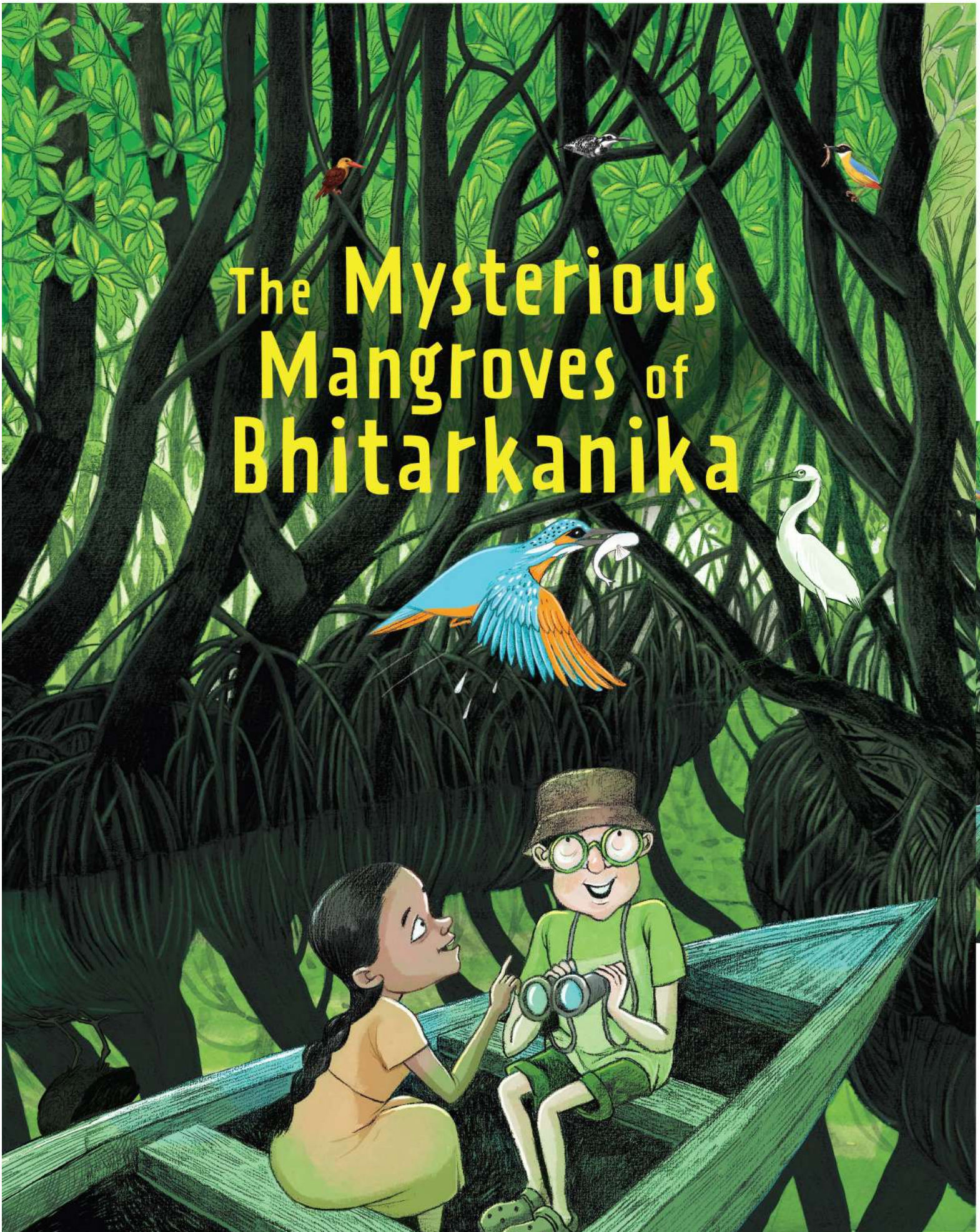




The Mysterious Mangroves of Bhitarkanika





As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.

Published by

Wetlands Management of Biodiversity and Climate Protection, a technical cooperation project with MoEF&CC, funded by IKI-BMUV and implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Registered offices

Bonn and Eschborn

Address

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Acknowledgements

Sudarshan Kumar Jadhav (DFO) - Mangrove Forest Division, Rajnagar (Odisha)
Niraakar Behra – resident, Bankual village, Kendrapara
Bijay Kumar Kabi and Biren Kumar Dash - APOWA
Suddhabrata Chakraborty, Yaiphaba Akoijam, Kunal Bharat, Avantika Bhaskar and Utkarsh Lal - GIZ
Also acknowledging contributions from Chhavi Tayal and Kruttika Bhawe

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On behalf of

German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV).

New Delhi, 2024



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Among the Mangroves

Young Jehan was super-excited, looking forward to a thrilling adventure in this new place where he was accompanying his father. They had reached Dangmal in Kendrapada district in Odisha just last evening. Jehan knew they were going to a national park and he was curious to know which animal was the most dangerous one in this new place.

"This place is world famous for its saltwater crocodiles, the largest and the most dangerous," his father told him.

Jehan's father, Mr. Shapur, had been delegated by the government to study the area and learn more about the villagers' co-existence with the crocodiles and other wildlife. Thus, after a quick breakfast of *upma* (*semolina porridge*) and tea at the forest guest house where they had been put up, the father and son duo set out to explore the region. They were accompanied by Pritesh, a local forest staff member who was also their guide and translator for the visit, as most villagers only spoke the Odia language.

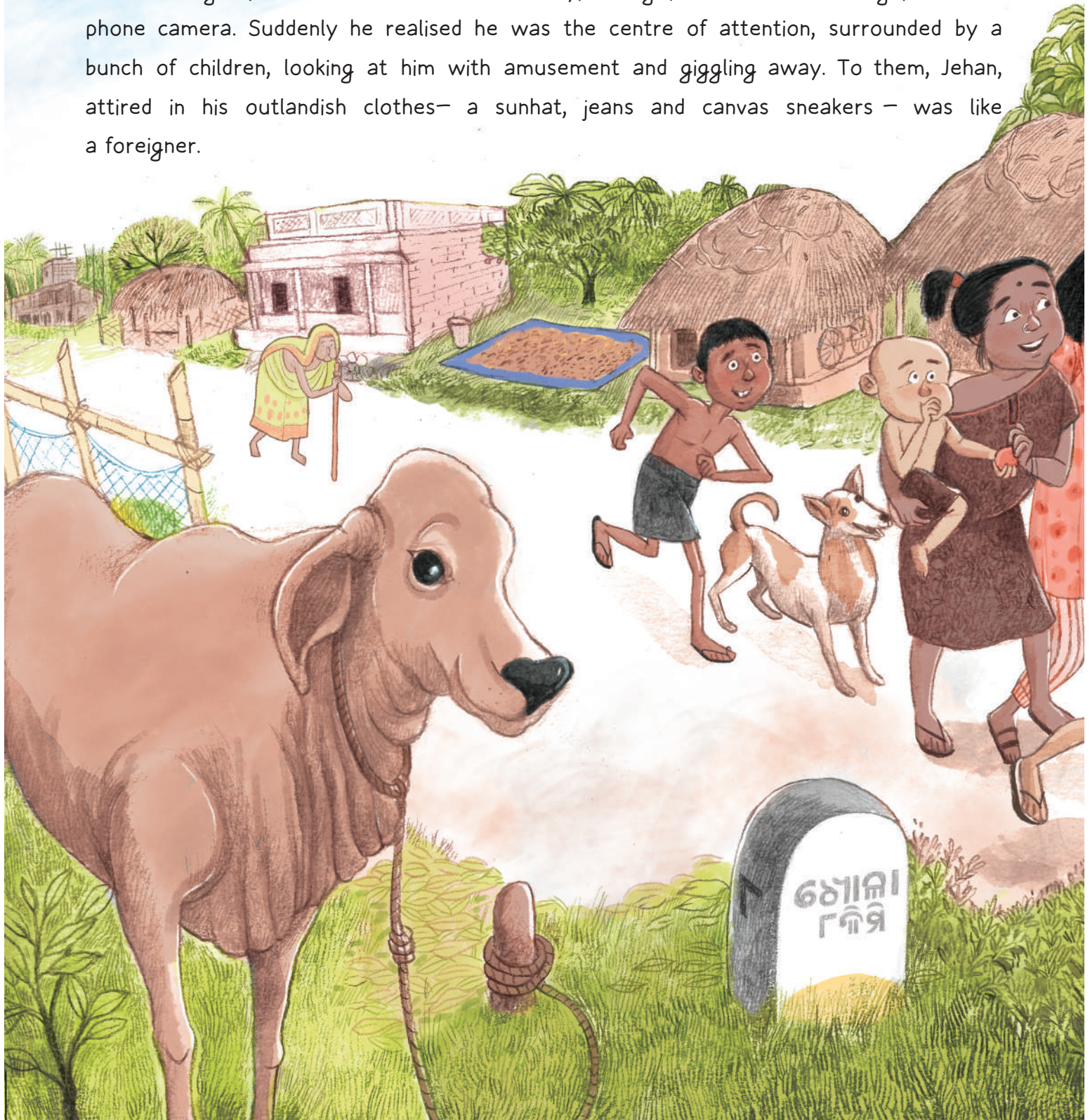
Their journey was filled with the pleasant symphony of bird and insect songs – the shrill-trill of kingfishers, the ruckus of babblers, the cackling of herons and the sighing of cicadas. "This place is so different from the city, " thought Jehan, as nature's music wrapped around him, leaving behind the noise of his native city. Little did Jehan know, there were so many more surprises coming his way.

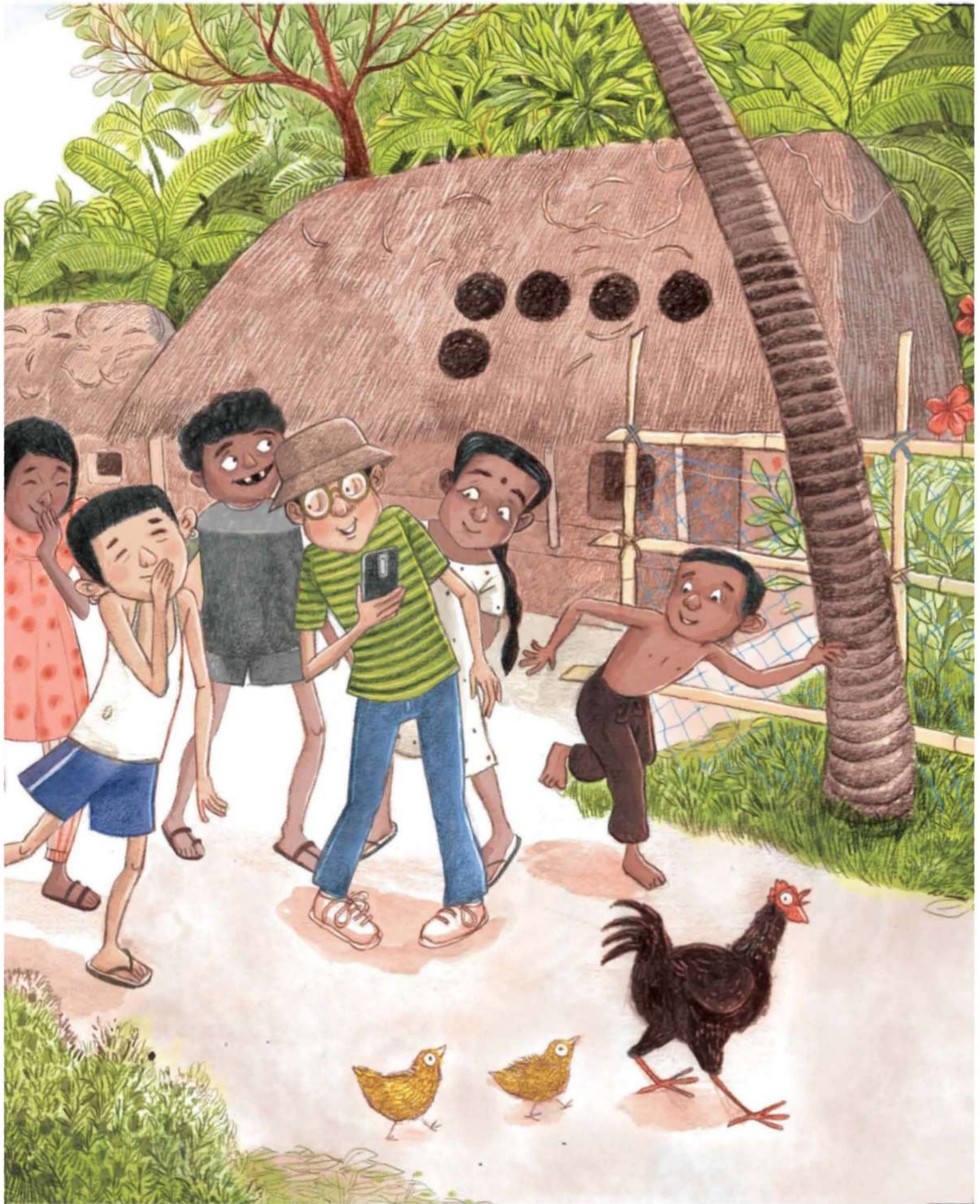
Jehan and Mr. Shapur drove down to a village. There were houses with thatched sloping roofs and mud walls, surrounded by a parapet. Many of them had beautiful designs painted on their walls. "How come these houses do not have doors or windows?" Jehan asked with surprise.



"The villagers believed that they were blessed by their deity *Kharakhai*, who keeps them safe from any thieves, so there is no need for any doors or windows," Pritesh explained.

While Mr. Shapur and Pritesh sat under a Sal tree, basking in its full bloom and talking to the villagers, Jehan walked about aimlessly, taking pictures of the village, with his phone camera. Suddenly he realised he was the centre of attention, surrounded by a bunch of children, looking at him with amusement and giggling away. To them, Jehan, attired in his outlandish clothes— a sunhat, jeans and canvas sneakers — was like a foreigner.







"Hi, I am Jehan," he tried to break the ice. But the children, feeling shy, fled back into their homes. All except one, a girl of his age, who looked at the newcomer with a friendly smile. As Jehan opened his phone gallery, the girl came to stand next to him. Feeling encouraged, Jehan started a conversation. Pointing at himself, he said, "I am Jehan, what is your name?"

"I am Runu."

"Is this your home? You have a beautiful village. I live very far—in Mumbai." He showed her pictures of his family, his dog and his school.

Jehan had just made a new friend. The two children managed to communicate using some Hindi which Runu learned in school. She offered to show Jehan around while Mr. Shapur was busy speaking with the elders. "Do not go too far, there can be snakes around," warned Jehan's father. But Pritesh assured Mr. Shapur that having been brought up in the place, Runu would know her way around.

