodies to build 'living bridges' to traverse small crevices. Inspired by this, many architects are figuring out how to use materials with high elasticity to make utilitarian structures.

For as long as anyone can remember, kids have grown up listening to the popular story of the ant and the grasshopper from Aesop's Fables. The tale narrates how the hardworking ant stores food for the upcoming harsh winter as against the ignorant grasshopper who wakes up at the last minute and is left with no food for the cold season. Ants have also been mentioned in religious books, where several myths and beliefs revolve around these tiny creatures. In fact, ants have even made it to the realm of science fiction—Antman is a favourite superhero amongst fans of the Marvel universe!

Next time you see an ant, follow in its tracks and observe what it's doing—you may discover another phenomenal aspect of its life, because there are so many questions about them left unanswered even today.

Anuja Vartak is a biologist interested in ecology and conservation and is especially fascinated by the complex world of ants.

Ritika Nair is a visual artist and designer. Illustration has always been a mode of meditative expression and healing for her. Now she extends it to help heal others and our planet.



Meet a conservationist: Dr. Dani Rabaiotti

Author **Caitlin Kight** | Illustrator **Neeti Banerji**

Dr. Dani Rabaiotti is a researcher based at the Zoological Society of London's Institute of Zoology. She has previously studied bats and foxes, but is now involved with the 'Hot Dogs' project, which looks at how climate change might affect the behaviour of African wild dogs.

Dani has also written *Does it Fart?*, *True or Poo?*, and *Believe it or Snot*, which provide serious answers to silly (but important!) animal behaviour questions.

Read on to find out more about Dani and her conservation work.

WHAT MADE YOU WANT TO BECOME A CONSERVATIONIST?

I grew up watching a lot of natural history shows, and I'd say that was probably the main driver. It wasn't necessarily spending time outside; it was more spending time watching TV and then going to zoos and aquariums as a child. It just really made me passionate about animals—so although I wasn't too much of a scientist, I knew that I wanted to work with animals and that I had to do science in order to do that.

DO YOU HAVE A FAVOURITE ANIMAL OR HABITAT?

When I was really small, I wanted to be a marine biologist because I loved the marine environment. I learned to scuba dive when I was 15, and I just have a real soft spot for marine animals. I could watch fish forever and I love all marine invertebrates—crabs, sea cucumbers, nudibranchs [sea slugs]. I still love going to the National SEA LIFE Centre Birmingham Aquarium [which has the country's only 360-degree ocean tunnel] and seeing all the marine animals.



HOW DID YOU END UP WORKING ON WILD DOGS WHEN YOU ORIGINALLY LOVED SEA CREATURES?

I think for me it was about what I enjoyed doing and studying. You get one impression of marine biology from watching television—going scuba diving all the time in nice warm water—but in real life, there is a lot of chemistry involved and studying things under a microscope, which isn't really what I wanted to do. Scuba diving ended up being more of a hobby, which is great—too much of anything can make it less enjoyable. I still go scuba diving when I get the chance, and I do go to zoos and aquariums, but I also enjoy hiking.

WHAT DOES A TYPICAL DAY LOOK LIKE?

There are different ways to be a conservation biologist, so for me, it looks like working with the data collected by people in the field—a whole team of people based out in Africa. What I do is manage the data collection and analyse the data when it comes in. I sit at a computer and build a lot of mathematical models [computer programmes that help scientists understand what the dogs are doing and why] in a coding programme.

I also do a lot of work with captive [African wild] dogs at the zoo, where we can trial some of the technology that we use in the wild. On a day where I go to the zoo, I might go in and film the dogs getting fed or walking around while they are wearing a collar that collects data about their movements. This helps us improve how we collect and understand the data collected from Africa.

That is quite different from what a day would look like for our field team, and this is why it is so important that you have many different people who do different things. Our field team would get up in the morning, check on the wild dogs, collect data on one group of dogs, enter the data, go check on a different group of wild dogs, come back and enter those data, and so on. On the other end is me, receiving the data and using it to build mathematical models.



WHEN YOU BECAME A CONSERVATIONIST, DID YOU EXPECT TO HAVE TO USE MATHS?

I hated maths but I enjoyed the problem-solving element of it. I think part of the reason I hated it was the way it was taught—there was a problem that we had to solve and it was really boring, without any interesting examples. But once I got my own dataset, it all just clicked into place. It is just a problem-solving process and it doesn't matter if you don't know all the 'proper' ways of doing things or all the technical language around it. At the end of the day, if you know you've got a wild dog and you want to find out how far it's moving every day, then you've got to do a bit of maths—and that's interesting and can give you some really interesting insights into animal behaviour. I think the really key thing is, even if you don't enjoy something [like maths], you can link it with something else that you are interested in. And often it turns out that you don't actually dislike it—you just didn't enjoy the way that thing was taught.

WHAT OTHER SKILLS DO CONSERVATIONISTS NEED?

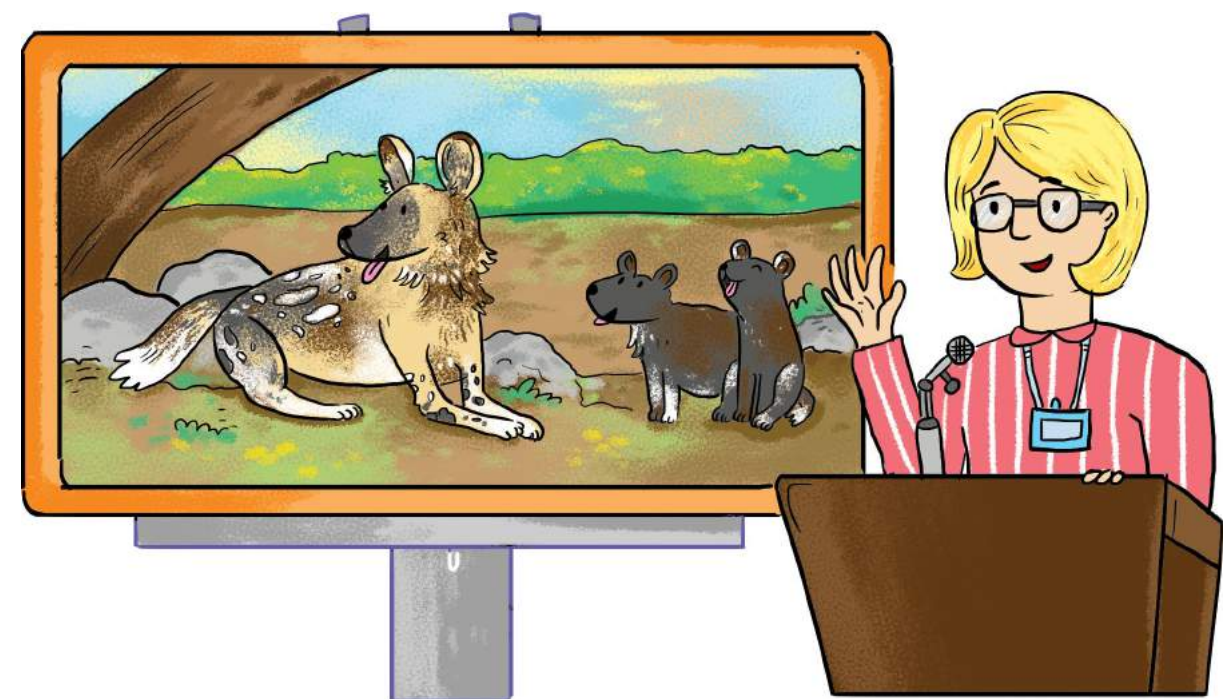
A key element for working in conservation is being able to read across quite a lot of different subjects—maths, ecology, biology, social science. You don't have to specialize in one area, but just be reasonably good at a few things. Also, conservation is all about people; being able to talk with people is really important, and being able to tell them about something in a way that is clear and helpful to them.

WHAT ADVICE WOULD YOU GIVE TO YOUNG PEOPLE INTERESTED IN GETTING INVOLVED WITH CONSERVATION WORK?

I think the important thing is to find what works for you and your schedule. If you're at school during the week, then you can't go and volunteer every day, but maybe you could do one day a week. Or maybe you could get involved in a club or a hobby [for example, birdwatching clubs, local naturalist clubs, sustainable gardening initiatives]. Go to places (online or in-person) where you will meet people who are already working in the field. Try to learn about the job beyond what you see on television. I think the best piece of advice that people gave me was that you don't have to do fieldwork abroad. There are lots of local opportunities that are really helpful and easier to get involved in. Also, don't be put off if you don't see people like you in the conservation community. If you love it, forge your own path that will work with your life and your circumstances.

Caitlin Kight is an educator, communicator, and scientist. She is the author of the natural history book *Flamingo* and tweets as @specialagentCK.

Neeti Banerji is an illustrator, scrabble lover, stationery hoarder, novel devourer, book binder, joke teller and pet petter. Find her at neetibanerji.com.



A star ecologist

Author **Mike Mesterton-Gibbons**
Illustrator **Shivani Shenoy**

An English beaver's not a common sight,
Since long ago the hunter failed to doubt
The value in its fur. The price seemed right.
A star ecologist was thus wiped out ...
Reintroducing beavers to wild spots
Enables their diversity to rise:
Canals make wetland habitat for lots
Of birds and frogs and fish and dragonflies.
Lakes formed by beaver dams slow flow downstream:
Once beavers can move in, we should not see
Gigantic sums spent on some drainage scheme —
It costs to build what beavers build for free!
So let's encourage beavers and say "Cheers!"
To nature's ecosystem engineers!

Mike Mesterton-Gibbons is a Professor Emeritus of Mathematics at Florida State University who builds game-theoretic models of animal behaviour.

Shivani Shenoy is an illustrator and visual designer. She loves exploring colourful visual storytelling, especially about wildlife and culture, bird watching, and music.

A day in the life of a bar-tailed godwit

Author **Charlotte Ekkel** | Illustrator **Rajiv Iype**

I am exhausted. Drained. *So* hungry. My wings feel jittery, like they still want to be flying. My legs feel wobbly, like they might give way at any moment. Ten days straight I've been in the air! You get used to it.

But now I'm here, *finally* here... Alaska! I've flown here from New Zealand, my second home over in the Southern Hemisphere. It was starting to get pretty cold there, and the food was running low, so I decided it was time to head north. I do this every year, moving back and forth across the globe with the seasons, chasing an eternal summer. A bit crazy? Maybe. But I wouldn't change it for the world.

I'm a bar-tailed godwit, a large migratory shorebird from the Scolopacidae family. Sometimes, if I'm feeling a bit fancy, I go by the name *Limosa lapponica*. I have brown, white and grey plumage, long, gangly legs, and a suuuuper long bill which scoops up at the end—perfect for catching bristleworms!

I make the huge journey across the globe twice a year. That's right—12,000 kilometres *twice* a year. Over the course of my lifetime, I'll fly the distance from the earth to the moon. You could call me an elite athlete.

And let me tell you, I *eat* like an elite athlete. Right now, I'm skinny as anything (flying uses up a looooot of energy), but you should have *seen* me ten days ago! I ate so much I thought I might explode! And with all that extra weight on me, it's fair to say that my take-off wasn't the most graceful thing in the world...







I'm always tired at the end of my flight, but I'm particularly exhausted this time round. Why? Well, to tell you the truth, something odd happened on my flight over. Odd and...and scary. You see, I always stop over half-way on my northward migrations for a quick rest and refuel. The Yellow Sea is my go-to. It's a big inlet that sits in between China and Korea, and it's *full* of mudflats that are *full* of delicious critters. Prime shorebird territory! There's one particular mudflat I stop at every single time I make the journey from New Zealand to Alaska. It's a favourite amongst shorebirds—during peak migration time, you'll see tens of thousands of us wading through the flats, pecking at the water in a hungry frenzy.