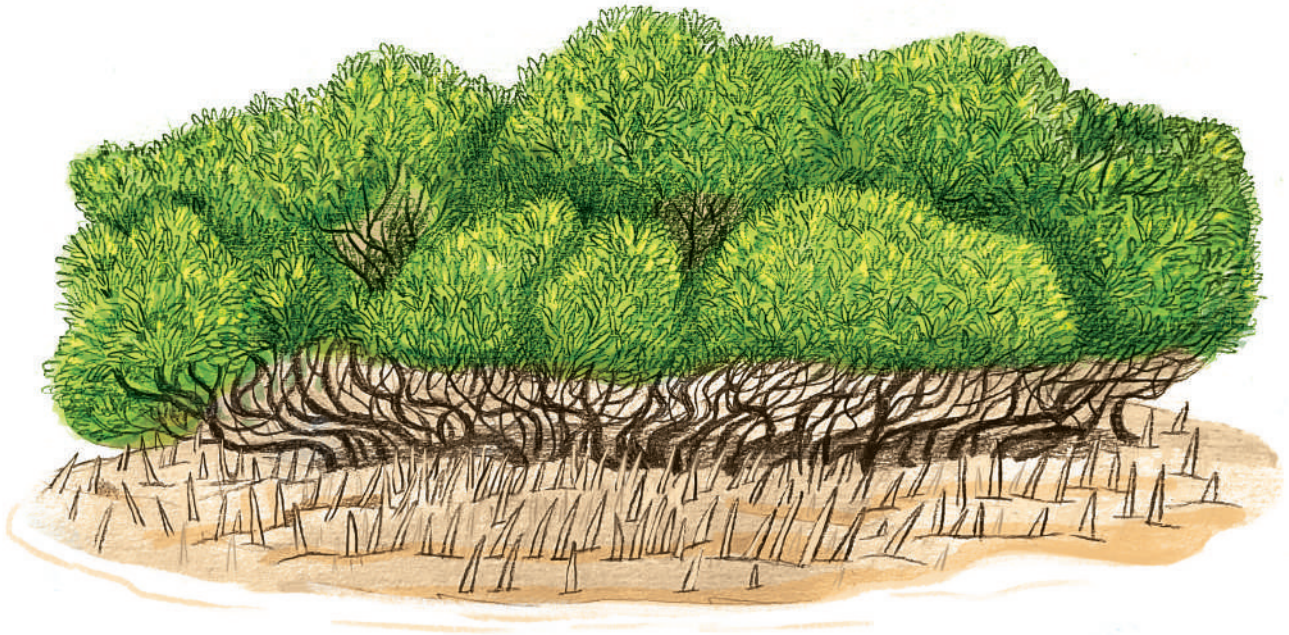
Walking near the village, Runu regaled Jehan with the tales of what she had seen inside Bhitarkanika. "Once I saw an ancient-looking tower made of stone in the middle of the jungle. Do you know what it was?" Runu asked in hushed tones, as if she was about to reveal a big secret. "No, what could it be?" Jehan wondered, his curiosity mounting.

"It is a hundred years old and in ruins with lots and lots of holes in it," Runu continued, building up suspense. "But what was it built for?" asked Jehan, getting impatient. "It was a hunting tower built by King Kanika," Runu finally revealed. "In those days people did not find it wrong to shoot animals, just for fun, just for sport. Now of course, there are very strict rules that ban hunting of any wildlife."

Just then, a family of three mongooses scurried noisily nearby, waved their bushy tails at them and vanished into the jungle, jolting them out of their imagination of the scary hunting tower.







"Thank goodness," Jehan spoke with a feeling of relief. "It's cruel to kill wildlife! And I suppose those holes were for them to point their guns at the unsuspecting animals?"

They reached the village school building and decided to climb the stairs to the terrace as they would have climbed the King's tower. The terrace offered a breathtakingly beautiful panorama of the verdant green all around. And it was from here that Jehan caught his first glimpse of the mangroves, along the bank of the river Brahmani.

His jaw dropped and his eyes were now as wide as saucers. He was flabbergasted by these strange trees. His father had told him that there were mangrove forests in Odisha, but he had never imagined they would be anything like this. "What are all those spikes coming out of the ground there?", he asked.

"Oh, those are the 'Pneumatophore' roots of the Grey Mangroves (*Avicennia*)," replied Runu. "You want to know why they grow upwards instead of growing down into the earth?" she continued. "The ground there is full of water. Right now, it is low tide. But at high tide the trees are surrounded by water. How will the roots breathe if there is water inside the ground and no air, all the time? These trees are clever. They learnt to grow special roots in addition to the other roots. They have little holes like our nostrils for them to breathe the air above the ground. Aren't they smart?"



"Haan, haan (yes, yes) , to me they look like many pencils doing a balancing act," commented Jehan. "Aren't we going to walk up there?" Jehan just couldn't wait to be among the mangroves.

The two children hurriedly scrambled down the stairs and headed towards the trees. While on their way, Runu suddenly stopped in her tracks.

"First, let's pluck some of these long leaves." Saying this, she walked over to a tree that had several thick roots coming out of its stem like a skirt, and fishing out a small penknife, she cut loose some of the long, narrow, sword-like leaves and rolling them up, stuffed them into her skirt pocket.

"This is the *Pandanus* tree", she explained. "They grow on the fringes of mangroves. Their leaves are very good for making ropes which my father uses in his boat when he goes fishing in the river. Oh, and we also boil the leaves in our *daal* (lentils). They give off a delicious aroma," she added, shoving her palm towards Jehan's nose, for him to whiff at the lingering fragrance.

"Do these plants have so many roots spreading outwards to prevent them from toppling over?" Jehan enquired. "I suppose, when they get surrounded by water during high tide the force of the waves must be pretty strong," he conferred. "Oh yes," pat came the reply. "Later I will show you other mangrove trees, like the Red Mangroves (*Rhizophora*), that also have a lot of stilt roots that look like walking sticks, just like this *Pandanus* . And still others that have roots like old women, bent at the knees!"

Runu demonstrated by walking like an old woman with rickety bent legs. Jehan laughed and mimicked his newfound friend.





Runu, proud of her self-appointed role as a guide, led Jehan to where the ground was very swampy. She began walking barefoot, with her sandals in her hands. Jehan too removed his shoes and socks and followed suit. It was rather difficult walking in this terrain, with the peg roots all over like a bed of spines and their feet sinking up to their ankles. Suddenly, Jehan jumped out of his skin. A fish-like creature with beady eyes on top of its head had leapt out of the mud and began dancing about his feet. And just then, as if someone had given a signal, many more



of them appeared like rabbits out of a magician's hat, leaping, skipping, somersaulting, some of them even balancing on their tails. Jehan tried to avoid them by leaping and skipping himself, but it was difficult for him to maintain his balance and he slipped in the mire. Finally giving up, he let these weird creatures have the time of their lives, hopping and prancing all over him.

At this sight, Runu laughed till tears rolled down her cheeks. "These are mudskippers. They are found around mangroves," she chuckled. "Do you see how they have puffed up their cheeks? That is because they have filled their jowls with water so that their gills don't dry up while they are out of water. Once the tide rises, they will be swimming in the water like other fish." "But where did they all suddenly appear from? I suppose they live inside burrows in the slushy ground?" said Jehan. "Yes, and I have something interesting to tell you," added Runu. "The female mudskippers lay eggs inside special chambers in their burrows. But since there is not much air inside, the *Baba* mudskippers blow air over them from time to time."

"What caring *Baba* mudskippers..." Jehan commented. "All this jumping and leaping has made me hungry. It's almost lunchtime." "Why don't you have lunch with us?" asked Runu. "Maa cooks very delicious food. You can also taste our *daal* flavoured with these leaves."



The invitation was too tempting to refuse. "Can my Papa and Pritesh Uncle join too? Will there be enough for all three of us?" Jehan dared to ask.

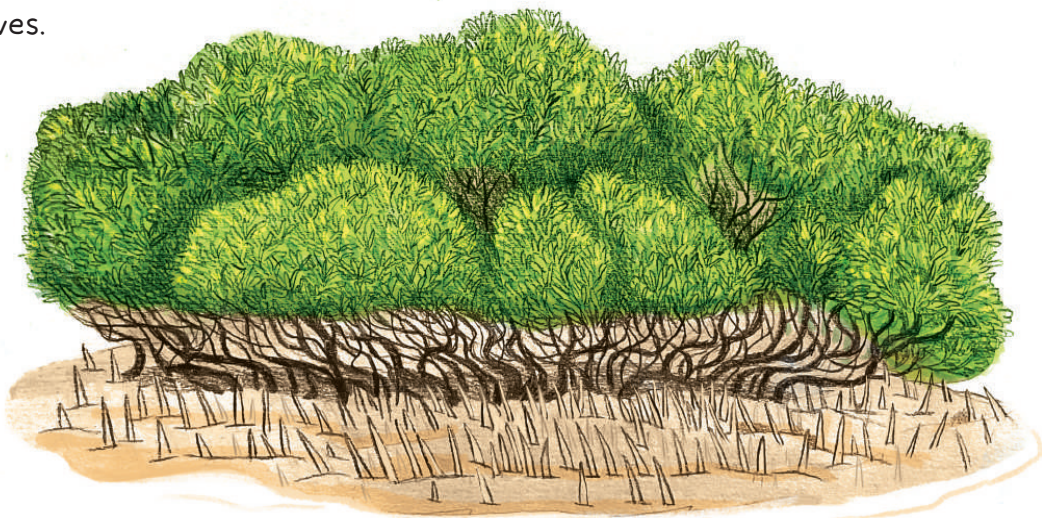
"Of course, I will ask her to make some crab curry as well," came the matter-of-fact reply. "By the way, do you see those crabs?" she pointed. To Jehan's great surprise, there was what looked like an army of red crabs, all of whom had one unusually large claw which they were waving away!

"What's happening? Don't tell me they are waving us goodbye!"

"Ha, ha!" Runu laughed again. "They are the Fiddler Crabs," she informed him. "Fiddler, my teacher told me, means someone who plays a kind of musical instrument, in English. To some people they look as though they are playing the fiddle and to some others like you, they look as though they are waving goodbye. Actually, they are just calling the female crabs."

Just then, Runu caught sight of some other crabs, the Mud Crabs and exclaimed, "I was looking for these ones!" She expertly caught three of them and rolled them up in the leaves from her pocket, so that they could not use their sharp pincers to hurt her. "These crabs make very tasty curry," she said.

Back at Runu's house, Maa was most delighted to make a quick tasty curry out of the crabs which she cooked on a charcoal fire, for her guests. And as they ate heartily, Runu and Pritesh told them all about how the people of Bhitarkanika were so dependent upon the mangroves.





The mangroves served as a fortress to all their villages, their dense entanglement of roots breaking the force of stormy winds and waves. "During the tsunamis and cyclones in the past, this region hardly saw any havoc," Pritesh told them, "While in other areas where they had been cut down to construct hotels or to make way for farmland, there was immense damage."

"Besides, the calmer waters within the mangroves serve as a maternity home for fishes to breed," added Runu perkily. "People should realise this. No mangroves mean no more new born fish." "So many of us depend upon fish to eat and to sell in the market for livelihood. Why, the very charcoal stove upon which our lunch was cooked came from the dead mangrove wood," added Runu's father. "Mangrove wood makes excellent fuel."

"In fact," continued Runu wisely, "mangroves serve our every need. They provide us with food, medicines, shelter, everything. And sooooo many other creatures live in the mangroves! We are proud of our mangroves here in Odisha. My teacher told me that Bhitarkanika has been declared as a Ramsar Site, that means a very important wetland of the world."

"You are so right, young lady," remarked Mr. Shapur. "I am glad you have taken my son under your wing. Would you like to take Jehan around as often as possible during our stay here? May I entrust him to your care? He can learn so much from you, and I am quite sure he would love to spend his time with you."



Both the children jumped with joy at the idea. "I still have to show you the mangroves with stilt roots, cable roots and old women's knee roots!" exclaimed Runu. "Besides, you have yet to see all the creatures who live in the mangroves."

In his mind, Jehan thought about the famous crocodiles of Odisha that lived in the creeks and backwaters, among the mangroves. A shiver of thrill ran down his spine. But he dared not mention them to the adults.



. . . A jungle dense, dark and unique,

The mangroves growing out of the creeks

Their roots offer shelter to diverse species and

protect the people and help in need . . .



DID YOU KNOW?

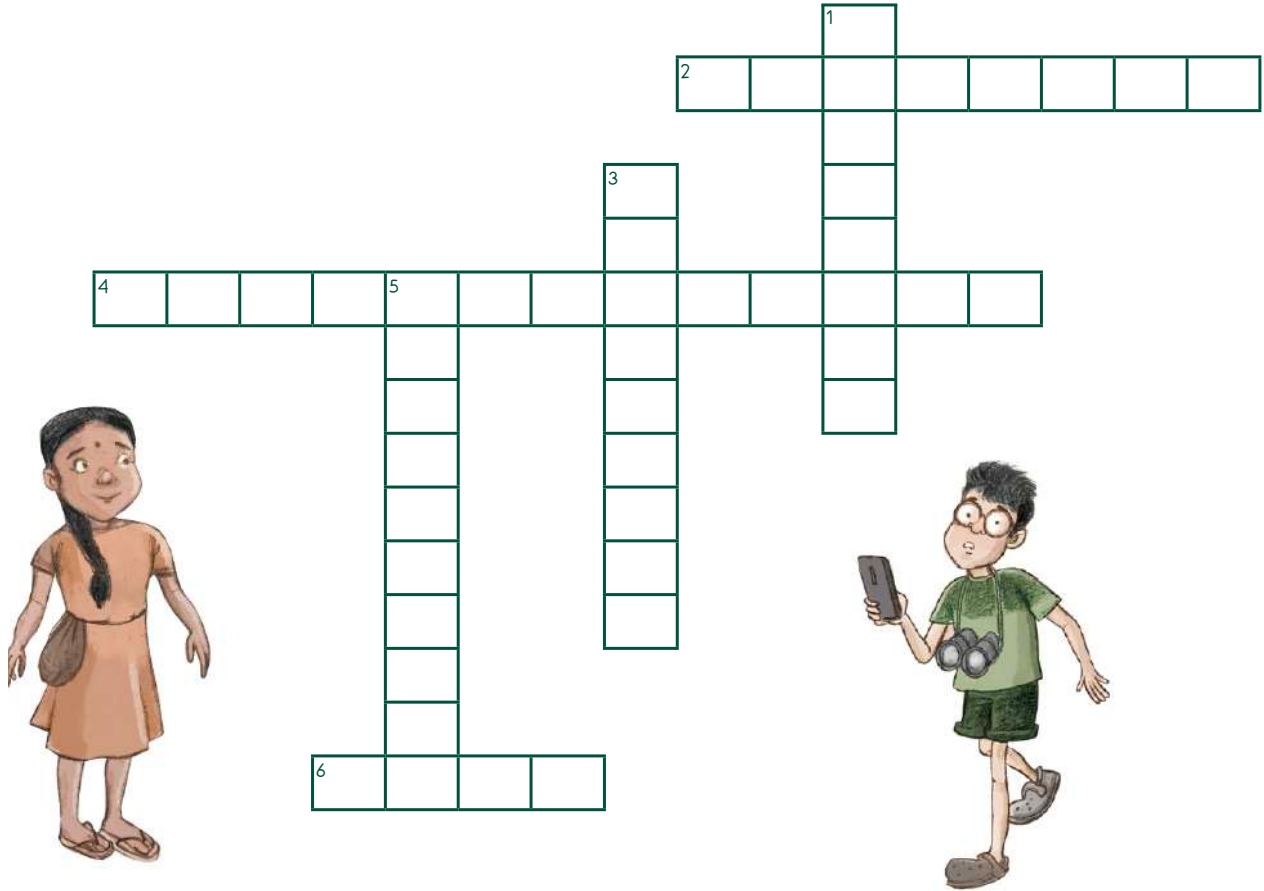
India shares the world's largest mangroves, the Sundarbans, with our neighbouring country of Bangladesh. These mangroves are named after one of the abundant mangrove species of the region—the Sundari trees!