But this time when I turned up, it was just... gone. All I could see were pipelines and ships and concrete *everywhere*. Had I got the location wrong? Was my navigation off? Surely not—it was always perfect, guided precisely by the earth's magnetic field. Then what was going on? I flew around the area for a while, scanning for any sign of the mudflat I knew and loved. Nothing. I started panicking. If I couldn't find food, then I wouldn't survive the next leg of my journey. I kept flying and flying, directionless, losing stamina with every wingbeat.

Eventually I spotted a small flock of birds heading east. Did they know of another mudflat nearby? I frantically caught up to them and followed behind for a while, hoping, *hoping*. And then I saw it—a glint of water down below, a flutter of life. I flew down with the other birds to check out what I'd spotted.

Rich, gooey brown mud as far as the eye could see. Streams of water flowing in every direction, leaving trickly tracks where they travelled. And birds! *So* many birds, all foraging away to their hearts' content. I was going to be OK.

I guess that mudflat is my new pitstop now. It's nice enough. But it's not my old mudflat—nothing can compare! And who's to say this new one won't vanish by next year? Frankly, I'm worried.

But I must focus on the present. Right now, I'm safe and happy. Right now, it's time to sleep, to eat, to be still for a while.

Ahh... it's good to be home. The Alaskan mud feels delicious under my feet, cool and oozy. The water is pink in the evening light, sparkling like an upside-down chandelier. Wading through the shallows, I can see all sorts of little critters zipping about in the water and hidden in the mud—shellfish, bristleworms, sea snails, clams...

I could guzzle down a tonne right now!

Each year, millions of birds migrate back and forth along an international 'superhighway' called the East Asian-Australasian flyway, which stretches from the Arctic tundra all the way down to Australia and New Zealand.

Land development all along the flyway — but particularly in the Yellow Sea—poses a serious threat to migratory shorebirds like the bar-tailed godwit. Many shorebird species have suffered significant declines over the last few decades, as more and more critical habitat is developed over.

As our understanding of the negative impacts of land development on these birds grows, so too does the pressure on governments to take action. Governments around the world are beginning to implement policies that reduce land reclamation and improve habitat quality along the flyway, but there's still a long way to go.

We need to keep spreading the word about these incredible birds, and keep pushing for effective conservation action.

Charlotte Ekkel works with the conservation organisation BirdLife Australia, while studying science at Melbourne University. She is co-host of the enviro-history podcast *The Bush Bash*.

Rajiv Eipe is an animation film maker and illustrator of comics and picture books.



Nature's own poop workers

Author **Sneha Haridas** | Illustrator **Karunya Baskar**

It is safe to say that for a dung beetle, poop is life and not vice versa. These unique little crawlies not only feed on dung but make a living out of it—literally. Can you imagine living in a house made of poop? Before you jump to say “Eww”, hear these beetles out. Some dung beetles live inside a dung pat and are called “dwellers”, some are “tunnellers” and tunnel underneath the ground, whereas some simply roll away a dung ball and are called “rollers”. These beetles have played an important role in nature, by quietly recycling dung on the earth’s surface, since millions of years.

These dung-loving beetles can be found in every continent except Antarctica, in habitats ranging from forests, grasslands, agricultural fields to deserts even. Any geography where dung or decaying organic matter is present, the beetles will be there. For a dung beetle, where there is dung, there is a way.

In ancient Egypt, dung beetles were considered sacred. One particular species—*Scarabaeus sacer*—was linked to the sun god, Khepri. The ancient Egyptians believed that Khepri was responsible for the sun’s rising and setting each day just like the dung beetle would turn pieces of dung into a ball and roll it away.



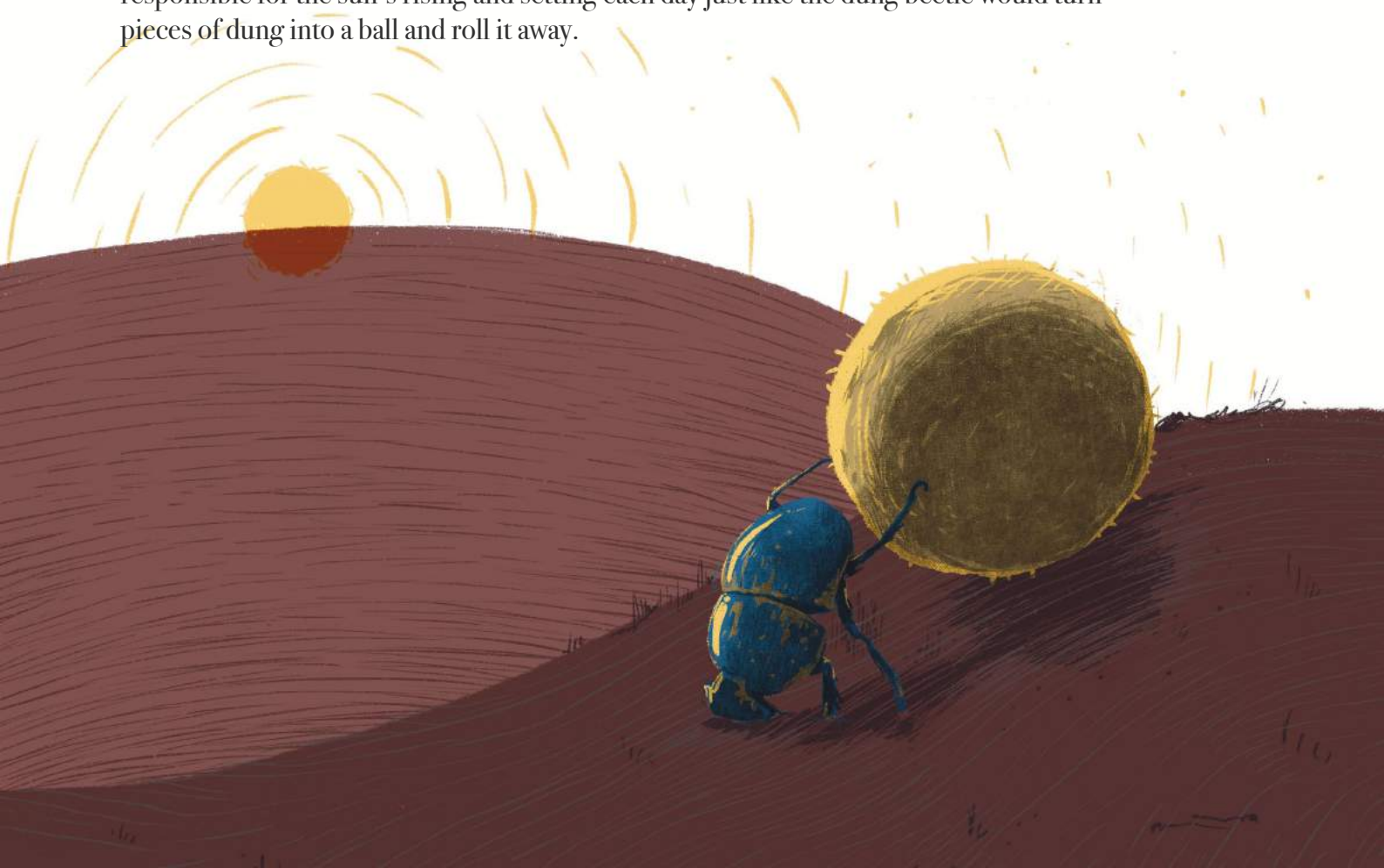
There are thousands and thousands of species of dung beetles, belonging to various families under the superfamily of Scarabaeoidea of class Insecta. Some of the beetles do not depend only on dung, but also feed on detritus (bodies or segments of dead animals, like dead millipedes for example) and other decaying organic matter. This means that these beetles and their dung-feeding habits are not exclusive to any one particular species or genus.

With the constant removal of dung, these beetles prevent the breeding of parasitic flies and other pests that are found in dung. Often seeds can be found in animal poop, so while moving or burying dung balls, dung beetles contribute to the dispersal of seeds, which is important for the survival of several plant species. While tunneling and maneuvering dung across or into the soil, dung beetles create passageways for air, water, and nutrients from the dung to move into the soil.

Dung beetles might seem small and insignificant, but they play a vital role in the day-to-day functioning of nature. So, the next time you see one, be sure to give it as much attention as a tiger in a forest.

Sneha Haridas is a Project Associate at the Insect Taxonomy and Conservation Lab at ATREE (Ashoka Trust for Research in Ecology and the Environment), Bangalore.

Karunya Baskar is a visual designer and artist who loves to travel. Whether it's scuba diving, surfing or trekking through the hills, she's always up for an outdoor adventure.



An Unusual Friendship

Author **Priya Ranganathan** | Illustrator **Pari Satarkar**

“Gajju! Come and see what I have found!”

Eight-year-old Gajju dropped the stick he held, making the other boys shout in irritation as their game of *gilli danda*, a rowdy game similar to cricket, came to an abrupt halt. He rushed off towards the sound of his grandmother’s voice. The village was peaceful in the early evening. The women were sitting beneath the shady trees, while the men napped inside the houses. When the oppressive heat of the desert afternoon faded to a pleasant warmth, they would return to their agricultural land. Gajju’s *dadima* was one of the oldest women in their village. It did not take Gajju long to spot her sitting beneath a *dhak* tree, known as the flame of the forest, holding a bundle in her arms.

“How slow you have become,” she scolded light-heartedly, but she smiled and shifted her foot to make room for the panting boy. “I have a task for you, Gajju.”

Gajju was intrigued. What could it possibly be? She unwrapped the bundle in her lap and gently pulled the shawl away to reveal a tiny, trembling baby gazelle.

Gajju was enchanted by the little gazelle. *Dadima* stroked its soft head gently with her thumb, and the gazelle gave a small bleat in response. “This is a *chinkara*, Gajju,” she said. “Your uncle found this little one lying beside her mother, who was dead—shot, perhaps, or maybe killed by one of the village dogs. He brought this fawn back and gave her to me to care for. I think it is time you helped raise a young gazelle, just like your father did when he was your age.” Grandmother smiled reminiscently. “Your father used to go everywhere with the little *chinkara* that he looked after. Even after becoming a full-grown adult, the *chinkara* used to visit him out in the fields and come to the village to eat in the summer months.”



“You mean I can keep this *chinkara* as a pet?” Gajju asked eagerly.

His grandmother shook her head. “Not as a pet, as a friend. Until she is old enough to go back to the wild.” She handed the trembling fawn to Gajju, who petted her gently until she stopped shaking and looked up at him with big, trusting eyes.

“This is the tradition of our Bishnoi clan,” said Grandmother, smiling. “We are the protectors of wild animals, especially the little ones who are helpless and cannot survive without protection.” She patted Gajju on the head. “You are finally being initiated into this ancient tradition, my child. Look after your little friend well.”

Days passed, and Gajju fell head over heels in love with the little *chinkara*, whom he had named Chutki. Chutki, too, adored the boy, trotting after him on shaky legs and curling up to sleep beside him every night. Gajju was sure to keep her inside the house after dark, for fear that a leopard, wolf, or jackal might try to snatch Chutki if she was left outside. The little *chinkara* soon started responding to the love and care and became Gajju’s faithful shadow.

One day, Gajju woke up to find Chutki missing. Panicked, he rushed out of the small house shouting for her. But Chutki was nowhere to be found! Gajju knew in his heart that something must have happened to his little friend. He turned and fled towards the agricultural fields, where his father and uncle would be working. If anyone could help him find Chutki, it was his father.