The Bhitarkanika mangroves of Odisha are located at the delta of the Brahmani and Baitarani rivers and are a genetic paradise, as they have a large species biodiversity.

Apart from being home to many kinds of life forms, mangroves also help mitigate climate change. They protect people from powerful storms by interrupting large waves and winds. They also store carbon in them. This is important to keep a check on the greenhouse gases reaching the atmosphere and making the earth warm!



CROSSWORD



Across

- [2] black substance made by burning wood
- [4] special roots that help submerged trees breathe
- [6] an animal with claws

Down

- [1] trees that can grow in tidal water
- [3] large reptile found in Bhitarkanika
- [5] fish that can walk on land!

ANSWERS:

- | | | | | | |
|-------------|-------------|--------------|------------------|---------------|---------|
| 1. MANGROVE | 2. CHARCOAL | 3. CROCODILE | 4. PNEUMATOPHORE | 5. MUDSKIPPER | 6. CRAB |
|-------------|-------------|--------------|------------------|---------------|---------|



A Night of Excitement

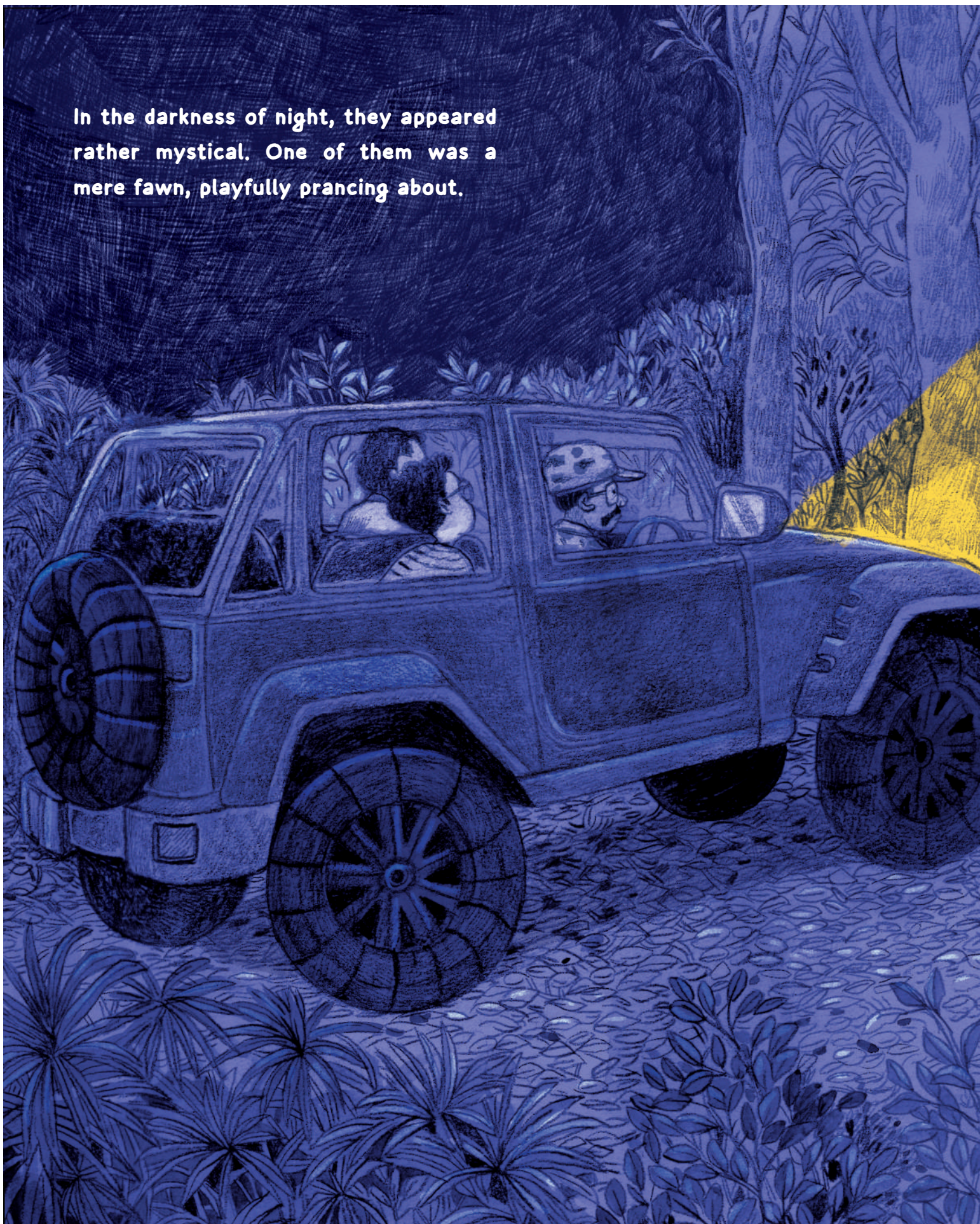
By the time Jehan, Mr. Shapur and Pritesh left for the Forest Guest House, the day was drawing to an end and the evening sky had turned a vivid red. "What is a Ramsar Site, Papa?" Jehan suddenly asked his father. "Runu was telling us this afternoon about the Bhitarkanika mangroves being considered a Ramsar Site."

"It is a wetland which the entire world considers very important because of its rich biodiversity and other uniqueness," Mr. Shapur explained. "These sites are proposed and nominated by the government of the state. The Ministry of Environment, Forest and Climate Change then sends these nominations to the Ramsar Secretariat." "And the Secretariat then announces the wetland as a Ramsar Site!", concluded Jehan, sounding very impressed. Pritesh slowed down as they reached the parking lot for the guest house. A pair of birds were circling overhead, calling loudly. To Jehan, they sounded like the high-pitched broken laughter of a witch. He tried to look through his binocs. "They are the White-bellied Sea Eagles," Pritesh said. "They are looking for their last meal of the day, hoping perhaps to catch a fish in the creek."

The sun was dipping beyond the horizon and the deepening shadows of the night were spreading rapidly all around them. "Look! What are those lights?" Jehan's attention was drawn to several green and glowing, bulb-like lights appearing out of the darkness in the direction that their jeep was turning. "Some of those lights are dancing up and down. Are those *jugnus*, the fireflies?" he asked, wonder-struck. Before he could get an answer from his Papa, the jeep approached the lights and Jehan realised that it was a herd of Chital that was crossing the pathway. The lights had been flashing from their eyes.



In the darkness of night, they appeared rather mystical. One of them was a mere fawn, playfully prancing about.







"Many animals, especially the nocturnal ones, have a shiny layer at the back of their eyeball which acts as a mirror and reflects even the faintest of light," Mr. Shapur explained to Jehan. "It helps them to see better in the dark." Soon after, they came upon the large glowing golden eyes of an owl peering out of its hollow in an old Palash tree. The night bird turned its head a full 180 degrees in a clockwise direction and then did the same in an anticlockwise direction, as if offering a complete view of itself. Mr. Shapur signalled Pritesh to stop. "That's the Collared Scops Owl," he whispered to Jehan.



Jehan was intrigued by its beautiful large eyes and the ear tufts of feathers. "And what's that long black thing dangling from its beak?" Jehan whispered back. "Oh, that looks like the tail of a shrew. Owls swallow their prey whole. And after digesting them in their stomach, they regurgitate the undigested claws and fur in the form of pellets." "What a weird way of eating," commented Jehan.

After a while the owl, getting suspicious of the people who were peering at it out of their binoculars, protested with a loud "whoooo, whooo". This gave Jehan goosebumps. The bird then turned its head slightly as if listening to some sound with its super-sharp ears, spread its enormous wings and took off, ever so silently. Having had their fill of the beautiful owl, their jeep was turned around to park, much slower now. Pritesh brought the car to a halt. He strained his ears and murmured, "I think I hear the Nightjar." Jehan whispered excitedly, "Where? What?"



Mr. Shapur added, "Well, if the bird is indeed there and has sensed the car, it is unlikely we shall see it. After all, nightjars defend themselves by freezing and their earthy-coloured plumage helps them to get perfectly camouflaged, so that no enemy would be able to detect them." After waiting unsuccessfully for some time, the car engine rumbled again, and they moved towards Forest Guest House. Jehan was too tired after his hectic but exciting day. Not feeling much hunger, he had a small dinner and crashed straight onto his bed. Just as he was about to shut his eyes he saw, to his great astonishment, a creature that looked like a cross between a mongoose and a cat. It was clinging onto the wire-mesh of his window and peering at him inquisitively. The light of the full moon gave the animal a silvery silhouette. The boy was dumbstruck.

His day's adventures were not yet over. "*It can't possibly be a mongoose,*" he thought. "*Perhaps it's a civet cat. Yes, that's right. Papa had mentioned that they are found in these parts. What if the animal chewed up the wire-mesh and came inside?*" Jehan wondered if he should wake his Papa up, but then, on second thought, the Civet was only looking at him curiously, showing no inkling of being aggressive. It seemed harmless. Even as these thoughts crossed his mind, the night air was rent with a loud howling from somewhere close. "*A jackal,*" thought Jehan. The howling sent shivers down his spine and sent the civet cat fleeing away into the darkness. Jehan shut his eyes and entered the world of sleep.

... The creatures of the night, Come out when the sky sheds light

The quiet woods witness the scene, Golden eyes watching from the trees

Silent wings, flapping towards a rat scurrying,

The creatures of the night, with eyes shiny bright

Chirping, chuk-chuking, howling, screeching,

A nocturnal symphony while the world is sleeping ...



That night Jehan dreamt that Kendrapara was struck by a terrible cyclone.

There were roaring winds and angry rains. Runu and he climbed up the hunting tower to escape from this fury of nature. But they need not have feared. They were greatly relieved to see the mangroves turning into green soldiers. Though rooted in one place, they protected Kendrapara from the winds and waves by forming a bio-shield. They stretched out their branches and stilt roots. They just wouldn't allow the cyclone to enter and Kendrapara was kept safe, unaffected by the violent storm.

The villagers celebrated this victory of the mangroves with much feasting. All the womenfolk got together and made a big pot of curry. The curry gave off the most delicious aroma, thanks to the Pandanus leaves they had boiled in it. "It's delicious!" cried Jehan loudly. "Yes, there is a delicious breakfast waiting for you, sleepy head," said his Papa, gently shaking him awake.

"Were you dreaming of food?"



DID YOU KNOW?

The villagers of Kendrapara district owe a lot to the thick mangrove jungles of Hental trees. Mangroves were and are being planted in all areas where they have been lost to protect the area from storm surges.

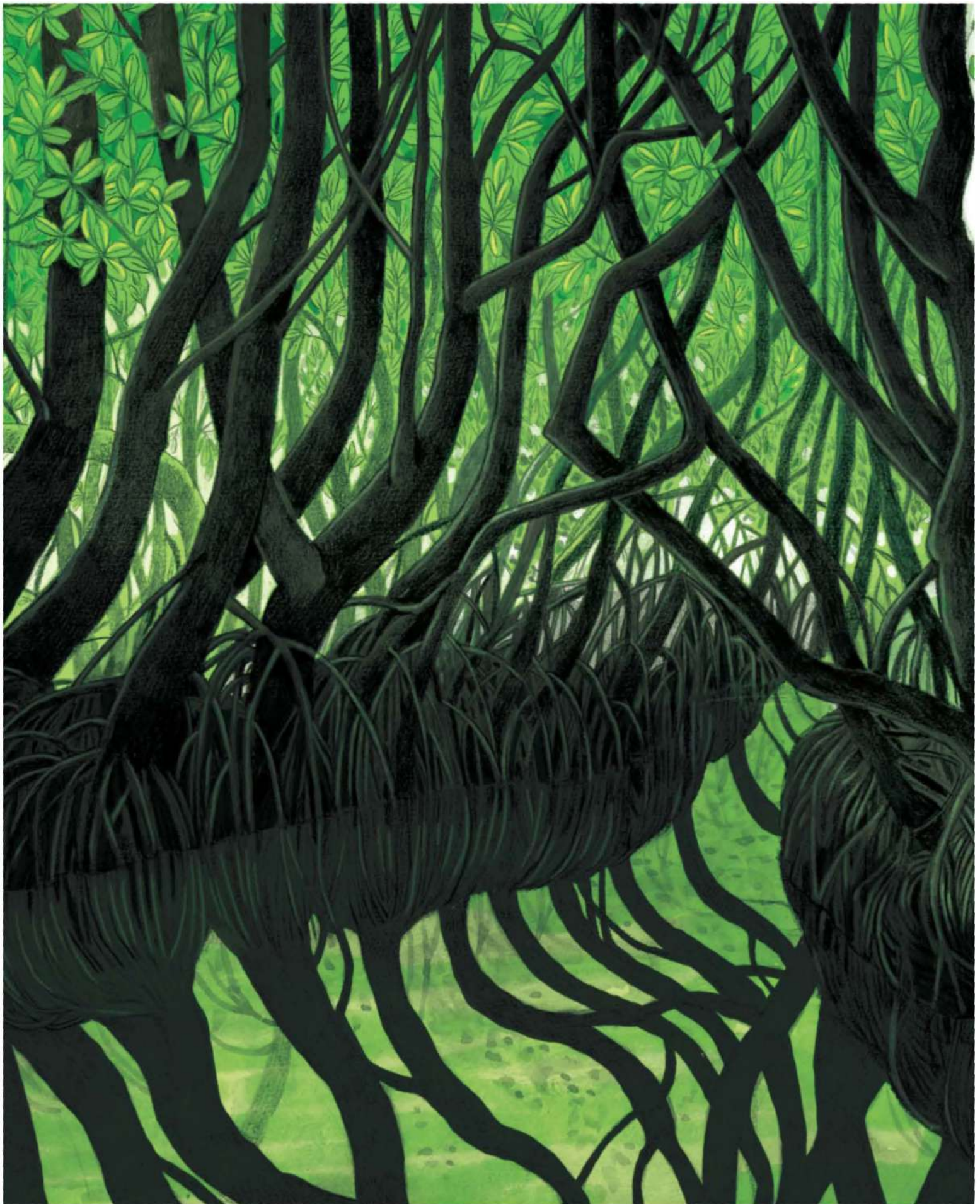


In the Jaws of Danger

"I want you to get ready soon after your breakfast as I have arranged for a boat today to take us into the mangroves. We can have a better look at all the plants and animals among them that way," said Mr. Shapur. "Yippee!" Jehan cried with joy, stuffing his mouth with delicious *chuda santula* (a dish of flattened rice), which the guest house cook, Chandu had made. "Can Runu join us too today? Can we take some packed lunch to have on the boat? Will we be on the boat for the whole day?" An excited Jehan bombarded his Papa with questions.