“*Babuji, babuji*, come quickly!” Gajju cried upon seeing his father. His father was squatting on the ground, prodding at the soil. He looked over his shoulder and then sprang to his feet at the sight of Gajju’s terrified expression.

“What happened, son?” he asked, gripping the boy by the shoulders and looking into his eyes. “Are you well? Is everything ok with *mai* and *dadima*?”

“Something’s wrong with Chutki!” Gajju said tearfully. “She’s gone missing!”

His father scratched his chin. “Well, she couldn’t have wandered very far. She’s too young to travel long distances. We’ll find her. Don’t worry, Gajju.” He strode towards the edge of the field with his son trailing behind. “Let’s get one of the dogs to sniff her out.”



As his father went to find one of the village dogs, Gajju waited by the fence. He chewed on his fingernail, hoping that Chutki was all right. Suddenly, he heard a strange sneezing sound. Wait! Wasn’t that the call of a *chinkara*? The sneezing sound came again, faint but recognizable, and all at once Gajju knew it was Chutki calling to him. He took off in the direction of the sound, running as fast as his legs could carry him. “I’m coming, Chutki!” he panted aloud as he ran.

He skidded to a stop near a small clearing amidst clumps of mesquite or *baavlia* (*Prosopis juliflora*) trees. The thorns cut his arms as he pushed his way to the clearing, but Gajju hardly noticed, because in front of him was Chutki, her legs trembling and ears flopping, facing two hungry jackals.

The jackals glanced at Gajju and then focused on the chinkara once again, clearly dismissing the boy’s presence. Chutki huffed in fear, her eyes rolling. She looked exhausted, and Gajju felt anger welling up inside him.

“Go away!” he shouted, flapping his arms and taking a step towards the jackals. His father had always told him to appear big and confident when confronting a predator. “You can’t have her! She’s my friend, not your next meal!” The jackals retreated a step but one of them—the female—darted around Chutki, making the chinkara turn back to glance at her. The male snapped at Chutki from the front, and then leapt backwards as Gajju rushed towards him. Gajju was terrified of the jackals, but all he could think of was poor, frightened Chutki. He couldn’t stand by and watch the jackals attack her!

All at once, the cacophony of barking rent the air and two large village guard dogs burst into the clearing. Behind them came Gajju’s father, carrying a stout stick. At the sight of the dogs, the jackals fled into the thick brush. Gajju rushed to Chutki and dropped to his knees beside her, flinging his arms around her neck. “Oh, my poor Chutki, did they attack you?”

“Let me check her,” said his father kindly. He quickly examined the little *chinkara*, running his hands over her trembling body. “She’s fine, just terrified and probably in need of a good nap. Here, let me carry her back home.” He scooped up Chutki and beckoned to Gajju. The dogs joined them as they started back to the village.

“That was very brave of you, son,” said Gajju’s father as they walked along the dust path, the *Prosopis* trees forming a thorny barrier beside them. “Facing two jackals all by yourself is not an easy task for a little boy like you.”

Gajju shrugged. “I had to, *Babuji*. It was for Chutki. I couldn’t have left her alone to defend herself.” He shuddered. “I hate jackals. Those two would have killed her.”

His father half-smiled. “They’re carnivores, son. That’s what they do. Just as we are vegetarian, they eat flesh to survive. We cannot blame them for doing what nature intended them to do.”



“But they could have killed Chutki!”

“And now, we know that we need to keep a closer watch on her until she is fast enough to escape,” *Babuji* said calmly. “Don’t blame the jackals, son. Blame yourself for losing track of her. She is your responsibility.”

“I’ll never let her out of my sight again,” Gajju vowed fervently. “I’m sorry, Chutki. I let you down.”

Chutki opened one eye sleepily and huffed. *Babuji* smiled.

“I think she has forgiven you,” he said, as they arrived at the Bishnoi village. Gajju heaved a sigh of relief.

“I’m going to build Chutki a small pen when we get home, so that she will always be safe and not wander off,” said the little boy.

“And one day, when she is big and strong, we will let her return to the wild, as she was meant to,” replied his father.

Priya Ranganathan is a PhD scholar at ATREE. When she’s not lost in the Western Ghats, she spends her time dancing and penning down short stories on nature.

Pari Satarkar is an animator and illustrator who weaves narratives through visuals. She enjoys storytelling, sketching the world around her, and going on adventures with her dogs.



Fascinating flamingos

Author **Caitlin Kight** | Illustrator **Ambika Karandikar**

Thanks to their bright, cheerful plumage, hefty, crooked bill, and spindly legs—one often held aloft in that iconic balanced position—flamingos are instantly recognisable to people around the world.

Although we often refer to them as ‘pink flamingos’, there are actually six different species of flamingos, all in varying hues of light red. These include: the American (also called Caribbean, Cuban, or rosy), greater, Chilean, lesser, Andean, and puna (or James) flamingo. The greater flamingo is the largest, while, unsurprisingly, the lesser is the smallest—and because the two live together in many parts of Africa, we are able to observe this startling size difference in the wild.

Around the world, in different cultures spanning thousands of years, flamingos have been famous for their dazzling feathers. The Mesopotamian people named them *issur nuri* or ‘the bird of light’, while ancient Arabic speakers referred to them as *nuham* or ‘the flaming one’. There are even some theories that the flamingos’ fiery plumage and their habit of mysteriously disappearing and then unexpectedly reappearing days, or even weeks, later, may have inspired the myth of the phoenix.

Fossils of the early ancestors of flamingos have been collected from five continents. Some of the specimens date back to the Cretaceous era—approximately 120 million years ago. Samples from two million years ago—not nearly as long ago but still fairly old—reveal flamingos that look surprisingly similar to those we see today, meaning they must have lived in similar environments and behaved in similar ways all this time.

While we often picture them standing still by the water’s edge or striding through the shallows, flamingos are actually good swimmers. In fact, they are more closely related to swimming birds like grebes than they are to wading birds like herons. It has taken scientists decades to figure this out because flamingos are notoriously challenging to study. They live in remote places that often have no direct access by road. The sites have very saline water, and



the salt crystals can coat the terrain, making it jagged and hard to walk across. Many flamingo researchers from the 19th and early 20th centuries reported wearing holes in their boots trying to get close enough to the birds to study them properly.

Living in such inhospitable places has been beneficial to flamingos because it has kept them safe for millions of years. Few other creatures can survive in such extremes. For flamingos living in Africa, it is often the case that the only fresh water available to drink is as hot as a cup of coffee. Their cousins in the South American plateaus, however, may need to break free from ice each morning, after the water has frozen around their legs while they sleep. Flamingos can get chilly even at warmer sites, and researchers think that their notable one-legged stance is a method of ‘thermoregulation’; adjusting their body temperature—by tucking one leg up close, they can retain body heat in the same way we do when crossing our arms.

In lakes, whether warm or cool, flamingos feed on tiny creatures like brine shrimp and blue-green bacteria (cyanobacteria), which they filter from the water with the help of little comb-shaped structures in their bills called ‘lamellae’. It takes a lot of effort to find enough of these microscopic animals to keep their bellies full, so the majority of their time is spent feeding. It is worth the effort, though—not only does it keep them from feeling hungry, but these little organisms contain the pigments that give flamingos their bright, beautiful colours. (Humans can experience a similar effect from eating too many carrots!)

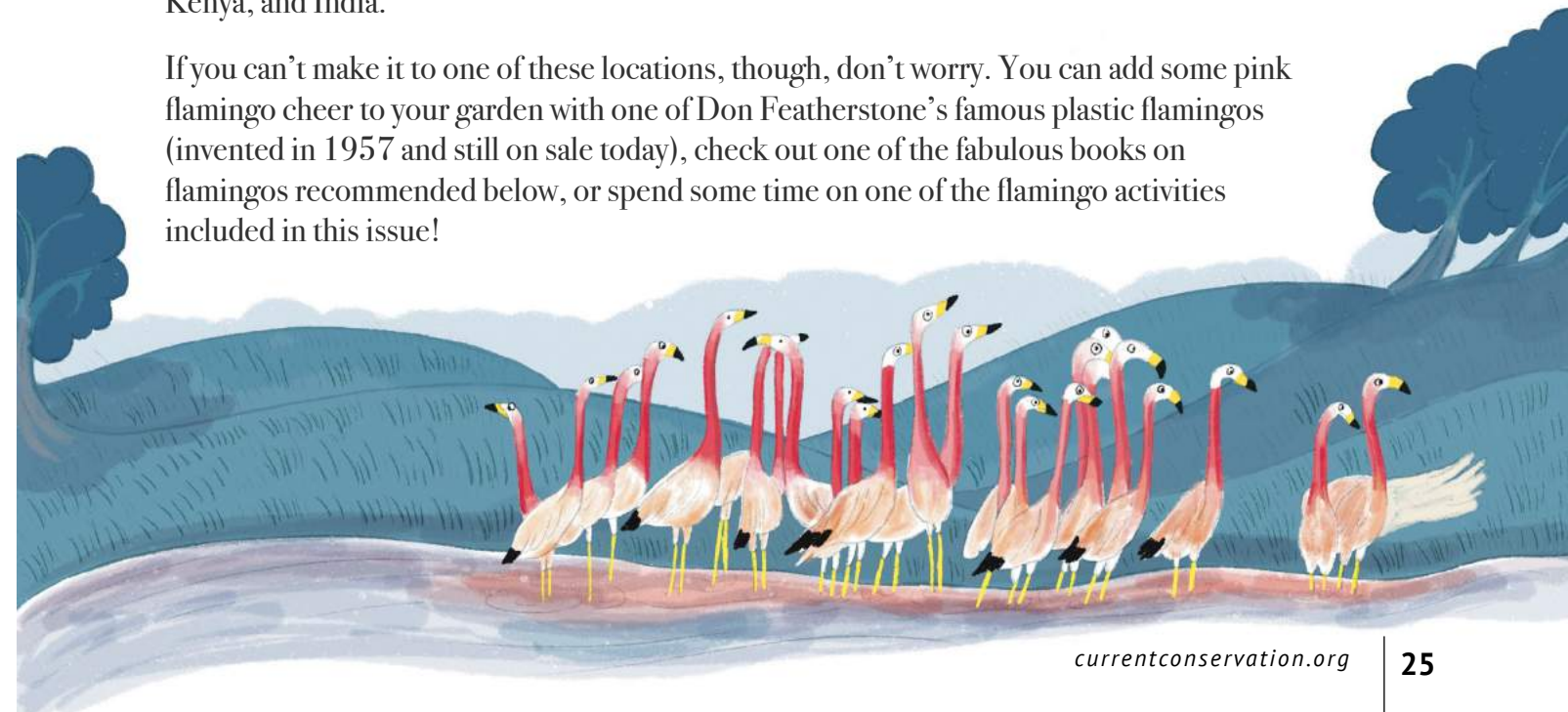
Another benefit of living in remote wetlands is that these sites offer a great place for flamingos to nest. The birds make cone-shaped mounds of mud by scooping it up with their bills, until the nests are high enough for them to sit on comfortably. This requires a decent amount of mud, which means that breeding typically only happens after a good bout of rain. When the conditions seem right, flamingos signal their readiness by engaging in elaborate marching and dancing manoeuvres. At sites like Lake Natron in Tanzania, millions of flamingos gather to nest, and dances may involve many hundreds of birds at a time.