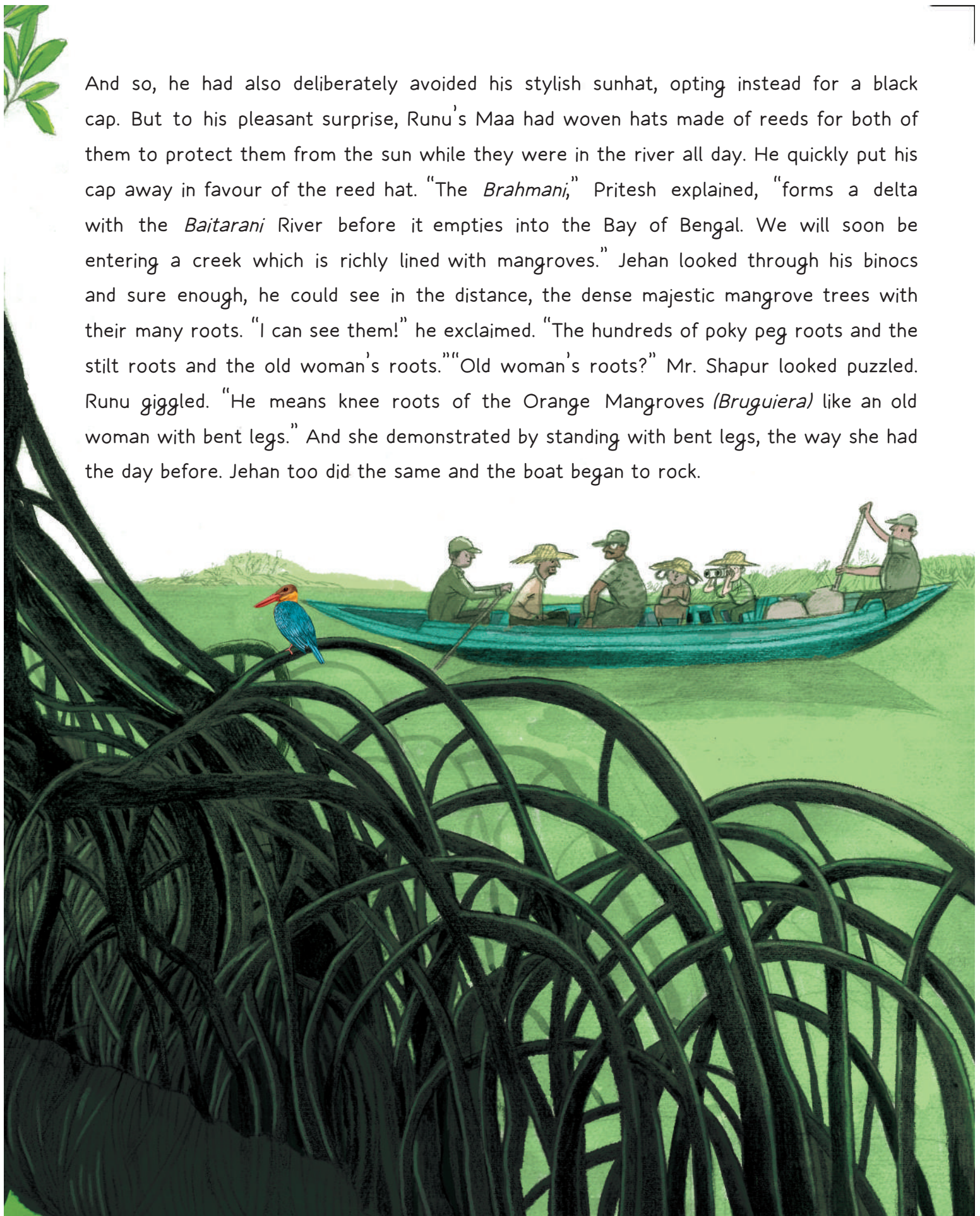
"Hold it, hold it. One question at a time. If you shoot me with so many questions, my head will start spinning," Mr. Shapur replied jovially. "Yes, of course Runu will be joining us since her school vacation is on. Chandu will prepare *luchi* (*puri*) and shrimp pickle for lunch, but we shall have it here. We must not take food like this to the wilderness." Jehan nodded in agreement. "As for your last question, it all depends on how long it will take for me to document the flora and fauna of the mangroves around the Brahmani River. We can come back and go again another day." Soon Jehan, Runu, Mr. Shapur and Pritesh found themselves seated in the boat, with life jackets on, high-spirited in anticipation of the day that lay ahead of them. The boatman raised the anchor and began rowing, with his assistant helping him steer. Jehan had made it a point to dress in 'field-coloured' clothes, a loose brown T-shirt and green cotton pants.

His father had told him to don colours like browns and greens, and not to use perfumes, and to keep the arms and legs covered whenever visiting jungles— as a precaution to avoid wild animals being attracted to or be disturbed by our presence.





And so, he had also deliberately avoided his stylish sunhat, opting instead for a black cap. But to his pleasant surprise, Runu's Maa had woven hats made of reeds for both of them to protect them from the sun while they were in the river all day. He quickly put his cap away in favour of the reed hat. "The *Brahmani*," Pritesh explained, "forms a delta with the *Baitarani* River before it empties into the Bay of Bengal. We will soon be entering a creek which is richly lined with mangroves." Jehan looked through his binocs and sure enough, he could see in the distance, the dense majestic mangrove trees with their many roots. "I can see them!" he exclaimed. "The hundreds of poky peg roots and the stilt roots and the old woman's roots." "Old woman's roots?" Mr. Shapur looked puzzled. Runu giggled. "He means knee roots of the Orange Mangroves (*Bruguiera*) like an old woman with bent legs." And she demonstrated by standing with bent legs, the way she had the day before. Jehan too did the same and the boat began to rock.





"Hey, hey, go easy, you two!" Mr. Shapur roared with laughter. "Too many people walking with bent legs will capsize the boat!" The children settled down and took turns scouring the area through Jehan's binocs. "Hey, look! A stork-billed kingfisher!" Runu exclaimed. "Isn't she a beauty?" While Jehan and all the others gazed in adoration at its brown head, bright blue wings and tail, and orange-brown underbelly, the bird dived straight into the water like an arrow and targeted, with perfect marksmanship, a fish. With its prize in its beak, it flew back onto its perch—an overhanging branch.



Jehan gaped open-mouthed at the bird's hunting tactics. It first battered the fish on the branch to kill it. Next, it tossed the fish about and finally swallowed it whole, headfirst. After this, it sang victoriously, "*ke-ke-ke-ke*" as their boat paddled on. "Won't we be walking among the mangroves?" Jehan enquired after a while. "I am looking for a place clear of the peg roots of the Grey Mangroves", said the boatman, "so that you can walk without stepping on them. Too many of them here."

They finally came across a clearing and a jetty where they could drop the anchor and step onto the swampy land of the second-largest mangrove forest in the world. The boatman, Rafiq, preferred to snooze in his boat while the four of them, along with the boat assistant, Bapi, who was also a guide, plodded ahead. Each step felt rather heavy in the sticky marshy soil. Pritesh plucked a leaf from one of the Grey Mangrove trees and asked Jehan to lick it. The boy was a bit hesitant, as both Pritesh and Runu had mischievous smiles on their faces. "Is this some kind of a trick?" he asked. But since his father was also wearing a smile—not mischievous but encouraging—he licked the leaf. "Not bad," was the opinion. "It tastes salty." "And where do you think the leaf gets the salt from?" Runu quizzed.



Jehan was quick to think. "I know! It's from the salty water that the mangrove roots absorb from the creek. They are getting rid of the excess salt through their leaves." "Excellent!" Pritesh exclaimed. "Now you will soon get to see a man-made marvel in the thick of this mangrove jungle. Somewhere around here there is a very ancient temple. Let's hope we find it." It was not as sunny in the mangrove forest, as the sunlight could not penetrate through the dense canopies. They had to watch their every step as there could be snakes around. Many of these trees had beehives dangling from them. "Don't worry, the bees are busy collecting nectar from the many mangrove flowers," Runu assured Jehan. "They will not sting you." After a while, Jehan, feeling thirsty, extended his hand to take the water bottle from his father when Runu stopped him. "Wait," she said. And, fishing out from her pocket the penknife she always carried, she wended her way into a nearby grove of Red Mangroves to cut one of the stilt roots. "You can drink the water from this root," she offered. "You can drink it," the guide added, "many of our people quench their thirst with the water from these roots, as they filter off any impurities from the saline water they absorb. But not all plants are okay, some may be harmful."

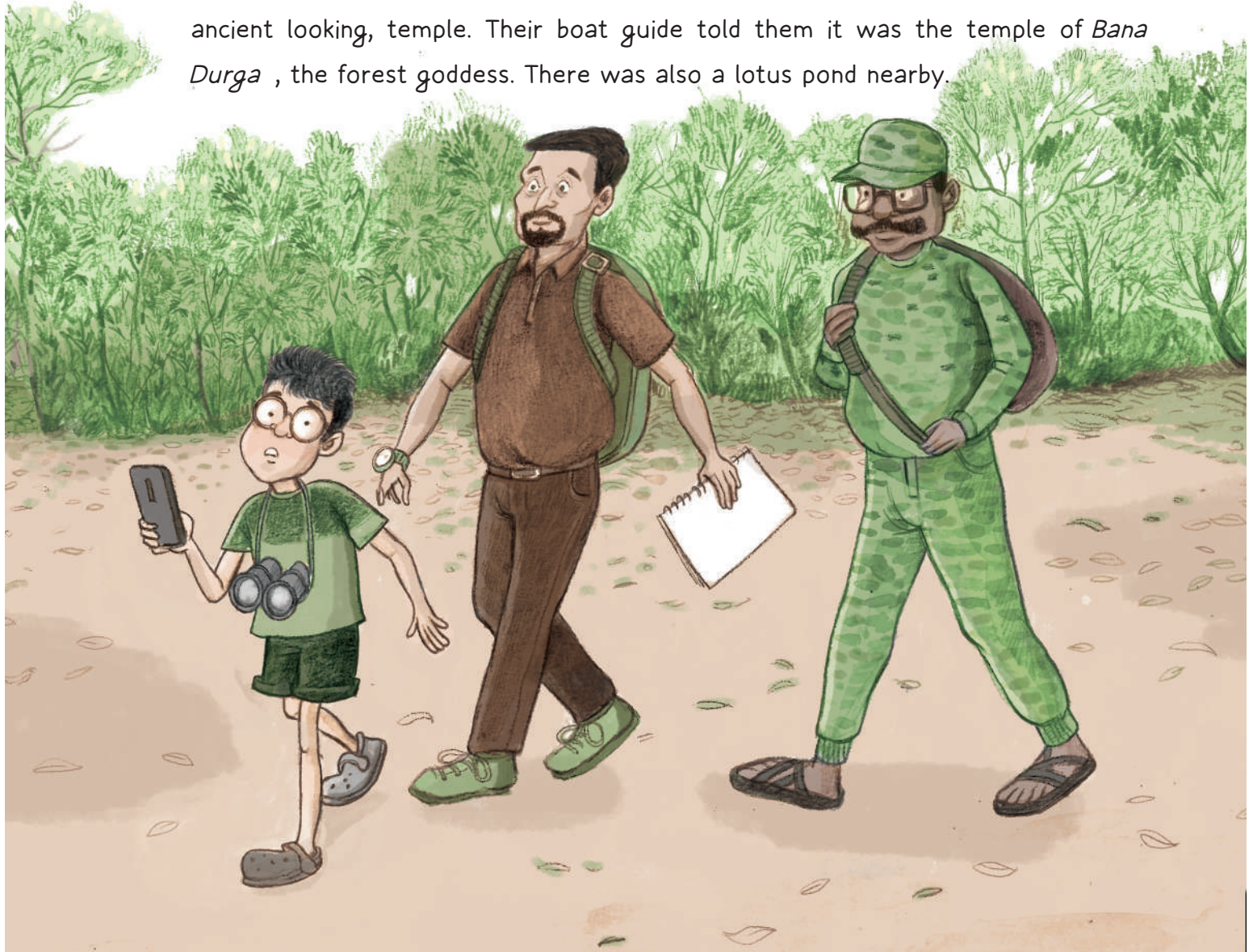






Pritesh added, "One shouldn't cut plants inside a protected area like that anyway!!" Jehan took a sip from his father's water bottle and announced, "Now let's search for the ancient temple!" They were lucky, they didn't have to look for long.

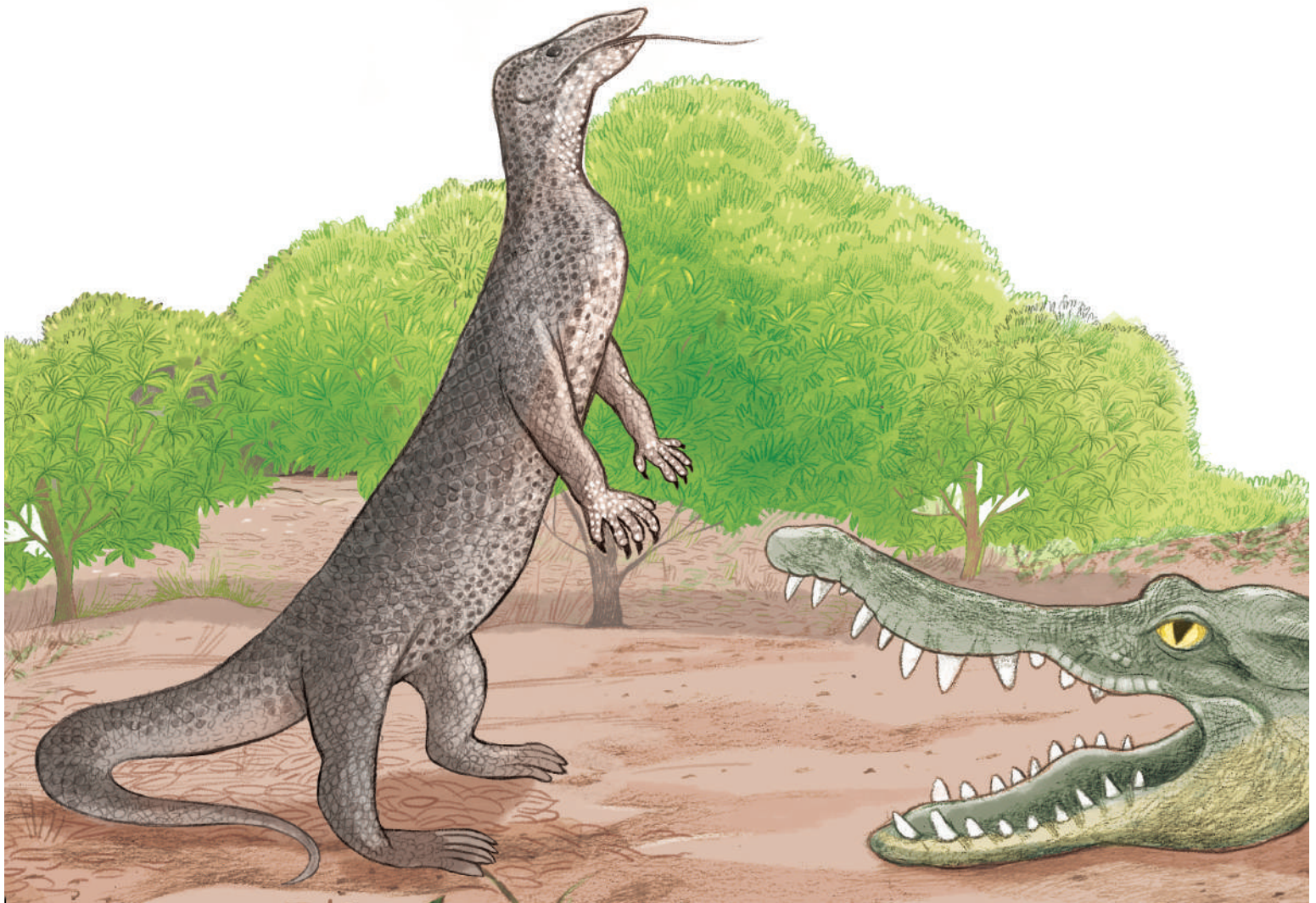
A short walk later, they found themselves face to face with the temple, in the middle of a sacred grove of trees. The stone temple, as one would expect, was in ruins, overgrown with many plants that forced their way out from between the stones. But what really amazed the group were the carvings of plants and animals of the Kendrapara mangroves. It was surprisingly silent around the temple, with no bird songs or crickets, as if in deference to the deity *Lord Shiva* for whom the temple was built. Opposite to this temple was another, even more ancient looking, temple. Their boat guide told them it was the temple of *Bana Durga*, the forest goddess. There was also a lotus pond nearby.





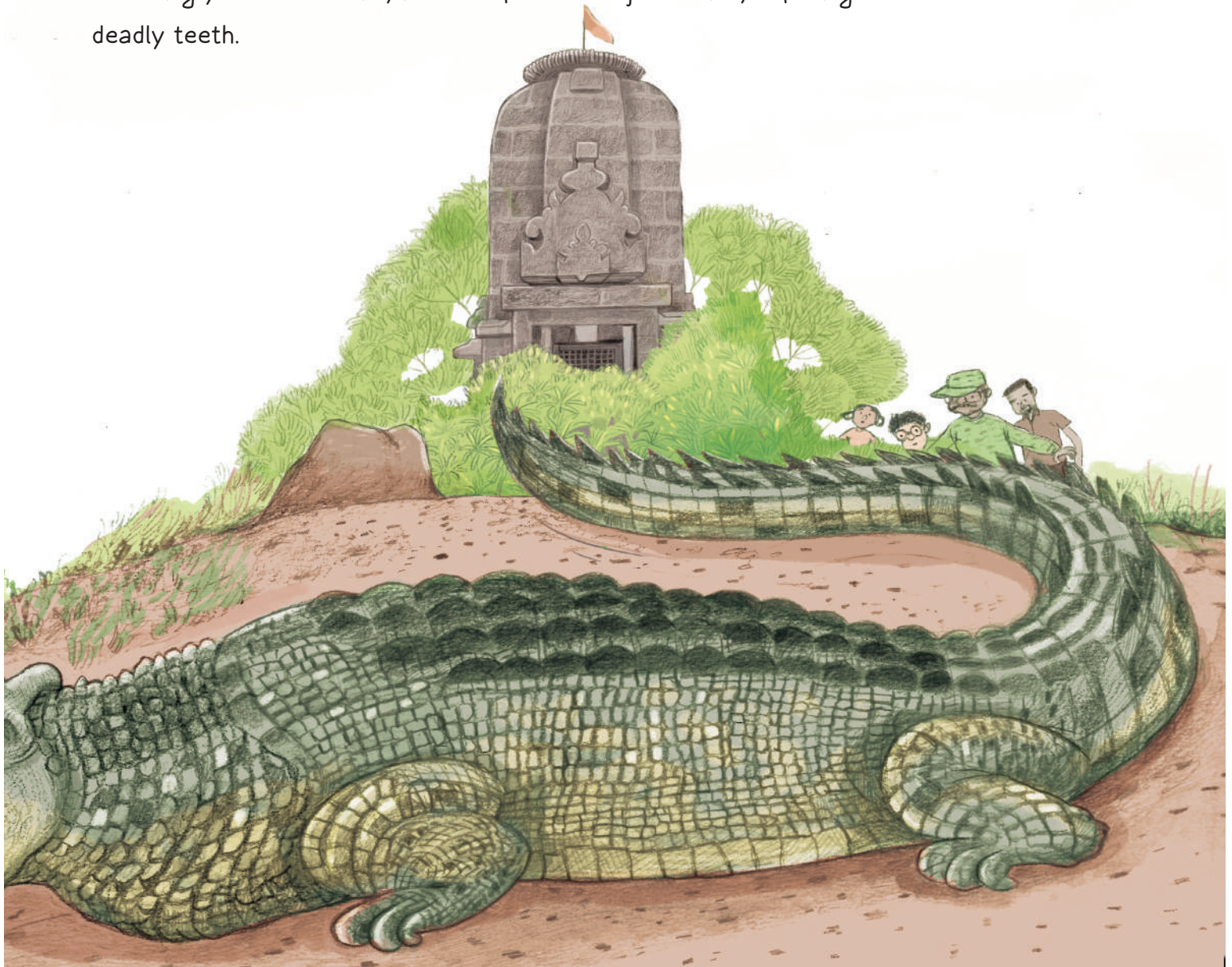
And this is when their dangerous adventure began. Lo and behold! On the opposite end of the pond, they could see the hunting tower of their imagination. A signboard stood there, between the pond and the tower "Beware of Crocodiles". "Should we go in the temple and see what it's like? Are there any temple bells inside?", asked Jehan while clicking pictures on his phone.

His camera suddenly focused on a face peeping out of the darkness. Jehan struggled to not drop his phone. He peered and saw a face with small, twinkling eyes and a blue forked tongue which it kept flicking. The face belonged to a Water Monitor Lizard! Its audience stood silently, well hidden behind the trees, waiting to see what it would do next, their hearts racing. The monitor lizard crawled out of the temple, testing the ground with its continuously flicking tongue, which could pick up any scent. Then, it headed towards a mound of mud on the creek bank covered with Hental Mangrove (*Phoenix paludosa*) leaves and began clawing at it.





"That's a Crocodile's nest!" both Pritesh and Runu whispered in unison, their excitement at its zenith. Sure enough, from inside the mound, there came squeaking and chirping sounds, as the babies had emerged only recently. And just then, a long log of wood lying a short distance away, which nobody had noticed, galvanised into action. The dead-looking "log" was the mother crocodile. She was massive—a full 17 feet! The female crocodile sensed the danger to her eggs and bellowed ear-shatteringly, prancing upon the monitor lizard in a trice. A battle of aggressive, threatening gestures and frightening sounds followed between the two. The crocodile hissed and grunted terrifyingly. The monitor lizard raised its head, standing all five feet tall, trying to make itself look intimidating. It flicked its long, blue, forked tongue menacingly. The crocodile, in turn opened her jaws wide, exposing the hundred and more deadly teeth.

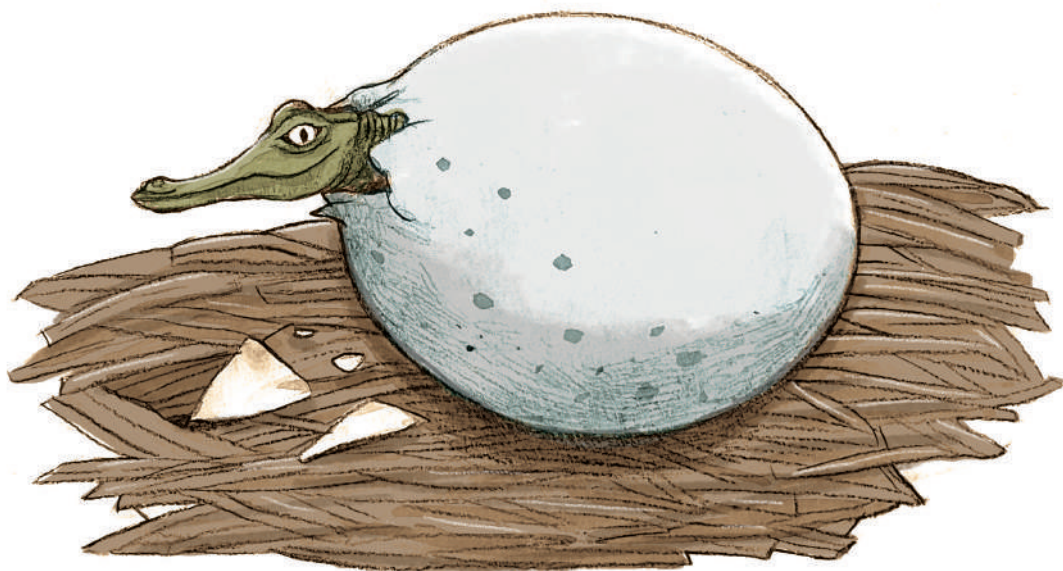




Their audience stood frozen, quietly absorbing the scene. After a while of futile defence, the monitor lizard, though extremely hungry, realised it was no match for the angry mother crocodile. It turned its tail and retreated, crawling behind the temple this time.

The crocodile, deciding that her young ones were not safe in the mound anymore, pulled away the Hental leaves which she had arranged on top of the mound as a disguise and dug out her half-hatched eggs. She helped her babies and collected them, ever so carefully, in the same jaws that had terrified the monitor lizard just a few moments ago. Walking perkily to the pond, she laid them gently one by one into the water, where they would learn to fend for themselves and grow up to one day rule the nearby creeks just like her. When the mother crocodile's parental duties were over, she swam away. Perhaps the exercise of saving her babies had made her hungry. She would be looking for suitable prey to refuel herself. All was quiet again. The drama, however, was not yet over. Jehan noticed that the loose mud on the unearthed mound was shifting about.

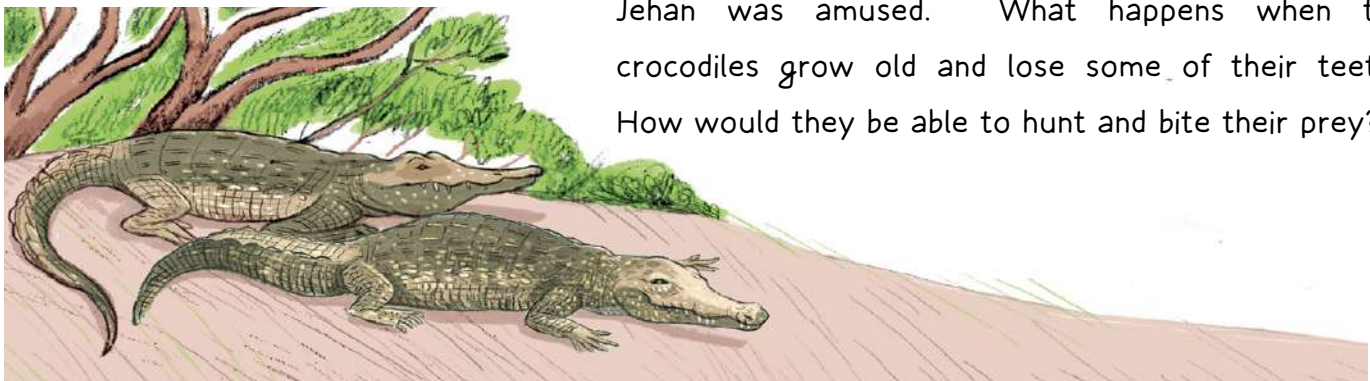
"Look, there is one more hatchling inside!", he almost yelled. "The mother missed rescuing it." Indeed, they heard a hissing sound from the moving earth and a small head peeped out. The four of them were not the only ones to discover the baby crocodile. The Water Monitor Lizard saw it too from the temple, and with surprising agility for its massive size, it made its way towards the newborn hatchling.





It was determined to make it its meal, though just a small morsel. But, before the monitor lizard could pounce upon its target, Runu, on an impulse, ran like crazy and got hold of the now very nervous little hatchling. She headed towards the water, intending to leave it there. What followed was utter pandemonium. On realising there was one more of her babies being handled by someone, the female crocodile let out large grunts of protest and came rushing towards the girl. Immensely alarmed by what was happening, both Pritesh and Mr. Shapur rushed forward, trying to pull Runu away from the crocodile and the monitor lizard. Pritesh had somehow got hold of bamboo which he kept brandishing to frighten away both the animals. Fortunately, both the crocodile and the lizard went their way, leaving the group alone but still trembling at the thought of what could have happened to Runu. "I am sorry for getting all of you so worried," she said sheepishly.

"But I couldn't bear to think of that helpless little baby crocodile being eaten by the monitor lizard. I know it was foolish of me, the mother crocodile could have attacked me." "I guess we all have learnt a lesson. It's best to leave nature alone. The Monitor Lizard was only following its own instinct. It cannot be considered a villain. It needs to eat too. Hunting for prey is the only way it can get to eat." "Anyhow, we don't want to spend more time here," declared Pritesh. They walked on, still aghast from the incident. Further along the route, Jehan saw through his binocs another Crocodile, but this one was young, only about four to five feet in length. It was resting on a rock with its jaws wide open. A plover flew right into this young crocodile's mouth. "Oh no!" Jehan exclaimed. "The foolish plover is risking its life." "The crocodile will not harm the bird," Mr. Shapur informed. "It is getting its teeth cleaned of any left-over scraps of meat or bone splinters from a previous meal. Infact, the bird is the crocodile's dentist."



Jehan was amused. "What happens when the crocodiles grow old and lose some of their teeth? How would they be able to hunt and bite their prey?"



"Oh, crocodiles have no problem with their teeth. For each tooth they may lose, another one is ready to replace it. They can replace their teeth many times in their entire lifetime," Runu explained, even before Pritesh or Mr. Shapur could answer Jehan's query. "You seem to be very well-informed about the wild," remarked Pritesh.

"I want to be a forest guard like you, sir, when I grow up! A good forest guard needs to have a lot of knowledge about the forest. Just like you." Pritesh smiled. "Although this one is a very young crocodile—perhaps you can call it a 'teenager'. But don't think of going any closer to these ones now, you two! These young teenage crocodiles are sometimes even more dangerous than adult ones. They are very whimsical, not mature enough yet. They wouldn't hesitate to attack us humans. The older ones usually tend to keep away from humans, unless they are compelled to attack out of self-defence." A shiver ran down Jehan's spine. Suddenly, they heard a sharp "*wieww, wieww*," from atop a tall Tivar tree. Pritesh pricked his ears. "Shh... that's the Mangrove Pitta, a very rare bird," he spoke softly. "Just count how many colours of feathers it has!" They were all very thrilled when they located the bird. Its bright colours—blue, red, yellow, green, brown, and black—made it conspicuous among the dancing leaves of the Tivar.



And what amused them most was that the bird held a piece of crab in its beak, repeating its song every now and then to express its victory in finding its meal for the day. The sighting of the Mangrove Pitta lightened their mood after the terrifying episode in the morning, and the persistent singing of the bird uplifted their spirits. Exploring along the way, they came across a clump of *Salvadora* trees in full bloom, loaded with the luscious, sweet, red berries. "This tree, also called Meswak, is a mangrove associate," began Pritesh. "Mangrove associate?" asked Jehan.