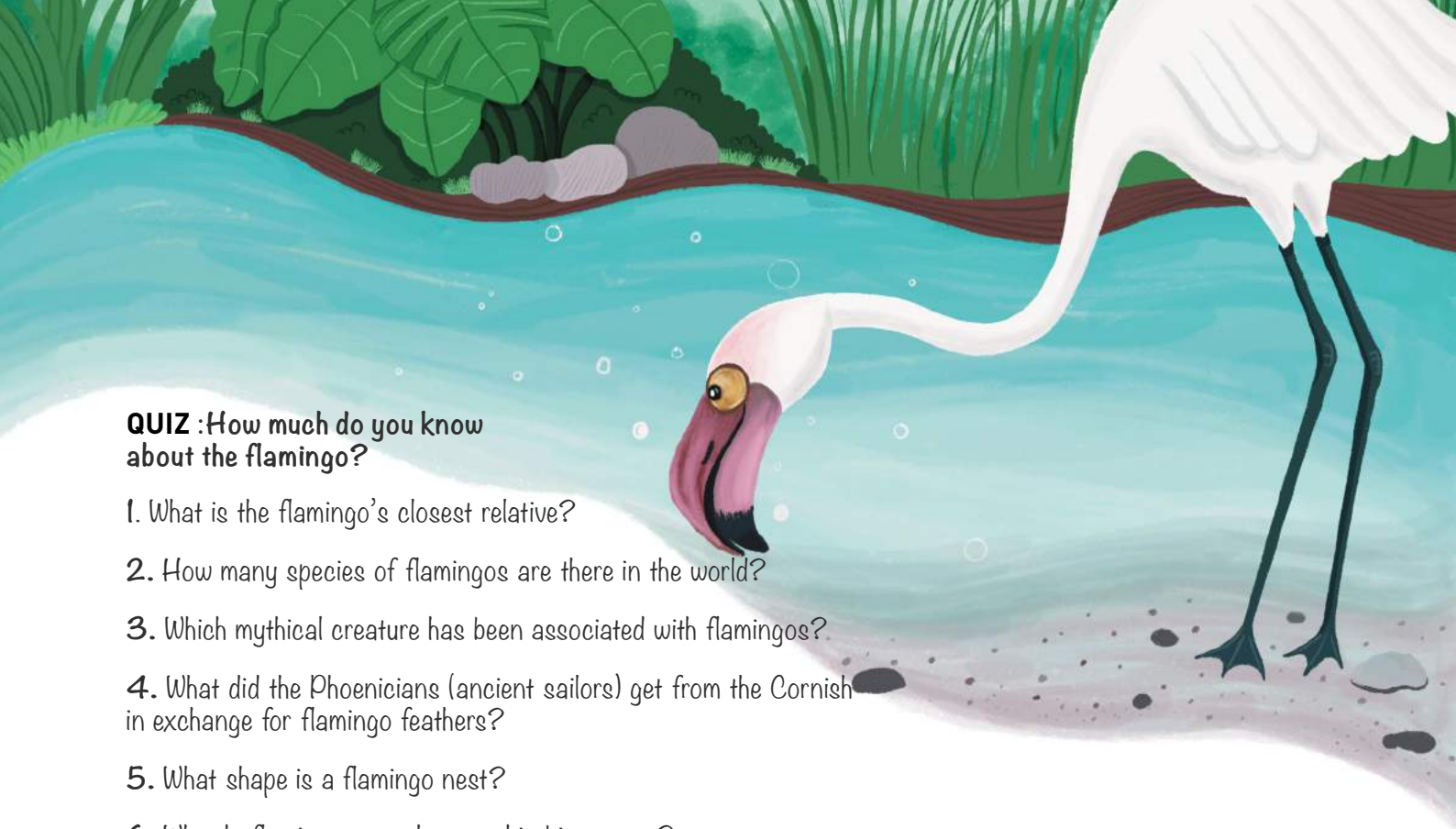
These large population numbers sound promising, but flamingos are fairly vulnerable overall. For instance, there are thought to be only 34,000 Andean flamingos, and of the three million or so lesser flamingos—the most abundant species—90 percent nest at a single site – which leaves them very exposed should anything happen to the environment. Wetland habitats are threatened around the world because of human activity, and wild flamingos are known to be quite sensitive to disturbances, such as car and air traffic. This may prevent them from breeding, which is especially problematic since they typically don’t attempt their first nest until they are at least ten years old; although, fortunately, they can live several decades more, if ‘Mr James’, a 60-year-old resident at the Slimbridge facility in the United Kingdom, is any indication.

In the past, humans have used flamingos for some pretty strange purposes. In South America, for example, flamingo products were used to treat lung disorders, while ancient Mediterranean sailors were thought to have traded flamingo feathers for Cornish tin. Today, however, the main ‘use’ of flamingos is as a study species in zoos and conservation facilities, where scientists are working hard to learn how best to keep animals safe, healthy, and happy in captivity, and how to maintain captive populations that can be used to repopulate wild habitats should there ever be a need.

This is beneficial both to the birds and to humans, since flamingos thrive in zoos and are also one of the most popular attractions worldwide, drawing visitors whose entry fees can be used to support conservation efforts for flamingos and other wildlife. Of course, it is also possible to see flamingos in the wild, especially in tourist destinations like The Bahamas, Kenya, and India.

If you can’t make it to one of these locations, though, don’t worry. You can add some pink flamingo cheer to your garden with one of Don Featherstone’s famous plastic flamingos (invented in 1957 and still on sale today), check out one of the fabulous books on flamingos recommended below, or spend some time on one of the flamingo activities included in this issue!





QUIZ :How much do you know about the flamingo?