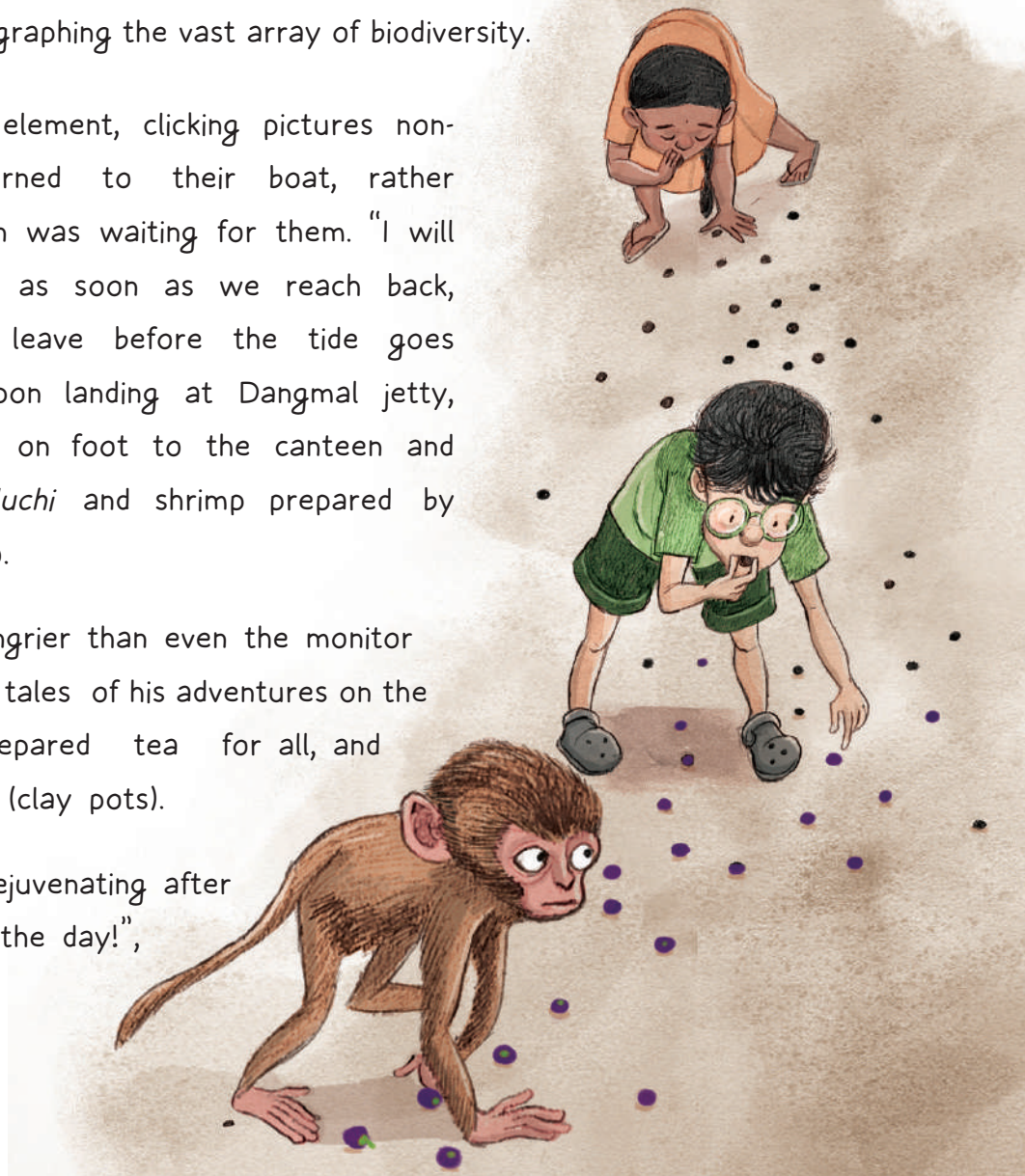
"Is it connected with the mangroves in some way?" "Yes, a mangrove associate grows just beyond the high tide line and does not get covered with saline water like true mangroves, but it can tolerate salty soil." "I know," added Runu. "We use its twigs to brush our teeth. It keeps them strong and healthy, see?" And she smiled from ear to ear, pointing at her pearly white teeth.

Jehan looked up at the canopies of these *Salvadora* trees which were being raided with a host of fruit-loving birds. Even several rhesus macaques were making the most of the bounty, leaping from branch to branch and grabbing as much fruit as they could. "Dessert time!" called out Mr. Shapur with a joyful smile. And the two children gathered handfuls of the berries that had fallen on the ground and gobbled them as if there was no tomorrow, enjoying them as much as the birds and monkeys. The rest of the day was spent exploring and photographing the vast array of biodiversity.

Mr. Shapur was in his element, clicking pictures non-stop. They finally returned to their boat, rather exhausted. Their boatman was waiting for them. "I will get you a round of tea as soon as we reach back, but for now we better leave before the tide goes too low," he said. Upon landing at Dangmal jetty, the group trudged back on foot to the canteen and started attacking the *luchi* and shrimp prepared by Chandu with great gusto.

Perhaps, they were hungrier than even the monitor lizard! While narrating the tales of his adventures on the creeks, the boatman prepared tea for all, and served it in little kulhars (clay pots).

"Aah! Excellent and so rejuvenating after our many adventures of the day!", remarked Mr. Shapur.





Back at home, the party of four told Runu's parents the story of her encounter with the crocodiles. With folded hands, Runu's parents expressed their gratitude to Mr. Shapur and Pritesh for having saved their daughter from a terrible fate. No sooner had the rest of them left than Runu fell into a deep slumber.

The father looked at his sleeping daughter, a sweet little face, glowing in the silvery light of the moon that streaked in through the window. The man thanked *Lord Baladeva* for having protected her from the Crocodile. But he still was proud of his daughter for trying to rescue the crocodile hatchling, even though she had been foolish and impulsive, risking her own life.

And back at the Guest House, the same moon shed its light on the sleeping form of Jehan while his father looked on, happy and proud that *his* son was getting to learn so much about these remarkable mangrove forests that he held dear. Gently he covered him with a quilt. From somewhere in the distance came the cackling call of a striped hyena which sounded like a witch's laughter.

Perhaps it was looking for its meal.





*. . . The moon sheds its silvery light
Through the velvety blackness of the night
The moon smiles at the lad and lass sleeping
About their day's adventures, dreaming
The moon looks upon the crocodiles
While for their prey they are looking,
Through salty water, they silently glide
The awesome mangroves glowing,
With moonlight, most mesmerising . . .*



DID YOU KNOW?

Crocodiles have been on our planet for millions of years, since the time of dinosaurs. While other species have evolved dramatically, crocodiles have been able to survive without many changes. Which reptile do you think has the strongest jaw bite? The Saltwater crocodiles take the first place! They can slam their jaws shut with a bite force 18 times stronger than humans.



MATCH THE FOLLOWING!

Out of the several different species of Kingfishers in India, at least seven of them are found in Bhitarkanika!

1. Black-capped Kingfisher - has black feathers on the head
2. Pied Kingfisher - has black and white plumage
3. Common Kingfisher - small, with bright blue wings and orange on the ventral side
4. Brown-winged Kingfisher - dark brown wings
5. White-throated Kingfisher - a white patch on the throat
6. Stork-billed Kingfisher - thick red bill and yellow around the neck
7. Collared Kingfisher - bluish-green feathers with a white collar around the neck

Can you identify all the seven kingfishers?

- All 7 correct? You have the makings of a good birder!
- Between 3 and 6 correct? You need to be sharper in your observations!
- Less than 3 correct? Not possible, try again!



a)



b)



c)



d)



e)



f)



g)

ANSWERS:

a) Pied Kingfisher b) Brown-winged Kingfisher c) Black-capped Kingfisher d) Common Kingfisher
e) Stork-billed Kingfisher f) Collared Kingfisher g) White-throated Kingfisher



Arribada –Arrival by the Sea

Runu woke up early the next morning. Fresh and rejuvenated, anticipating the adventures the day might have in store with her dear friend Jehan. She hurriedly got dressed and gobbled up her breakfast. In the Forest Guest House, Jehan, on the other hand, overslept and woke up late. He sat up in bed, listening. He could hear his father talking to Pritesh, who was already there.

"The forest department is extremely strict about the nesting site of the Olive Ridley Turtles," he heard Pritesh say. "But since you are on a government job, they have agreed to give us permission to visit Gahirmatha."

Jehan was over the moon. "Yay! We are going to visit the nesting site of the Olive Ridley turtles!" he exclaimed. "I hope we get to see lots and lots of turtles!"

"Better hurry through your breakfast and get ready soon then Jehan. You want Runu to come along too, don't you? We will have to go to her village first, to pick her up. We don't want to miss the turtles, do we?"

Jehan galvanised into action. Excited, in his tearing hurry, he wore his shirt inside out. Of course, he wore it the right way when Mr. Shapur and Pritesh laughed with amusement.

When Jehan broke the news to Runu, her euphoria too was palpable. She had never thought that she would get to witness this turtle paradise. She had been told by her *Jeje Baba*, the story of thousands of turtles, who, after swimming across miles of ocean, returned to the Gahirmatha shores. Year after year, to lay their eggs.



Some years ago, however, the number of Olive Ridley turtles visiting Gahirmatha beach had begun to dwindle. The reasons being human activities like poaching—but also feral dogs, birds, even jackals and hyenas, helping themselves to the eggs. Human presence was adding to these threats, making it difficult for the turtles to crawl up the beach to find a suitable spot to dig their nest holes. The environmentalists were greatly concerned.

The *arribada* (arrival by the sea) in Gahirmatha had been one of the largest in the world. It would be sad to see the Olive Ridleys dying out. Thus, the forest department intervened and stepped-up its vigil, not allowing anybody to stroll on the beach, even casually, during their nesting period. Therefore, Runu thought she would never see these beautiful visitors of Kendrapara. She thought she was dreaming when Jehan told her they were going there that day. After picking up Runu, the party of four drove to a jetty where a boat ferried them onwards. On reaching Gahirmatha, Runu and Jehan were surprised to find no one around except for the forest protection squad.

The only sounds came from the waves breaking on the shore and the seagulls screaming while they circled overhead. Pritesh introduced Mr. Shapur to the forest squad. "Any possibility of the turtles coming ashore today?" he asked them.

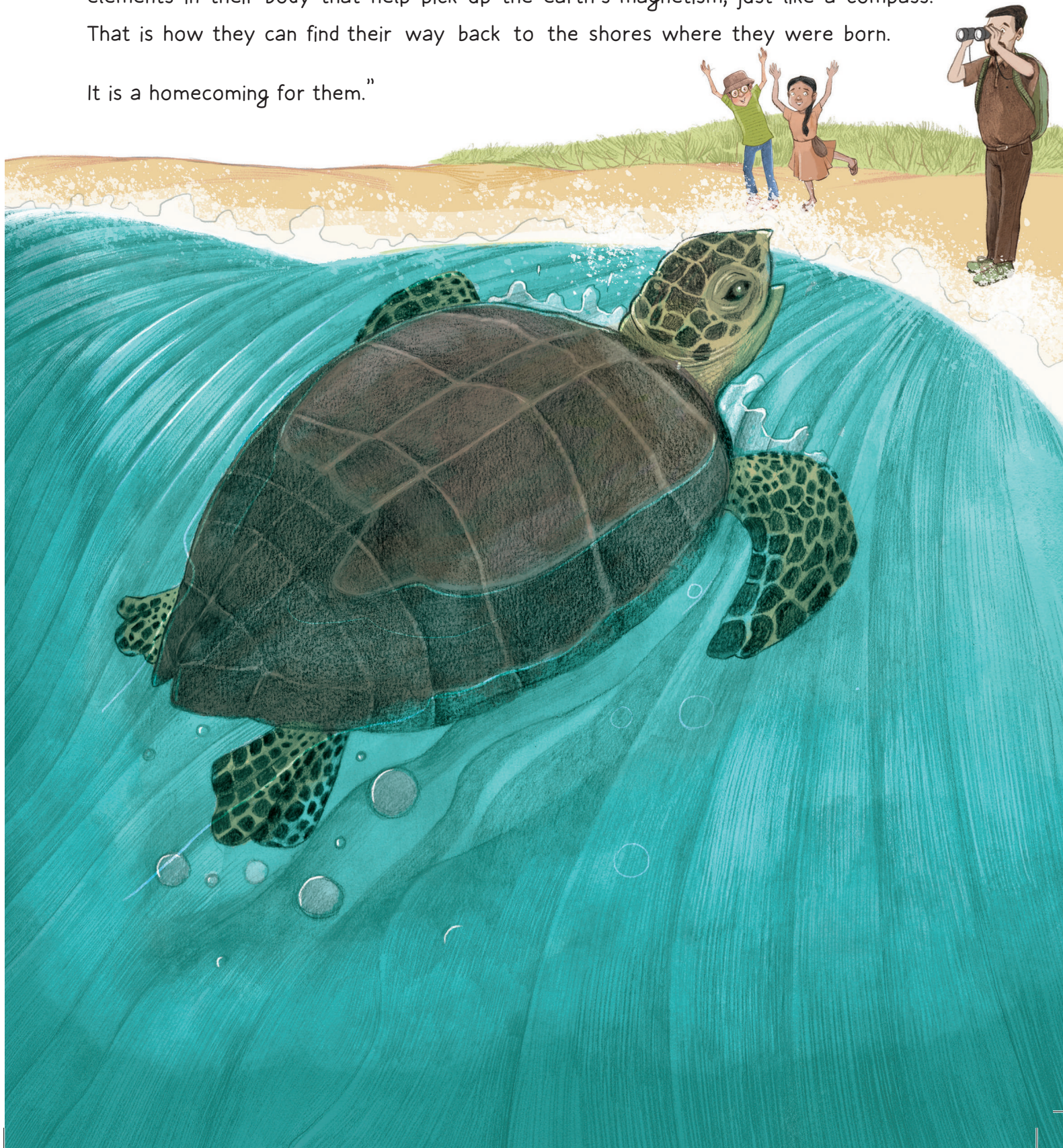


"Oh yes! At least 100,000 turtles have arrived in the last two days. They have dug their nest holes and laid their eggs all over the area. They should come today, and maybe tomorrow as well." The foursome walked along the shore where the waves met the sand, talking among themselves, hopes held high. "How do they manage to find this very same shore each year, even though they may have swum miles away, into the ocean?" asked Jehan, his curiosity peaking. "They don't have a compass like the ancient mariners, or a GPS." "These turtles, they have been here on earth for many years," replied Runu, trying her best to sound worldly wise.



"They are very clever. They can easily find their way." Mr. Shapur came up with a more rational explanation. "You are right, Runu; they are one of the very ancient denizens of our planet." But the process at play here is that they have magnetic elements in their body that help pick up the earth's magnetism, just like a compass. That is how they can find their way back to the shores where they were born.

It is a homecoming for them."





Time rolled on as they chatted, and soon it was lunch time. On the way they had their packed lunch of *luchi* and *dahi begun* (brinjal with curd) and some prawn pickle. But their tummies now grumbled. Maybe not from hunger, but from anticipation. Their eyes kept scouring the sea all the time. Hope gave way to disappointment. "I guess they have decided not to come today," Jehan announced, sounding very disheartened. "Maybe we should come again tomo-.... Hey! L-Look! I can see its dome-shaped shell bobbing in the waves.

It's an Olive Ridley Turtle, it's coming, it's coming!"

Both Jehan and Runu began dancing a jig, clapping their hands. Mr. Shapur and Pritesh kept their eyes glued to their binocs. The seashore protection squad crept closer to the water. The turtle left the waves and stepped onto the sand. It took a moment to get its bearings, then began the long crawl up the shore, using its flippers. "Welcome, welcome!" uttered Runu with undisguised excitement. Just then, another head bobbed out of the waves—and another, and another.... Many more turtles approached. It was like an army marching towards them. They lost count. The turtles headed up the shore beyond the high tide line, where it would be safest for their eggs. However, they found crawling along the sand very laborious as they had to drag their flippers through the sand. These same flippers, which helped them swim so expertly in the ocean, were quite inefficient on the sand. Every now and then, they would stop to catch their breath "So much trouble these mother turtles are taking to give birth to their babies," remarked Runu.. "It's all the labour of a mother's love," said Jehan.

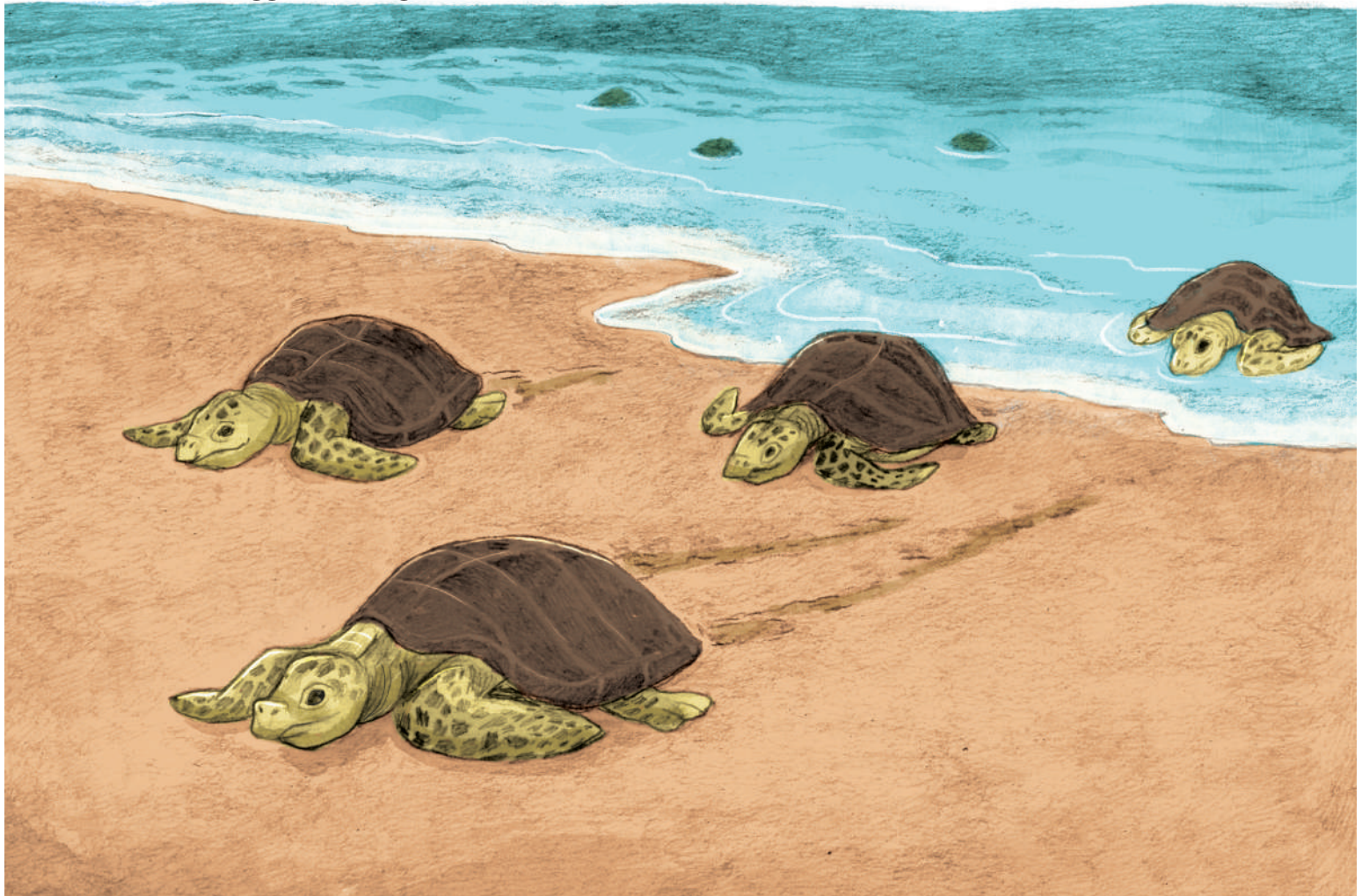


"That's very true, and wise words indeed, son!" said Mr. Shapur, patting his son proudly. After they found a satisfactory spot, the turtles used their hind flippers to dig a hole. Some of them came across already laid eggs, left there by the earlier Olive Ridleys. The four of them were most amused to see them toss away these eggs and begin laying their own globular eggs in their place!



Above them, the seagulls and white-bellied sea eagles were circling about, awaiting their chance to grab an egg or two. By now, more of the forest staff had joined the earlier squad to help the turtles with safe and uninterrupted egg-laying. They kept brandishing broken branches, twigs, and bunches of leaves at the birds to keep them at bay.

"They can cordon off this area from the wild four-legged thieves, but they can't stop the two-legged feathered intruders from the sky from entering it," remarked Mr. Shapur. The children counted the number of eggs laid by some of the turtles. The number ranged from 150 to 200. After the egg-laying, the turtles used their front flippers to fill the nest holes with sand. They went to great lengths to pat down the earth within a radius of three feet all around to cover up their tracks. They even gave the final touch of covering the spot with some vegetation, which they pulled from nearby. "Wow! Aren't they clever?" proclaimed Jehan. "They don't want anyone to suspect their precious eggs are lying inside."





By the time the egg-laying ceremony was over, the tide was rising again. The sun had set, and the evening was drawing in. The turtles began heading for their watery world, the sea, once again. The four of them watched these gentle creatures riding the waves until they appeared as mere specks and finally vanished.

It was time for them to head home too. They bid goodbye to the forest officials on the beach. With so many turtle nests, these officials had to keep vigil and do round-the-clock duty until all the eggs hatched and the hatchlings reached the sea. All four of them were extremely satisfied with the day's sightings and chatted spiritedly as the boat ferried them back. Jehan and Runu just couldn't stop talking. "With so many turtles coming here, and each of them laying so many eggs, surely the turtle population is going to rise," said Jehan.

"Unfortunately, that is not the case," Pritesh told him. "Not all the eggs hatch successfully. Moreover, out of every thousand hatchlings that make it to the sea, only few survive and grow into an adult." "That means many of the baby turtles are eaten up by the other creatures in the sea," added Runu. "After all the trouble the mother turtle takes, so few survive." Jehan sighed. "Besides," added Pritesh. "Pollution in the seas and climate change, too, is taking a toll on them. It is also believed that the gender of the hatchling in a clutch is determined by the temperature. This is being studied further."





"So, owing to global warming, more of the turtles may be born as females than males. Plus higher temperatures of water and sand may eventually mean less hatchlings altogether," added Mr. Shapur. "Now I know why the Bhitarkanika forest department is being so strict about anybody visiting the place during their nesting," Runu had the last word as they stepped out of the boat and got into the waiting jeep.

. . . Goodbye dear turtle, we wish you well

As you swim across oceans, we wish you good health

With open arms we'll welcome you again.

May your tribe increase, may you lay more eggs,

Wishing you luck, as you ride these waves,

Goodbye dear turtle, do come here again . . .



DID YOU KNOW?

Of late, turtles all over the world have been victims to the huge amount of plastic pollution in the ocean. They often mistake plastic bags for jellyfish, their food, and choke on them. Sometimes they get injured by the propellers of huge fishing trawlers. At other times they get entangled in ghost nets (old fishing nets that are discarded in the sea). To save turtle and other animals of the ocean, let us pledge to remove, reduce and reuse plastic in our lives.



The Winged Visitors

For Jehan and Mr. Shapur, the past week had flown by swifter than a peregrine falcon. And yet, it was packed with so many adventures and different events. They had got to see innumerable landscapes, rich with biodiversity. What's more, they got to witness firsthand the people's way of life in these world-famous mangroves of Bhitarkanika. "*My report will take up volumes,*" thought Mr. Shapur.

Their stay in Bhitarkanika, however, was drawing to an end. Jehan's school would be reopening soon. When Mr. Shapur broke the news to Jehan, he felt his bubble of fun and adventure had burst. Black clouds of gloom seemed to descend upon him. "Only two days left for us to return. How can I leave my best friend Runu?", he blurted out. "I have learnt so much this past week; I wouldn't learn half of that in school textbooks even if I studied for six months! Can't we call Mumma over here and spend another month in this place?"

"Mumma won't get leave from her work, Jehan, not at this time of the year. You know that. And even Runu's school will be reopening soon. I promise we will all return soon. With Mumma, during your next vacation." The thought of returning here dissipated some clouds of gloom. "Now tell me, where would you like to go tomorrow?"

Pritesh, who had been listening to the duo all the while, intervened. "What about the heronry? The winter birds have begun arriving here in thousands. All the way from Siberia, Eastern Europe, and even China. It is quite a sight—more than one lakh birds flock here. Flying across thousands of miles for refuge from the bitter winter in their home grounds: Indian Skimmers, Grey Pelicans, Lesser Adjutants, Black-tailed Godwits, Oriental Darters, Northern Pintails, Black-necked Storks, to name a few."



Jehan brightened up at the prospect of visiting the heronry. "Do they come here to Kendrapara because they get lots of fish and seafood to eat?"

"On spot!" Mr. Shapur patted his little genius. Thus, once again, the four of them were being ferried, this time, to one of the heronries. "Tourists, naturalists, and birders, all flock here each winter just to photograph and admire these birds," Pritesh told them.

"Isn't there another migration during the monsoons?" asked Runu. "Baba says that the Black Ibis, Cormorants, Grey Herons, Egrets, Purple Herons and many more birds come here for nesting during the rainy season. The ideal climate and ample food draw them here."

"That's true," replied Pritesh. "However, since so many of these feathered visitors flock to one place, they can form easy prey to poachers "Even though there are strict laws against wildlife trade?" asked Runu.

"Unfortunately, yes, it still happens on the sly in parts of the country" Pritesh sighed. "Of course, like everywhere else, here in Kendrapara too, the forest department has stepped up its vigil and is keeping a strict watch on poaching."

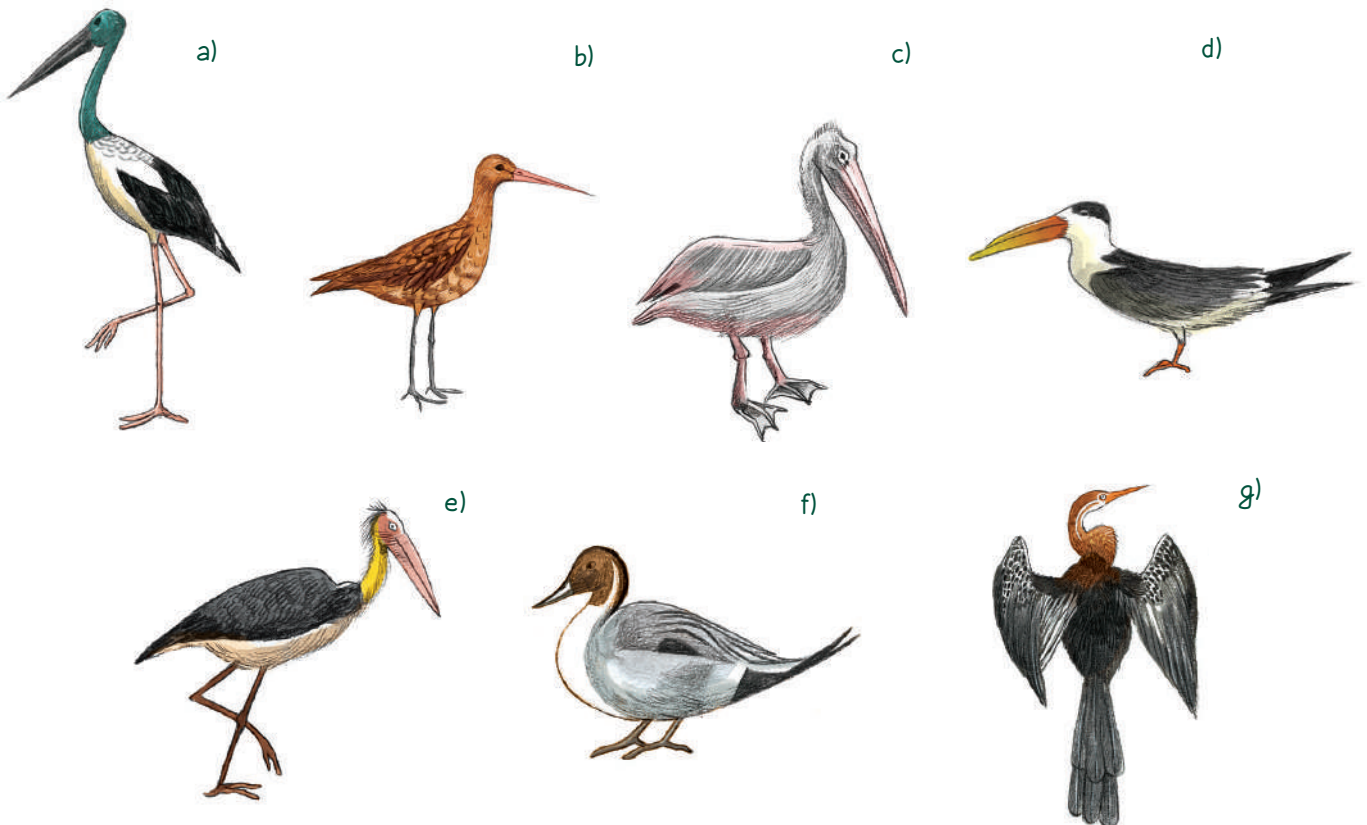




THE BIRDING GAME - I

Now here is something for you, dear reader. Match the winter birds that the group saw when they visited the heronry with their names. Here are some clues:

- **Indian Skimmer:** Black Cap, yellow-tipped orange bill. The lower mandible of the beak is longer than the upper mandible.
- **Grey Pelican:** A grey crest on its head. Beak extremely large. Like all pelicans, the lower mandible can extend into a huge pouch when it scoops up fish
- **Lesser Adjutant:** Stork-like bird having a bare head and neck
- **Oriental Darter:** It has a long, slender beak and neck which makes it look snake-like
- **Northern Pintail:** Ducks that have a long neck and a long, pointed tail
- **Black-tailed Godwit:** Have a black and white stripe on each wing and a black and white tail
- **Black-necked Stork:** Tall birds with a black head and neck with an iridescent greenish sheen



ANSWERS:

d) Indian Skimmer

g) Oriental Darter

c) Grey Pelican

f) Northern Pintail

b) Black-tailed Godwit

e) Lesser Adjutant

a) Black-necked Stork



How many of your answers were correct?

All 7? Then you are an ace birder!

4 correct answers? Then you are on your way to becoming a good birder!

Less than 4 correct? Not to worry! Maybe you will be better at identifying the *monsoon migrants* of Kendrapara who come here for nesting?

THE BIRDING GAME - II

Can you identify these *monsoon birds* using the clues?

- **Red-naped Ibis:** It has a black head with a red patch, and like all ibises, has a downward-curving beak
- **Cormorant:** Black feathers all over, with long, hooked beaks.
- **Egret:** White feathers all over. Long, dagger-like beaks and long, slender necks that curve
- **Purple Heron:** Large purple-feathered, slender bird with a rusty head and a streaky neck



ANSWERS:

a) Egret b) Black Ibis c) Purple Heron d) Cormorant

These were easy, weren't they? You must have identified all of them correctly without doubt!