1. What is the flamingo's closest relative?
2. How many species of flamingos are there in the world?
3. Which mythical creature has been associated with flamingos?
4. What did the Phoenicians (ancient sailors) get from the Cornish in exchange for flamingo feathers?
5. What shape is a flamingo nest?
6. Why do flamingos march around in big groups?
7. Which species of flamingo is the tallest?
8. Who invented the pink plastic garden flamingo?
9. Where is the home of the oldest known flamingo, 'Mr James'?
10. What sort of habitat does a flamingo typically live in?
11. Humans have used flamingo products to treat illnesses of what body part?
12. What food items make flamingos pink?
13. What is the name of the structure in flamingos' mouths that lets them filter out their tiny prey from the water?
14. Why do flamingos stand on one leg?

Caitlin Kight is an educator, communicator, and scientist. She is the author of the natural history book *Flamingo* and tweets as @specialagentCK.

Ambika Karandikar is an illustrator and a Bharatnatyam dancer. She loves to illustrate for children through different mediums. She can be found in her garden with tiny insects and cats.



Activity: Building a better relationship with nature

Author **Caitlin Kight** | Illustrator **Indrani Ghosh**

Whether you live in a city or in the countryside, along the coast or in the middle of the forest, you can have a great relationship with nature. And no matter how good your relationship with nature already is, you can make it even better!

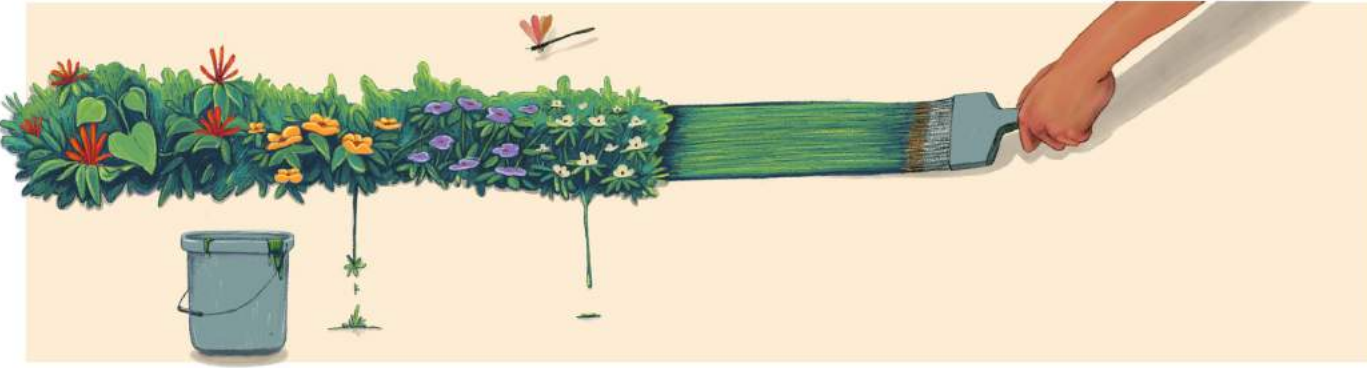
Below is a list of questions that will help you do this by encouraging you to think about organisms, places, and activities that you might be taking for granted—things that might seem ordinary because you have gotten used to them, when actually they are incredible!

Although you could answer the questions out loud, we hope you will create visual responses—for example, by drawing a picture or constructing your answer out of LEGO ® or other building blocks. No matter what form your answer takes, we hope you come up with lots of fun and interesting ideas, which you share with people around you so that they can build a better relationship with nature, too*.

*If you like, you can take a photograph of your best creation and send it to us at editor.ccmagazine@gmail.com using the subject line 'relationship with nature'. (You might need to ask a family member or another adult to help with this.) We will share our favourite submissions online at [instagram.com/currentconservation/](https://www.instagram.com/currentconservation/) and in our next issue of CC Kids!

Answers:

1. the grebe
2. six
3. the phoenix
4. tin
5. a cone with a flat/sunken top
6. they are preparing for mating season and looking for a mate
7. Greater Flamingo
8. Don Featherstone
9. Slimbridge, UK; he is approximately 60 years old
10. saline, alkaline lakes, or more generally, a wetland
11. lungs
12. brine shrimp, cyanobacteria
13. lamellae
14. probably to thermoregulate—to stay warm



What is your favourite species? (For this and the next question, you can't select humans or any animal that you have as a pet, no matter how much you might love them! Think about animals, plants, fungi—even microbes!—that you might encounter in nature.) Why is this your favourite—is there an interesting fact that you can share about this organism? If not, see if you can learn something new about this species and then share it with a friend or family member.

What is a species that has had a big impact on your life? If you are having a hard time answering, it might help to think about how organisms have influenced one of the following aspects of your daily routine: food, medicine, getting work done, making crafts, or keeping your environment healthy. How would your life change if this species weren't in it?

What is a species that humans have had a big impact on? You might think of a relationship that you yourself have had with wildlife, or you might think of an example that involves human activities more generally. Can you think of any situations where humans have affected many different species at the same time or in the same place? Do you think that humans tend to have a positive or negative impact on other organisms?

What is your favourite place to encounter nature? No place is off-limits—it can be as near or as far, as big or as small, as you like. If you don't have a favourite place, maybe you could think of some spots to explore. For example, you could visit each room in your apartment or house to see which window looks out on the largest number of birds flying past in a 5-minute period, or you could step outside your front door and see which side of the road has the largest number of fungi, mosses, or plants growing in the cracks. No matter which place you choose, think about what makes it so special—what sorts of species do you find there, and what interesting things are they doing?

How can you ensure that any place is a good place to enjoy nature? This might involve noticing, enjoying, and having a positive impact on other species wherever you go. What could you do to achieve those goals?

Caitlin Kight is an educator, communicator, and scientist. She is the author of the natural history book *Flamingo* and tweets as @specialagentCK.

Indrani Ghosh is a visual storyteller who likes to tell stories about people and their lives. She enjoys spending time with strays and making comics with her quirky sense of humor.

Interested in conservation,
environment, and climate?

SUBSCRIBE NOW!

currentconservation.org



**current
conservation**

editor.ccmagazine@gmail.com