That evening, yet another adventure awaited them while they drove back home in the jeep. The driver's headlights caught a movement in the middle of the pathway, and he screeched to a halt. "It's a snake—a cobra!" Runu exclaimed. "It's so very long!" cried Jehan. "Is it a King Cobra?" "Yes indeed," cried Mr. Shapur, just as excited. It is a King Cobra. It must be at least 10 feet long." They watched as the snake slithered ever so smoothly right across their path. And then coiled around a pile of fallen leaves by the wayside. Pritesh's eyes widened.



"You know what? That is no ordinary pile of leaves. It's the snake's nest!" "You mean that pile..." began Jehan, and Runu interrupted him. "Yes, yes, King Cobras are the only snakes that make their own nest," added Runu. The snake raised his upper body, fanned out its large hood and began flicking its long tongue as a warning. "Better hurry if you want to click pictures," said Pritesh. "We shouldn't wait here so close to its nest for long. The mother snake can be very aggressive. And King Cobras are highly venomous."

While they drove on after having had their fill of clicking pictures, Pritesh regaled them with a story. "Years back, some people would capture King Cobras and travel from village to village, They claimed they had medicinal products extracted from the cobras and anti-venom against the snake's bite. To prove their fearlessness and to impress the people, they would tear open the cobra's mouth and remove their venom glands. This was how they earned money, by playing upon people's gullibility." "The story gives me goosebumps. I hope they have stopped this practice now?" asked Jehan. "Now the forest department has laid down very strict rules against capturing or killing any form of wildlife in these jungles," informed Runu assertively. "Do you know they can be arrested for such activities now?" "Thank goodness for that. This mangrove jungle, along with its denizens, deserves to live and thrive forever," concluded Jehan. And thus, another exciting day came to an end.





Back at the Forest Guest House, after a good dinner, Jehan crashed onto his bed. "My dream vacation is almost over. Tomorrow will be our last day," he yawned, instantly falling into a deep slumber.

Here they come, our winged visitors,

To escape the severe, bitter winters

In thousands they arrive, making a ruckus

Here in these wetlands, delighting all of us

There's plenty of food, the climate's just right

They come here to congregate after miles of flight

O what a breathtakingly beautiful sight!



DID YOU KNOW?

The venom of the King Cobra is so powerful that even an animal as massive as an elephant could die if bitten by it. Different kinds of snakes are present in various parts of the country; many of these are not venomous.

However, if ever bitten by a snake, make sure to hurry to the nearest health centre! If you ever come across a snake near your home or school, you should always inform the nearest forest department! Ask your schools and family members to find out about the snake rescue and snake bite helpline of the area.



Harmony and Farewell

The next day Jehan awoke with mixed feelings. He felt glum as it was their last day in Kendrapara with Runu. They were to leave the place late in the afternoon. But he also wanted to be back with his Mumma and school friends. In the morning, Mr. Shapur decided to talk to the people of Runu's village and learn first-hand their thoughts about crocodiles and their mangrove environment. He had to come up with solutions that would help the people live in harmony with the crocodiles. Not only was that a part of the work delegated to him by the government, but he was also very keen to help these people born and brought up here in such a unique jungle environment. Mr. Shapur's sincere initiative sent a wave of excitement in the entire village. It was their visitors' last day. All of them came along. Some who didn't mind foregoing their field work or their fishing for the day, others who sacrificed their household chores, the wise and aged who had many stories to tell, the young children, the school teachers, everyone. They gathered around Runu's house, in the shade of the many trees. The villagers got together to share tea and *tekar guda pitha* (*moong daal* pancakes).

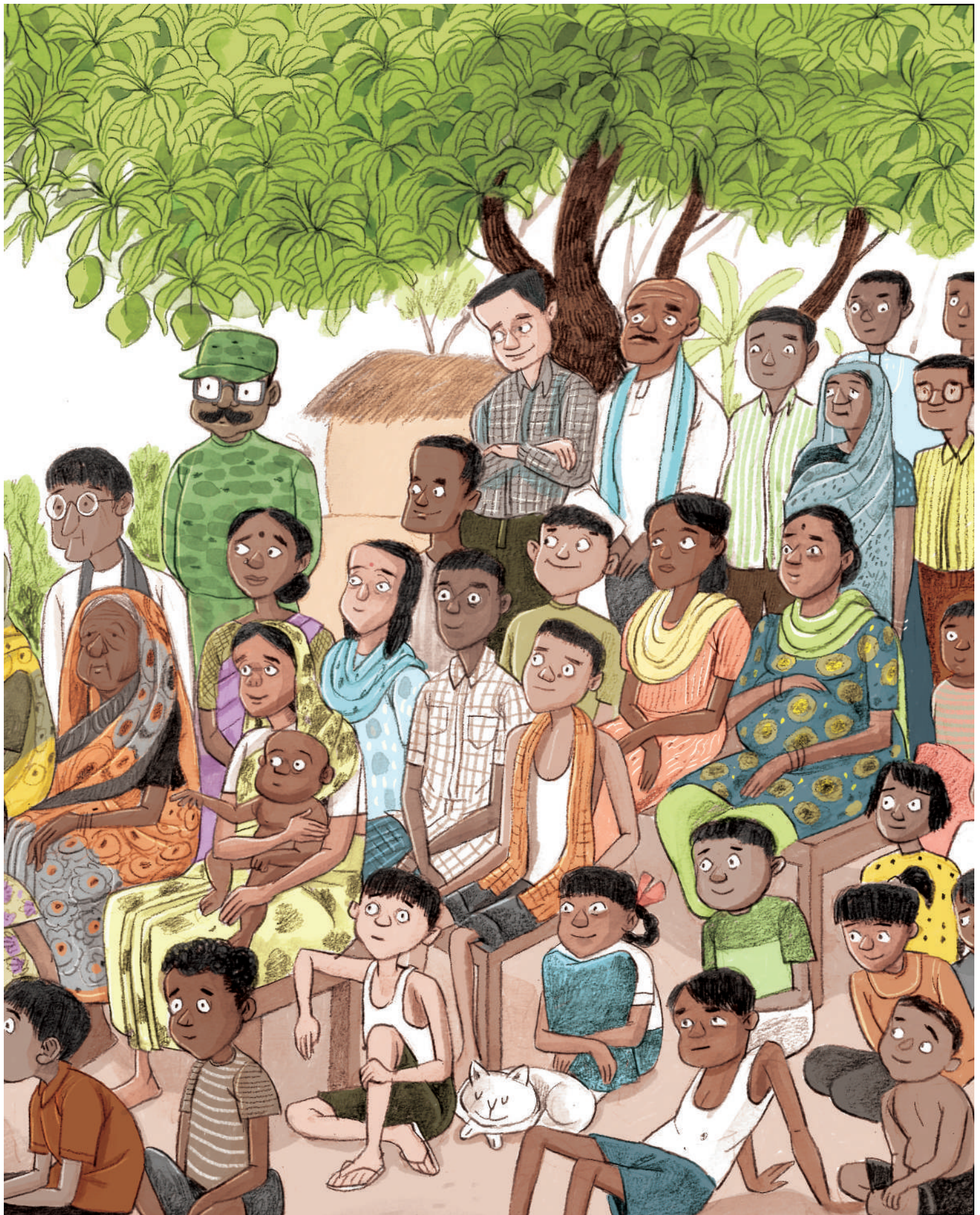
Jehan and Mr. Shapur were touched by this generosity of the people and the feeling of community around them. Runu, feeling very important, sat beside Mr. Shapur and Pritesh, as if she too was going to address the crowd. Jehan sat in the very front row, along with the other villagers. After everyone had eaten breakfast and had tea, they exchanged greetings with light-heartedness and camaraderie, and Mr. Shapur began the discussion, which was of grave importance. He intended to note all their problems and provide solutions wherever he could. The meeting began with some villagers telling Mr. Shapur how deadly the Saltwater Crocodiles could be.



A ninety-six-year-old man, who everyone addressed as Jeje Baba, narrated a story told to him by his father. It was about a legendary crocodile called *Kalia*, or “the dark one” who was the largest Saltwater Crocodile ever known to them. *Kalia* was believed to be a man-eating crocodile haunting the region for fifty years. He was finally killed by the famous hunter prince, Rajendra Bhanjadeo, in 1926; 97 years ago. Many years after this monstrous crocodile’s demise, Romulus Whitaker, the famous “crocodile man of India”, measured his skull, which had been preserved. From its massive size, Romulus assumed that *Kalia* himself must have been at least 25 feet long! On hearing this story, Jehan was dumbstruck.

“That means this old man was born in the same year as Kalia died,” he observed.







"The crocodile attacks are not as many as they were back then," someone else remarked matter-of-factly. "Years ago, crocodiles used to be poached for their skin which people sold for a lot of money. But when the forest department realised that their numbers were dwindling because of this, they became very strict." "*Haan, haan,*" said another villager very agitatedly. "They laid down new laws. Crocodile hunting or poaching became a punishable offence." "So, people stopped poaching and hunting them, thanks to the forest department's actions, and now their numbers are increasing once again!" piped in Runu. "But in future, if we all forget to be careful, it could mean more attacks "

"What this girl says is very true," Pritesh told the crowd. This made Runu feel even more important. "I'm happy these people do not resent crocodiles even though their families may have been put at danger's edge." Mr. Shapur murmured softly in Pritesh's ear. "They and their forefathers have always lived with crocodiles," Pritesh replied. "It's a way of life for them. Besides, they respect the crocodiles and know that they are very much needed to keep the web of life intact." Someone in the crowd mentioned that he had lost his family members, but instead of being bitter about it, he justified the crocodile's attacks. "It was out of self-defence," he told Mr. Shapur. "My *mausa* (uncle) and his fifteen-year-old son ventured to go fishing too close to where the crocodiles were. They shouldn't have done that. One of them was probably a mother crocodile who had just laid her eggs; we don't know." "But hasn't the forest department banned people from venturing into the crocodile zones?" asked Mr. Shapur. "The forest department has implemented many restrictions for the people's own safety," Pritesh told Mr. Shapur. "We even put up posters from time to time, warning the people of the danger." "Then why do you people visit these parts?" Mr. Shapur shot this question to the crowd.





There was silence for some minutes, with everyone looking at each other. Then one of them spoke up, "We greatly respect the forest department's rules. We realise they are concerned for our safety. But..." "But what?" Mr. Shapur asked. "The truth is that we need to capture more fish and sometimes, there may not be enough in the parts open to us. What do we eat and what do we sell in the market to earn then?" a young villager dared to speak.

"And even the crocodiles feel their territories are shrinking, now that there are so many of them," said someone else, gaining courage. "This means there is less food available to them, compelling them to go beyond their territories and come across humans. Although the forest department has placed fences around crocodile territory, in some places, they can venture out." "What's more," said an elderly soft-spoken villager, "with the construction of dams in the river upstream, fish movement may get blocked, which means less food for crocodiles. Bit by bit, the problems people faced were brought to the forefront. "Hmmm, if this trend gains momentum and the number of attacks by crocodiles increases, it can lead to an ugly situation," Mr. Shapur uttered. "People will then definitely resent them, and there can be a lot of conflicts." After giving ear to many more similar stories from the villagers, Mr. Shapur assured them that he would request the government to ensure that the crocodiles are well barricaded with strong fences that do not give way and that the people continue to earn their bread and butter by sustainable ways. Moreover, if there are any crocodile attacks on people who happen to be in the free zones which are not banned, they or their families would be compensated adequately.

"While this is already done", Pritesh added, "the forest department will come again and take up each concern together with you all. Further, it may be useful to consider activities like backyard fish ponds so that livelihoods can be safely resumed." He assured them that officers from concerned departments will work out a plan with them and he too would meet and tell him what he observed. On this hopeful note, the meeting ended, and the people dispersed. Many of them came up to Mr. Shapur and Pritesh with folded palms to express their gratitude for taking up their cause and patted Runu's head fondly.



But Mr. Shapur felt he still had to do a lot more thinking and come up with some sound solutions to help the people, while ensuring that the pride of Bhitarkanika, the mangroves and the Saltwater crocodiles, continued to thrive. After the villagers left with hope in their hearts, Mr. Shapur, Jehan and Pritesh stayed on in Runu's house, and continued brainstorming over the complex problems faced by the people in the land of crocodiles. Runu's Baba and Maa churned up a lip-smacking lunch of *Pakhala Bhata* (rice, curd and cucumber, garnished with spices) and fried fish for them.

"What if we put up new posters in the danger zones to remind the people to keep their distance?" began Jehan brightly. "Posters help for some time definitely, while the novelty of their appearance all over the place lasts," said Pritesh. "But something more needs to be done." "What if the forest officials go about from time to time, reminding people through loudspeakers to take care?" Runu came up with this solution. "That is a brilliant idea," remarked Mr. Shapur. "Must make a note of it." "And these announcements could be more frequent during the mating and breeding season of the crocodiles—between March and June. That is when they tend to be more aggressive," added Pritesh. "How about the children of the area create a play about the wonderful things of Bhitarkanika asking everyone to take care of and protect them?", added Jehan. Runu was excited about this idea, "I will ask my teacher to help us perform this play in the next school function."

At last, the group was charged with several new ideas that Mr. Shapur would put forth to the government to ensure that people and crocodiles could live together in harmony. Jehan and Mr. Shapur got into the jeep waiting outside with their baggage. Runu ran after the jeep waving away.

"I will wait for you next summer vacation!" she yelled as the jeep slowly vanished into oblivion.

Jehan waved back, already planning his next visit to the mysterious mangroves of Bhitarkanika.





... People, and crocodiles sharing their home, with the birds, beasts, fish and bees.

Competitions a-few quarrels a-few, amongst this family, are bound to be.







Together, they face the changing world, and teach us how to live in harmony...














Many animals and birds appear in the book. We have listed some of them here. Mark the ones you have seen!

		Common names (English)	Find and fill their local names and other interesting facts here!
1		Red-naped Ibis	
2		Black-Capped Kingfisher	
3		Black-necked Stork	
4		Black-tailed Godwit	
5		Brown-winged Kingfisher	
6		Collared Kingfisher	

Tear along the dotted line to take this checklist with you to the field!










7		Common Kingfisher	
8		Cormorants	
9		Egrets	
10		Grey Pelican	
11		Indian Skimmer	
12		Lesser Adjutant	
13		Pied Kingfisher	

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14		Mangrove Pitta	
15		Northern Pintails	
16		Oriental Darters	
17		Purple Heron	
18		Saltwater Crocodile	
19		Stork-billed Kingfisher	
20		White-throated Kingfisher	



Other birds, animals, and plants:		
	Common names (English)	Find and fill their local names and other interesting facts here!
1	Chital	
2	Civet	
3	Collared Scops-Owl	
4	Fiddler Crab	
5	Grey Heron	
6	Grey Mangrove	
7	Jackal	
8	King Cobra	
9	Monitor Lizard	
10	Mongoose	
11	Mud Crab	
12	Mudskipper	
13	Nightjar	
14	Olive Ridley Turtle	
15	Pandanus tree	
16	Red Mangrove	
17	Sal tree	
18	Sundari tree	
19	White-bellied Sea Eagle	

Tear along the dotted line to take this checklist with you to the field!



Spend some time reflecting on what you read about the mangroves of Bhitarkanika and its various inhabitants. Do you have some ideas about how you can help protect them? Have you visited Bhitarkanika? Did you see any interesting birds or animals or trees that fascinated you? List your thoughts here!!





